Job Satisfaction of Nurses in Jamaica

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Dedication

This dissertation is dedicated to all the nurses around the globe who consistently show up every day to deliver care to patients and their family. Listening to those who provide direct care each day they go to work inspires me to do what I can to help uncover the social and technical dimensions that create a satisfying job for them. It is hoped this dissertation and associated generated knowledge will assist with making the work environment more conducive and enjoyable for delivering patient care.

Abstract

Background: No model of nurse job satisfaction was found in the literature that had been empirically tested in Jamaica or surrounding countries in the Caribbean.

Objective: The objective of this study was to test an instrument of nurse job satisfaction in Jamaica and use results to improve nurse job satisfaction at the unit level and refine efficiency of care delivery across the hospital.

Methods: Convenience sampling was used to gather data in a 579-bed urban hospital in Southeast Jamaica regarding nurse job satisfaction, nurses' clarity of self, role and system, and demographics. Parceling of data was used in a confirmatory factor analysis (CFA) to test an 11-factor construct of nurse job satisfaction. Hierarchical regression was used to examine explained variance of nurse job satisfaction.

Results: Complete surveys from 82 nurses (14% response rate) revealed good model fit for all 11 dimensions, including four social factors (satisfaction with relationship with coworkers, relationship with the patient, relationship with unit/ward manager, and relationship with physicians) and seven technical dimensions (satisfaction with resources, autonomy, staffing/scheduling, professional growth, executive leadership, distributive justice, and workload). Results revealed adequate fit, RMSEA .08, CFI .90, and SRMR .07. Path coefficients ranged from .35 to .72 ($p = < .001$ for all coefficients). The best fitting model for predicting nurse job satisfaction included service line ($R = .475$, $R^2 = .226$, $F\ (7,74) = 3.078$, $p = .007$), and clarity of role ($R = .543$, $R^2 = .295$, $F\ (1,73) = 7.192$, $p = .009$). Combined, both predictors explained 29.5% of the variance of nurse job satisfaction.

Discussion: Data was presented to staff and management to understand the 11 dimensions of nurse job satisfaction in this sample in Jamaica. Results were presented at the aggregate hospital and unit level. Staff and management are currently using the results to make changes at the unit level, using the data to guide planning. This study met the objective to empirically develop, test, and use a model of nurse job satisfaction in Jamaica.

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Chapter 1: Introduction

Research in nurse job satisfaction remains underdeveloped when compared to other disciplines (Moumtzoglou, 2010; Murrells, Robinson, & Griffiths, 2009). Nurse job satisfaction is poorly defined (Hayes, Bonner, & Pryor, 2010) and there are a lack of adequate instruments to measure nurse job satisfaction (Flint, Farrugia, Courtney, & Webster, 2010; Rochefort & Clarke, 2010). Commonly used instruments are old and/or unstable (Choi, Bakken, Larson, Du, & Stone, 2004; Cummings, Hayduk, & Estabrooks, 2006; Fillion, Duval, Dumont, Gagnon, Tremblay, Bairati, et al., 2009; Kramer & Schmalenberg, 2004; Lynn, Morgan, & Moore, 2009; McCusker, Dendukuri, Cardinal, Laplante, & Bambonye, 2004; Parker, Tuckett, Eley, & Hegney, 2010; Rochefort & Clarke, 2010; Slater & McCormack, 2007; Stone, Larson, Mooney-Kane, Smolowitz, Lin, & Dick, 2006), insufficient in scope (Djukic, Kovner, Budin, & Norman, 2010; Kalisch, Tschanen, & Lee, 2011; Malloy & Penprase, 2010; Rafferty, Clarke, Coles, Ball, James, McKee, et al., 2007; Seago, Spetz, Ash, Herrera, & Keane, 2011; Sveinsdóttir, 2006), or too long for respondents to complete (Fairbrother, Jones, & Rivas, 2010). These measurement issues have resulted in many investigators creating their own instruments to measure nurse job satisfaction with little attention paid to adequate construct validity (Fairbrother et al., 2010; Lynne et al., 2009; Stone et al., 2006). Findings from contemporary studies of nurse job satisfaction have been used by nurse managers to improve the work environment for which they are responsible (Chan, Leong, Luk, Yeung, & Van, 2009; Kotzer, Koepping, & LeDuc, 2006; Mininel & Felli, 2008; Utriainen & Kyngäs, 2009). However, considering the identified measurement issues, the findings used to refine their respective work environments are tentative at best.

Nurse job satisfaction is defined as “a multidimensional construct consisting of elements essential to personal fulfillment in one’s job” (Shader, Broome, M., Broome, C., West, & Nash, 2001, p. 212). This multidimensional perspective underlies this proposed research effort. This study will examine the multidimensional construct of nurse job satisfaction defined by a theoretical framework, specifically sociotechnical systems theory (STS). This study will also identify demographic variables that are positively and negatively related to the various dimensions of nurse job satisfaction.

Importance of Nurse Job Satisfaction

Understanding how to improve job satisfaction as an outcome is important as it relates to employee health (Cass, Siu, Paragher, & Cooper, 2003), productivity (Judge, Thoresen, Bono, & Patton, 2001), and job performance (Whitman, Van Rooy, & Viswesvaran, 2010). Job satisfaction is also linked to customer satisfaction, organizational withdrawal behaviors of employees, and organization citizenship behaviors (Whitman et al., 2010).

Understanding nurse job satisfaction is especially important where there is a shortage of nurses created by high turnover. Countries with nurse emigration rates that exceed nurse recruitment rates are in special need as shortages of nurses impact the quality of healthcare (Kurowski, Murakami, Ono, Shors, Vujicie, & Zolfaghari, 2009). This is currently occurring in the Caribbean Community (CARICOM) countries, which is a coalition of 15 Caribbean countries including Jamaica (Kurowski et al.). Emigration was primarily driven by comparatively low pay. However, job satisfaction also played a role and is a specific strategy that needs to be researched in order to retain nurses (Kurowski et al.). This study provides insights into what the dimensions are for nurse job

satisfaction. Results from this study can be used to develop action plans targeted at dimensions of nurse job satisfaction and subsequent retention.

Job satisfaction specific to nurses has been extensively linked with their intent to stay in an organization (Mrayyan, 2007), decreased absenteeism from work, (Davey, Cummings, Newburn-Cook, & Lo, 2009; Josephson, Lindberg, Voss, Alfredsson, & Vinga, 2008), and retention (Josephson et al., 2008; Ritter, 2011). Job satisfaction is negatively associated with "burnout", defined as a "defensive response to prolonged occupational exposure to demanding interpersonal situations that produce psychological strain and provide inadequate support" (Jenkins & Baird, 2002, p. 424) and positively associated with nurses' perceived organizational support and satisfaction with being a nurse (Kwak, Chung, Xu, & Eun-Jung, 2010). Job satisfaction is also found to positively impact nurses' assessments of quality of care (Kramer, Maguire, & Brewer, 2011; Purdy, Spence Laschinger, Finegan, Kerr, & Olivera, 2010). Job satisfaction has been proposed by several authors to improve outcomes, and thus has become a focus of study in nursing processes and quality of care. Outcomes proposed to be a result of improved nurse job satisfaction included reduced turnover (AbuAlRub, Omari, & Al-Zaru, 2009), decreased burnout (Abushaikha & Saca-Hazboun, 2009), and decreased costs associated with orienting new nurses secondary to high turnover (Anderson, Linden, Allen, & Gibbs, 2009).

Job Satisfaction as a Multidimensional Construct

Nurse job satisfaction is a complex and dynamic construct (Hayes et al., 2010; Stamps, 1997). Comprehensive measurement of nurse job satisfaction as an outcome is important when determining antecedents or correlates of job satisfaction. Poor

articulation of multiple dimensions of job satisfaction as an outcome is perhaps in part due to prior research not using theoretical or conceptual frameworks adequate for or appropriate to the profession of nursing. According to Hackman and Oldham (1980), job satisfaction is dependent on the appropriate structuring of individual and group processes as well as the context of the organization. Thus, clarity of self-concept (individual), role (group processes), and system (context of organization) should be examined in relation to the multidimensionality of job satisfaction as an outcome. Unfortunately, prior research has generally failed to incorporate theoretical or conceptual frameworks to fully determine those indicators that are most likely to influence job satisfaction for nurses in diverse health care settings.

Instruments for Nurse Job Satisfaction

Examination of 908 research articles on nurse job satisfaction from 2006 to July, 2011 revealed 151 studies that reported measurement of job satisfaction of staff nurses. Among these there were 55 different instruments used to measure nurse job satisfaction. Three were duplicate studies and four reviewed measurement but were literature views of measures for job satisfaction. Removal of these seven articles resulted in 143 unique articles addressing measurement of job satisfaction. The most commonly used instruments were the Index of Work Satisfaction (n = 17), Minnesota Satisfaction Questionnaire (n = 10), and Mueller/McCloskey Satisfaction Scale (n = 9). There were also 11 studies that created unique measures of nurse job satisfaction. In addition, there were six studies that used a single item to measure job satisfaction of nurses. The remainder of the 151 studies used 34 additional instruments to examine job satisfaction of

nurses. The findings suggest that even within the discipline of nursing there is a lack of measurement consistency.

The most extensively used job satisfaction measurement tool for nurses is the Index of Work Satisfaction (IWS), developed by Stamps and Piedmonte (1986). The IWS was the first widely-used instrument for nurse job satisfaction and continues to be widely used today. It measures six constructs of job satisfaction, including nurses' satisfaction with pay, professional status, relationship with coworkers, relationship with physicians, autonomy, and policies. The primary weakness of the IWS is the age of the tool (Lynn et al., 2009) and low Chronbach's alpha for certain subscales (Giallonardo, Wong, & Iwasiw, 2010; Karanikola, Papathanassoglou, Giannakopoulou, & Koutroubas, 2007; Matos, Neushotz, Griffin, & Fitzpatrick, 2010).

The Minnesota Satisfaction Questionnaire has also been widely used to measure nurse job satisfaction. It is a 20-item instrument that measures intrinsic (11 items) and extrinsic (9 items) concepts of job satisfaction. This is an instrument that is used across professions, including nursing, and has adequate reliability. However, without measuring the core clinical component of nurses (i.e., aspects of patient care), it is questionable how valid this tool is for measuring job satisfaction of nurses.

A Conceptual Framework of Job Satisfaction

The weakness of the current state of research in nurse job satisfaction is the lack of theoretical or conceptual models pertinent to nursing that measure self-concept, role, and systems as correlates of job satisfaction as a multidimensional outcome. Sociotechnical Systems (STS) theory is proposed as an underlying theory for the development of a conceptual model that will include measurements of these dimensions

when considering job satisfaction of nurses. STS theory and, by extension, this study's conceptual model, will emphasize the need of the employee to have clarity in who they are as a person, within their role, and within the system. A person who is clear in their own self-concept is more likely to be able to decipher what their personal needs are and what their needs are in relation to their professional role. A nurse who is clear in his or her role is more likely to know what is and is not missing in his or her operations to execute that role. Finally, a nurse who is clear in the system will be more successful in negotiating his or her needs in performing that role. Thus, the nurse who is clear with self-concept, role, and system will be most efficient is securing and refining the social and technical dimensions of his or her job. Critical to STS is the inclusion of an individual nurse and management working together to create a job that is productive and satisfying, both relationally and technically.

Bohen (1981) describes STS as follows: "*STS state is defined by the following attributes: Values and objectives, structure, the act of roles and relationships among STS members, equipment and technologies, processes, personnel specific skills and training*" (emphasis added, p. 27). This definition sets the stage for the conceptual model of this study, with a need for the employee him/herself to pursue the creation of a work environment that will satisfy the multiple "attributes" (dimensions) of a work environment that are functional and satisfying for the execution of one's job. The problem with current conceptual models is that job satisfaction, as an outcome, is not measured as a multidimensional latent construct, as an outcome of some predictors of nurse job satisfaction. This model proposes that nurses' clarity of self, role, and system is essential to advocate the creation of a job that is not only productive, but satisfying

socially and technically. The employee, in existing models, is not considered as the key source for creating his or her own satisfying job by being clear about the self, which includes personal talents and abilities, understanding of his or her professional role, and using existing systems to develop systems that effectively execute a job. The multidimensional outcome of job satisfaction within the conceptual model for this study includes both social and technical dimensions and proposes that the nurse is the critical source for pursuing and establishing individual needs and subsequent job satisfaction.

Happ (1993) provided a definition for social and technical dimensions of the work environment of clinical care nurses. Social dimensions include professional practice, management structures, and culture (norms and customs) of the work team on a patient care unit (Happ). The technological dimensions include “biotechnical equipment and therapeutics as well as how the work is performed, i.e., policies, procedures, and protocols” (Happ, p. 51). Happ’s provision of social and technical dimensions contributes to the development of a model of nurse job satisfaction that examines how social and technical dimensions fit in the latent construct of nurse job satisfaction.

It is proposed for this study that a multidimensional construct of the latent outcome variable of nurse job satisfaction will assist with minimizing error in the identification of antecedents and correlates of job satisfaction. Diminishment of error in the measurement of job satisfaction begins with an adequate conceptual model. A model, such as the one used in this study, positions the employee, who is clear in self-concept, role, and system, as the person who is in the best position to establish a job that is satisfying and meets personal and professional needs. This is in sharp contrast to the assertion that refinement of the work environment is primarily the responsibility of the

unit/department nurse managers (Chan et al., 2009; Kotzer et al., 2006; Mininel & Felli, 2008; Utriainen & Kyngäs, 2009).

Definitions

Job Satisfaction is defined as the feeling derived from perceiving that the social and technical aspects of the work environment are sufficient to perform the job. The following section identifies the conceptual definitions of the dimensions of nurse job satisfaction. Instruments that will measure these dimensions operationally are described in detail in chapter 3, within the Methods section.

Definitions for social dimensions of nurse job satisfaction.

Satisfaction with relationships with coworkers. This is defined as nurses' satisfaction with "opportunities presented for both formal and informal social and professional contact during working hours" (Stamps & Piedmonte, 1986, p. 181). Formal interaction refers to discussion at work that relates to patient care. Informal conversation refers to discussions that are of a more social and personal nature. Professional contacts include nurses, physicians, and non-nurse/non-physician employees.

Satisfaction with engagement with management. This is defined as the employee's perceptions of how involved he or she is in organizational decision-making and how satisfied he or she is with this involvement (Alexander, Weisman, & Chase, 1982).

Satisfaction with professional patient care. This is defined as nurses' satisfaction with activities performed on behalf of a patient by care providers of the organization. This includes nurses' assessing, planning, intervening, and

evaluating care as well as collaborating with other members of the health care team (Zander, 1980).

Definitions for technical dimensions of nurse job satisfaction.

Satisfaction with autonomy. Autonomy is defined as "the amount of job-related independence, initiative, and freedom, either permitted or required in daily work activities" (Stamps & Piedmonte, 1986, p. 181).

Satisfaction with distributive justice. This is defined as the degree to which nurses are satisfied with the rewards and punishments that are meted out according to individual performance (Agho, Mueller, & Price, 1993).

Satisfaction with nursing leadership. This is defined as the degree of satisfaction nurses have with the nurse administrator's collaboration at all levels, including interdisciplinary teams, executive officers, and other stakeholders (American Nursing Credentialing Center, 2002).

Satisfaction with professional growth. This is defined as the degree to which nurses are satisfied with potential upward occupational mobility within an organization (Kacmar, Bozeman, Carlson, & Anthony, 1993).

Satisfaction with resources. This is defined as the availability and ease of access to tools, materials, and properly working equipment to accomplish a job.

Staffing and Scheduling. This is defined by T. Seymour as nurses' satisfaction with the method used to assign staff to daily work (personal communication, November, 2004).

Satisfaction with workload. This is defined as the nurse's satisfaction with the type and number of activities that are accomplished as a regular part of the job (Stamps & Piedmonte, 1986).

Predictor Variables

Three variables are proposed in this study as antecedents of nurse job satisfaction. The variables include clarity of self-concept, clarity of role, and clarity of system.

Clarity of self-concept. It is defined as "the extent to which the contents of an individual's self-concept (e.g. perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable" (Campbell, Trapnell, Heine, Katz, Lavallee, & Lehman, 1996, p. 141). Clarity of self has been reported by Blatt (2008) to be important to understanding one's own personality, which encompasses unique combination of talents and strengths. This, in turn, assists with teamwork as the individual understands where he or she excels so he or she can provide to and depend upon the team all that is needed to execute the mission of the organization (Besser & Priel, 2011).

Clarity of self has historically been examined from two perspectives: knowledge within self-concept and self-esteem. This study will focus on self-concept, which is focusing on knowledge of self. Self-concept has been shown to be stable in people with high self-esteem. It has been asserted that those with high self-esteem have clarity in who they are and what their strengths and weaknesses are (Campbell et al., 1996). This is in contrast to individuals who have low self-esteem and who do not have a consistent report of their weaknesses and strengths (Campbell et al.). Individuals who report lower self-esteem cite greater rates of negativity and perceive elements within their work

environment as beyond their control (Lee-Flynn, Pomaki, Delongis, Biesanz, & Puterman, 2011). Included in this view of negativity are feelings of irritability, fear, and feeling upset (Lee-Flynn et al.). Self-concept has been positively correlated with self-esteem (r = .61) and negatively correlated with neuroticism (-.50; Campbell et al.). Clarity of self as it relates to job satisfaction for nurses has only been proposed theoretically (Koloroutis, 2004; O'Rourke & Loos, 2011). This study will seek to test the hypothesized relationship of clarity of self and job satisfaction.

Clarity of role. It has been defined as "clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate" (Rizzo, House, & Lirtzman, 1970, pp. 155-156). Examination of role clarity and job satisfaction over one year during organizational transition revealed a statistically significant decline in job satisfaction for employees who reported poor role clarity (Gulliver, Towell, & Peck, 2003). The deterioration in role clarity was attributed to many changes of roles, including merger of roles over time to increase efficiency (Gulliver et al.). Clarity of professional role has been shown to predict job satisfaction (Cowin, Johnson, Craven, & Marsh, 2008; Gulliver et al.; Jones, Smith, & Johnston, 2005; Wickramasinghe, 2010). It is important for nurses to be able to tell the difference between needs for role and needs for self (Beebe & Frisch, 2009). When there is lack of differentiation between clarity of role and self, there is greater job burnout and less enthusiasm for work (Beebe & Frisch).

Clarity of system. The other major variable that will be considered as a correlate/predictor of job satisfaction in the present study is clarity of system. Clarity of system is defined as an employee's clear understanding of established committees,

technology, policies, and professional roles available to him or her within the organization that have been established to support the execution of his or her respective role within the organization. If an employee is clear in self and role but not clear in system, the employee may not successfully connect to the appropriate people, process, or system to meet the identified need. Information provided by administration regarding systems and change processes has been shown to be a strong predictor of job satisfaction (Korunka, Scharitzer, Carayons, & Sainfort, 2003).

Employees have different needs in accessing and using information, thus different types of information are required to meet the variety of needs in accessing information within the system (Verhoeven, Steehouder, Hendrix, & van Gemert-Pijnen, 2009). In addition to making information of various sorts available to employees, based on need within the aspect of the role of nursing, it is important for administration, as part of the system, to verify with the employee that the information is understood accurately (Korunka et al., 2003). Access to appropriate information and adequate understanding of the information for use in the role of nursing has been shown to have a positive impact on job satisfaction (Korunka, et al.). Access to information for staff nurses has been shown to improve organizational outcomes (MacPhee, Wardrop, & Campbell, 2010). It is the "leveraging of knowledge to exploit collaborative relationship …that unlocks knowledge from its holders" (De Clercq, Thongpapanl, & Dimov, 2011, p. 432).

Covariates

Covariates of job satisfaction proposed within the conceptual model include both personal and professional demographics. It is proposed that the personal demographics of nurses will relate to job satisfaction and self-concept. Personal demographics include

number of dependents, age, partner status, gender, household income, and primary source of family income. Professional demographics include years of professional experience, years of unit experience, years of education, number of continuing educations courses/year, and number of hours worked/week. (See Figure 1.)

Aims and Hypotheses

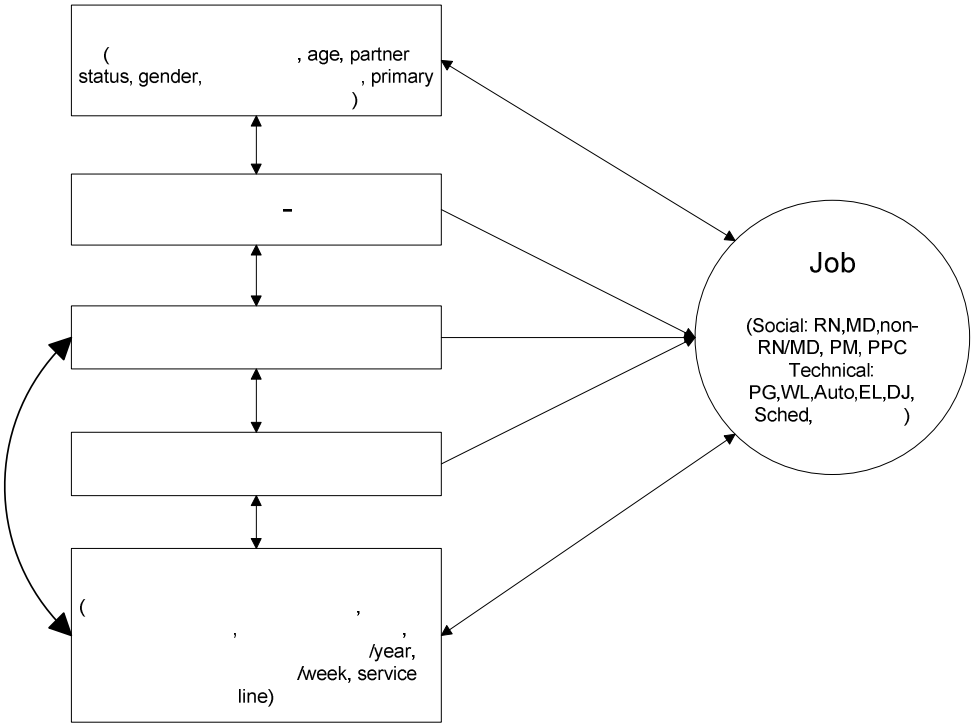
The following specific aims and hypotheses will guide the current study:

1. Aim 1: Comprehensively describe, using univariate statistics, social and technical dimensions/subscales that constitute/comprise the construct of job satisfaction of nurses.
2. Aim 2: Examine the multidimensional properties of job satisfaction of nurses.

Hypothesis 1: The following social (relationship with coworkers, relationship with physicians, relationship with nurses, relationship with unit manager, relationship with patient) and technical (workload, autonomy, distributive justice, scheduling, professional growth, resources, and executive leadership) subscales will represent a multidimensional latent construct of job satisfaction.

3. Aim 3: Examine relationships of organizational processes essential for job satisfaction.
    a. Hypothesis 2: Clarity of Self will be positively and significantly associated with the latent construct of job satisfaction.
    b. Hypothesis 3: Clarity of Professional Role will be positively related to the latent construct of job satisfaction.
    c. Hypothesis 4: Clarity of System will be positively related to the latent construct of job satisfaction.

Figure 1, Outcomes and Antecedents of Nurse Job Satisfaction



4. Aim 4: Examine whether/if personal and professional demographics are associated with nurse job satisfaction.

Chapter 2: Literature Review

Introduction

This literature review examines content from 165 articles of nurse job satisfaction including four studies from the Caribbean. This review addresses the following questions:

1. How is nurse job satisfaction defined?
2. Is nurse job satisfaction operationalized as a unidimensional or multidimensional construct?
3. How are staff sociodemographics empirically associated with nurse job satisfaction?
4. How are nurses' clarity of self, role, and system related to job satisfaction?
5. What theoretical approaches can facilitate the study of nurse job satisfaction?

This review relied on literature specific to nurses' job satisfaction from 2006 to 2011.

Job Satisfaction

The first step in this literature review was to examine nurse job satisfaction in Jamaica and surrounding island countries in the Caribbean, given the focus of this study. Additional island countries in the Caribbean that were searched included Anguilla, Antigua, Bahamas, Bermuda, Barbuda, British Virgin Islands, Barbados, Dominica, Grenada, Haiti, Martinique, Montserrat, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, and Trinidad and Tobago. The first two search terms used were "job satisfaction" and "Jamaica." The Boolean operator "and" was used between the two initial search terms, "job satisfaction" and "Jamaica". The databases searched were Medline, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Social

Sciences Citation Index, Ingenta Connect, and Web of Science. Medline was chosen as it covers several professions within the biomedical sciences including nursing. The database CINAHL was chosen as it also covers multiple disciplines including nursing. Ingenta Connect was chosen as it provides access to academic and professional literature from 30,000 publications. Social Sciences Citation Index and Web of Science were selected because they both contain research articles from the social sciences that may have relevance to nurse job satisfaction specific for nurses.

Inclusion criteria were as follows: the article addressed nurse job satisfaction for those nurses who provided direct patient care including staff nurses, charge nurses, and first line managers. Articles that addressed nursing staff who did not provide direct patient care such as nurse executives or advanced practice nurses were excluded. If the study included staff other than nurses but nurse job satisfaction was reported separately, it was included. Language was limited to English because the Primary Investigator (PI) of this study cannot read languages other than the English language.

An initial search limited to the Caribbean without any year limit generated 215 articles, but only three articles from the Caribbean and one article from Jamaica were found that identified a measure of nurse job satisfaction. For this reason, the search was extended to all countries around the world. Studies before 2006 were excluded in this search of all countries due to the volume of studies available and a need for the current review to focus on contemporary workplace environments as they relate to or influence nurse job satisfaction. There were an additional 906 articles reviewed and 165 total were selected for further review. Articles that were not included did not identify a measure of job satisfaction, measured a construct similar to job satisfaction but not actual job

satisfaction, or did not delineate nurses from the sample studied. All of the studies were found in CINAHL and MEDLINE; duplicates of these studies were available in the other databases utilized for this search. Based on this screening process, 165 articles were selected for further review.

Settings and samples.

Among the selected studies in nurse job satisfaction, there were a total of 416,449 respondents. The sample sizes ranged from 23 to 72,866, with a mean of 2,892 per study. Most studies included convenience samples (n = 106), followed by random samples (n = 20), and stratified samples (n = 11). There were 35 different countries identified in this literature review with 127 studies measuring nurse job satisfaction in only one country and the remainder studying job satisfaction in more than one country. The United States was the most commonly studied country (n = 62) followed by Canada (n = 12), China (n = 8), and Australia (n = 7). There were no studies found in Jamaica between January 2006 and August 2011, but there was one from 2001 (which was included here).

The most common respondent was labeled “nurse” (n = 55 studies), followed by nurses who work in hospitals (n = 37). Other types of nurse roles that were studied included mental health nurses (n = 5 studies), home health nurses (n = 4 studies), Intensive Care Unit (ICU) nurses (n = 4 studies), public health nurses (n = 2 studies), nurses and aides (n = 2 studies), nurses new to the profession (n = 2 studies), oncology nurses (n = 2 studies), and “RN” (n = 2 studies). There were 26 other various nurse roles considered in separate studies with only one study addressing each (e.g. nephrology nurse, quality assurance nurse)

Definitions.

There were several definitions of nurse job satisfaction in the literature. A finding of this review is that there is no clear definition of job satisfaction; for these reasons there is a plethora of instruments to measure the construct (Coomber & Barriball, 2007). Some authors reported job satisfaction is a feeling (Chang, Li, Wu, & Wang, 2010; Cortese, Colombo, & Ghislieri, 2010; Curtis, 2007; Lu, Chang, & Wu, 2007; Moumtzoglou, 2010; Pitkäaho, Ryynänen, Partanen, & Vehviläinen-Julkunen, 2011; Stamps, 1997; Wilson, Squires, Widger, Cranley, & Tourangeau, 2008), an attitude (Simpson, 2008), liking one's job (Cowin et al., 2008; Giallonardo et al., 2010; Karanikola et al., 2007; Rakich, Longest, & Darr, 1985; Schmermerhorn, 1984), an affect, positive affective orientation, or affective reaction (Abushaikha & Saca-Hazboun, 2009; Blegan, 1993; Coomber & Barriball, 2007; Cranny, Smith, & Stone, 1992; Djukic et al., 2010; Güleryüz, Güney, Aydin, & Asan, 2008; Happell, Martin, & Pinikahana, 2008; Mueller & McCloskey, 1990; Tovey & Adams, 1999; Yang & Chang, 2008), the sum of one's cognitive and affective appraisals of one's job (Djukic et al., 2010; Hulin & Judge, 2003), or a difference between received and desired rewards (Robbins, 1986; Sharp, 2008). Table 1 synthesizes the definitions of nursing satisfaction identified in this literature review.

Unidimensional measures for nurse job satisfaction.

Among the articles reviewed, the operationalization of nurse job satisfaction assumed one of two approaches: Job satisfaction as a unidimensional variable or as a construct with multiple dimensions. The unidimensional approach is often represented by a single-item measure of job satisfaction or the summation of multiple items that measured a single construct of job satisfaction.

Table 1

Conceptual Definitions of Job Satisfaction

Definition	Examples
A feeling	"A global feeling about various aspects or facets of the job" (Moumtzoglou, 2010, p. 61); "Describing how one feels about one's job" (Pitkäaho et al., 2011, p. 1054); "Job satisfaction describes how we feel about a job" (Cowin et al., 2008, p 1450).
Liking one's job	"The degree to which employees like or enjoy their jobs" (Chan et al., 2009, p. 471); "… the degree to which employees like or enjoy their jobs" (Mrayyan, 2006, p. 225).
An affect	"Degree to which employees have a positive affective orientation toward employment by the organization" (Güleryüz et al., 2008, p. 1626); "…the degree of positive affective orientation toward a job" (Abushaikha & Saca-Hazboun, 2009, p. 191); "…employees' affective appraisal of his or her job in general" (Djukic et al., 2010, p. 442).
An attitude	"RN job satisfaction is a multivariate human attitude in response to experience on the job and its congruence with nurses' values or expectations" (Larrabee, Wu, Persily, Simoni, Joohnston & Marcischak, 2010, p. 83).
Perceived deserved rewards	"Job satisfaction can be defined as the difference between the amount of rewards workers receive and the amount they believe they should receive" (Sharp, 2008).
Simply satisfaction	"The degree of nurses' satisfaction with the nature of work and the work environment." (Ellenbecker, Samia, Cushman, & Porell, 2007, p. 49); "Job satisfaction is defined as the nurses' overall state of satisfaction" (Weng, Huang, Tsai, Chang, Lin, & Lee, 2010, p. 3); "Job satisfaction is RN's reported experience of their satisfaction with their present job" (Tervo-Heikkinen, Partanen, Aalto, & Vehviläinen-Julkunen, 2008, p. 361).

There were 39 studies that used the unidimensional approach. The unidimensional approach is often referred to in the literature as a “global” approach to measure job satisfaction. There were 17 different instruments used to measure nurse job satisfaction as a unidimensional variable. Ten of the 39 unidimensional measure studies used only a single item to measure job satisfaction (Buerhaus, DesRoches, Donelan, & Hess, 2009; Kalisch, Lee, & Rochman, 2010; Kalisch, et al., 2011; Li, Fu, Hu, Shang, Wu, Kristensen, et al., 2010; Rafferty et al., 2007; Rochefort & Clarke, 2010; Seago et al., 2011; Spetz & Herrera, 2010; Sveinsdóttir, 2006; Wyatt & Harrison, 2010). A variety of scoring approaches were used for unidimensional satisfaction measure items, including dichotomous scoring (e.g., low satisfaction/neutral = 0; satisfied = 1; see Seago et al., 2011; Spetz & Herrera, 2010), 0-100 scores (Li et al., 2010), or Likert options (e.g., “very dissatisfied to very satisfied”; Kalisch et al., 2010; Rafferty et al., 2007; Rochefort & Clarke, 2010). For those studies that measured nurse job satisfaction with more than one item and used a sum score to report job satisfaction, the number of items ranged from 2-22. All unidimensional measures identified are summarized in Table 2.

Psychometric data were not consistently reported for the unidimensional measures. Most studies used a combination of goodness-of-fit indices to determine the degree to which the unidimensional construct “fit” observed data (Castañeda-Hidalgo, Acevedo, Garza, Meléndez, Rangel, & Aguilera, 2009; Golbasi, Kelleci, & Dogan 2008; Karagozoglu & Bingöl, 2008). Reliability of single dimension instruments were high, with a range of .76 to .95 (Etchegaray, Sexton, Helmreich, & Thomas, 2010; Pitkäaho et al., 2011), although a handful of studies did not report measurement reliability (DelliFraine, Dansky, & Rumberger, 2006; Kalisch et al., 2011; Li et al., 2010; Rafferty

Table 2

Unidimensional Measures

Scale, Author, and Year	Number of Items	Scoring	Summary
Single item, Buerhaus et al., 2009	1	Not reported.	Satisfaction with job.
Single item, Kalisch et al., 2010	1	Likert scale, from very dissatisfied (1) to very satisfied (5).	Satisfaction with current position.
Single item, Kalisch et al., 2011	1	Not reported.	Satisfaction with current position.
Single item, Li et al., 2010	1	0-100, wording of scale not specified.	Job satisfaction measured as a part of the psychosocial work environment.
Single item, Rafferty et al., 2007	1	Likert scale, from very satisfied (1) to very dissatisfied (4).	Nurses rated their job satisfaction using the Likert scale.
Single item, Rochefort & Clarke, 2010	1	Likert scale, from very satisfied (1) to very dissatisfied (4).	Asked overall level of job satisfaction.
Single item, Seago et al., 2011	1	Likert scale, from very dissatisfied (1) to very satisfied (5).	Responded to question “How would you best describe your feelings about your principal nursing position?”
Single item, Spetz & Herrera, 2010	1	Likert scale, from very dissatisfied (1) to very satisfied (5).	Satisfaction with “job overall.”
Single item, Sveinsdóttir, 2006	1	Likert scale, from very unsatisfied (1) to very satisfied (10).	Mark on numbered scale best representation of job satisfaction.
Single item, Wyatt & Harrison, 2010	1	Likert scale from poor satisfaction (1) to excellent (4).	Nurses were asked to report what contributed to their job satisfaction and 13 dimensions were reported.

Minnesota Satisfaction Questionnaire (MSQ) short form, Golbasi et al., 2008	20	Likert scale, from not satisfied (1) to extremely satisfied (5).	Studies from this literature review varied in use of mean or sum of items. Original MSQ short form used sum.
Etchegaray et al., 2010	5	Likert scale, from strongly disagree (1) to strongly agree (5).	Not reported if sum or mean of five items was used to identify job satisfaction.
Pitkäaho et al., 2011	22	Likert scale, from very unsatisfied (1) to very satisfied (5).	Mean score of 22 items was used to report job satisfaction.
DelliFraine et al., 2006	10	Likert scale, strongly agree (1) to strongly disagree (5).	Ten items treated as a latent construct of job satisfaction.
Generic Job Satisfaction Scale (GJSS), Robison & Pillemer, 2007	9	Likert scale, from strongly disagree (1) to strongly agree (5).	Original GJSS had 10 items. Nine items are treated as a latent construct of job satisfaction.
Jenaro, Flores, Orgaz & Cruz, 2011	4	A Likert scale was used but verbiage for scoring was not delineated.	Four items were reported separately.
Overall Job Satisfaction (OJS), Iliopoulou & While, 2010	15	Likert scale from very dissatisfied (1) to very satisfied (7).	The five studies from literature review that used the OJS varied in use of 5-point and 7-point Likert scale.
Cantor and Chichin's 1990 JS tool, Montoro-Rodriguez & Small, 2006	5	Likert scale from not at all true (1) to very true (5).	Sum of five items used to report job satisfaction.
Duddle & Boughton, 2008	5	Likert scale, from strongly disagree (1) to strongly agree (5).	Five items were treated as a latent construct of job satisfaction.

et al., 2007; Robison & Pillemer, 2007; Rochefort & Clarke, 2010; Seago et al., 2011; Spetz & Herrera, 2010).

Some authors reported the inadequacy of a single item to capture the unidimensional concept of job satisfaction and proposed that the summation of several items is more adequate (Campbell & Campbell, 2003; Ironson, Smith, Brannick, & Gibson, 1989). For example, the short form Minnesota Satisfaction Questionnaire (MSQ) includes 1 item from each of the 20 subscales from the multi-dimensional 100-item MSQ. It is proposed the 20 items represent all 20 subscales, and thus summing them equals a score to be used for job satisfaction. There were several studies that used the 20-item MSQ short form to report a single score of job satisfaction (Golbasi et al., 2008; Karagozoglu & Bingöl, 2008; Ning, Zhong, Libo, & Qiujie, 2009; Ross, Jones, Callaghan, Eales, & Ashman, 2009; Selebi & Minnaar, 2007; Sharp, 2008; Yang & Chang, 2008). Other measures that combined items to form a single dimension of job satisfaction included the 15-item Overall Job Satisfaction (OJS) measure developed by Warr, Cook, and Wall (1979), a 5-item scale by Montoro-Rodriguez and Small (2006), a 9-item scale by Robison and Pillemer (2007), and a 4-item scale by Jenaro et al. (2011). The OJS was often used as a single dimension report of nurse job satisfaction (Castañeda-Hidalgo et al., 2009; Iliopoulou & While, 2010; Lu & Barriball, 2007a; Lu & Barriball, 2007b; Patel, Beekhan, Paruk, & Ramgoon, 2008).

In critically appraising unidimensional measurement approaches, an oft-cited strength is their brevity. The biggest shortfall of unidimensional measures is the assertion that they provide less comprehensive information on nurse job satisfaction. This weakness was cited by several researchers who propose that nurse job satisfaction is a

construct likely comprised of multiple dimensions (Hill, 2011; McCarthy, Tyrrell, & Lehan, 2007) and necessitates a more comprehensive measurement approach. In addition, scoring distributions for unidimensional nurse job satisfaction approaches tend to be skewed toward the high negative or high positive ranges, further placing into question the ability of these approaches to adequately assess the full range of satisfaction among nurses (Spector, 1997). A final weakness noted is the lack of replication of many nurse job satisfaction measures; it is unclear how well many nurse job satisfaction measures operate across healthcare settings, diverse samples, or over time. Instead, singular measures are often utilized and developed for single studies, further complicating any assessment of their measurement quality.

Multidimensional measures for nurse job satisfaction.

The multidimensional approach to measure nurse job satisfaction examines different dimensions of one's job that are representative of satisfaction (Spector, 1997). The multidimensional approach can provide a more comprehensive view of job satisfaction because it provides insight into the successes and vulnerabilities of each dimension of job satisfaction (Spector).

There were 41 measures in 101 studies proposed to measure nurse job satisfaction as a multidimensional construct. Among these 41, there were 6 measures used to pursue Magnet certification that were purported to measure nurse job satisfaction, but examination of the six tools revealed the multidimensional measures were actually designed to measure the construct of professional practice and not nurse job satisfaction (Aiken & Patrician, 2000; Lake, 2002; Schmalenberg & Kramer, 2007, 2008; Taunton, Bott, Koehn, Miller, Rindner, Pace, et al., 2004). The six measures included the Nursing

Work Index, the Nursing Work Index – Revised, the Professional Environment Scale, the Dimensions of Magnetism, the Essentials of Magnetism, and the National Database of Nursing Quality Indicators. These six measures will not be discussed in detail. Although they are commonly used to measure “nurse job satisfaction,” they are designed to measure different constructs related to nursing.

Thirty-five multidimensional measures were used in 75 studies to examine nurse job satisfaction, which included a total of 70 different dimensions (subscales) proposed to reflect nurse job satisfaction. The number of subscales per measure ranged from 2 to 30 with an average of 7.8 subscales per measure. Items per measure ranged from 12 to 180 with a mean of 77 items per measure. The Index of Work Satisfaction (IWS) was the most commonly used measure of nurse job satisfaction and was used in 18 studies (Ahmad & Oranye, 2010; Bjørk, Samdal, Hansen, Torstad, & Hamilton, 2007; Ea, Griffin, L'Eplattenier, & Fitzpatrick, 2008; Hwang, Lou, Han, Cao, Kim, & Li, 2009). The IWS was also the first measure of job satisfaction developed specifically for nurses (Slavitt, Stamps, Piedmont, & Haase, 1978). The most commonly measured dimension was satisfaction with coworkers, which was included in 22 of the 35 multidimensional measures identified. The name of the subscale to measure satisfaction with coworkers varied, but the content across these measures related to how coworkers got along. For example, the Work Quality Index referred to the coworker subscale as relationships, while the Job Satisfaction Questionnaire referred to this subscale as working relationships. There were 21 dimensions measured by 4 or more of the 35 measures, including satisfaction with management (n = 21 measures), compensation (n = 16 measures), workload (n = 12 measures), professional opportunities (n = 11 measures),

staffing/resources (n = 9 measures), autonomy (n = 9 measures), environment (n = 8 measures), control over practice (n = 7 measures), policy and procedures (n = 7 measures), nature of work (n = 7 measures), achievement (n = 6 measures), scheduling (n = 6 measures), promotional opportunities (n = 5 measures), feedback (n = 5 measures), promotion (n = 5 measures), competence (n = 4 measures), praise and recognition (n = 4 measures), patient-centered care (n = 4 measures), professional practice (n = 4 measures), nurse-physician relationship (n = 4 measures), and job security (n = 4 measures). Other dimensions were included across three or fewer measures (e.g. access to information, predictability of job, and contingent benefits).

A variety of scoring approaches were used for multidimensional satisfaction measure items. However, scoring approaches often deviated from those intended by the measures' authors. For example, part B of the IWS by Slavitt et al. (1978) was intended to have all 44 items summed for a total satisfaction score, but some authors used the sum of scores (Ahmad & Oranye, 2010; Bjørk et al., 2007; Ea et al., 2008; Giallonardo et al., 2010; Manojlovich & Laschinger, 2007; Matos et al., 2010; Penz, Stewart, D'Arcy, & Morgan, 2008; Pittman, 2007; Simpson, 2008), while others used the mean of scores (Best & Thurston, 2006; Cortese et al., 2010; Cowin et al., 2008; Flanagan, 2006; Hwang & Chang, 2008; Lange, Wallace, Gerard, Lovanio, Fausy, & Rychlewicz, 2009; Yamashita, Takase, Wakabayshi, Kuroda, & Owatari, 2009), and others relied on both the mean and sum (Curtis, 2007; Karanikola et al., 2007).

Several of the studies did not use the word "satisfaction" in either the item statement or in the Likert scale. No such study identified the rationale for omitting the word "satisfaction," which raises the question of what construct was actually measured.

When addressing a construct such as satisfaction, it is important to include some element in the statement of scoring that asks the respondent how “satisfied” they are. In the multidimensional measures, no study used the word “satisfy” or “satisfaction” in the items. Forty-two studies of multidimensional measures used a Likert scale to indicate level of agreement, 18 studies utilized a Likert scale to indicate level of satisfaction, 14 studies did not report scoring, and 1 study used a Likert scale to indicate frequency.

Surveys were often used in an ad hoc fashion by extracting select items of instruments and deviating from initial methods used in the development of the instrument. For example, only portions of scales of the Job Diagnostic Inventory (JDI) were used by Tran, Johnson, Fernandez, and Jones (2010). No rationale for partial use of the job satisfaction measure was provided by Tran et al. These variations make it difficult to interpret findings across studies and may create misspecification within models proposed to measure nurse job satisfaction.

The psychometric qualities of instruments also varied across studies. Cronbach’s alpha was the most commonly reported reliability statistic and subscales ranged from .41 (Bruyneel, Van den Heede, Diya, Aiken, & Serveus, 2009) to .89 (Matos et al., 2010), with an overall total as high as .98 (Coshow, Davis, & Wolosin, 2009). Validity testing was less apparent, with face and content validity being the most consistently reported type of validity. Several authors reported developing their own multidimensional instrument to measure nurse job satisfaction because existing measures had poor evidence of reliability or validity (Duddle & Boughton, 2008; Flint et al., 2010; Murrells et al., 2009).

With the exception of one instrument (see below), there were no current instruments found that used replication studies to test factor analysis and factor loadings across settings for nurse job satisfaction. Studies that did use factor analysis in a replication study from earlier research found inconsistency in factor structure (Choobineh, Ghaem, & Ahmedinejad, 2011; Murrells et al., 2009). Some of the studies showed poor model fit, but factors were still used as subscales despite the potential for misspecification (Murrells et al., 2009). Most of the studies did not conduct factor analysis at all, but rather cited the original factor analysis when the instrument was developed (Cox, Teasley, Lacey, Carroll, & Sexton, 2007). There was no model proposed that tested the factors of a proposed measure of nurse job satisfaction and associated predictors or outcomes across settings within a theoretical framework.

The Healthcare Environment Survey (HES) was the measure that behaved the most consistently, demonstrating a similar factor structure across three different factor analyses (Nelson, 2001; Nelson, Persky, Hozak, Albu, Hinds, & Savik, 2013; Persky & Bakken, 2005). In addition, HES was premised on meta-analyses of research on nurse job satisfaction conducted by Blegan (1993) and Irvin and Evans (1995), as well as the initial study of Magnet hospitals that addressed a healthy work environment (McClure, Poulin, Sovie, & Wandelt, 1983). Four subscales from the Index of Work Satisfaction (Stamps, 1997), the most commonly used measure of nurse job satisfaction, were integrated with three additional subscales identified as dimensions of nurse job satisfaction (Nelson, 2001). Since its initial development in 2001, the HES, used in its entirety, has been shown to be a valid and reliable tool to measure nurse job satisfaction in several contexts and countries (Nelson, 2001; Nelson, 2006; Persky, Felgen, & Nelson, 2011b; Tinker,

Sweetham, & Nelson, 2011). The 60-item HES includes 10 dimensions that were among the most commonly studied, including satisfaction with relationship with coworkers, relationship with manager, compensation, workload, professional opportunities, autonomy, staffing-resource, scheduling, relationship with physician, and executive leadership.

The HES and other multidimensional measurements are proposed as superior to the unidimensional approach because they address various dimensions of a nurse's job. Such an understanding facilitates operational refinement and allows healthcare systems to target areas or dimensions that receive lower scores in order to improve nurses' morale, working conditions, or retention. However, a primary weakness of the multidimensional approach is the length of many measures, with an average of 77 items and up to 180 items found in this literature review. In addition, it was evident across studies that the psychometric properties of many instruments did not behave in the same manner across different contexts, suggesting that many of these measures may not effectively assess nurse job satisfaction in a generalizable or consistent fashion across cultures,or in various settings. The multidimensional measures identified in this literature review are presented in Table 3.

Common dimensions of multi-dimensional nurse job satisfaction measures.

Satisfaction with coworkers. This is defined as nurses' satisfaction with "opportunities presented for both formal and informal social and professional contact during working hours" (Stamps & Piedmonte, 1986, p. 181). Professional contacts include nurses, physicians, and non-nurse/non-physician employees. This was the most commonly measured dimension of nurse job satisfaction, as it was included in 22

Table 3

Multidimensional Measures

Scale	Number of Items	Number of dimensions	Number of articles	Factor analysis
AACN Healthy Work Environment Survey	22	5	1	No factor analysis reported.
Brisbane Practice Environment Measure	26	4	1	Principal component and confirmatory revealed 4 dimensions.
Author developed scale (Chen, Lin, Wang, Hou, 2009)	26	5	1	“Factor analysis” done but no details.
Copenhagen Psychosocial Work Environnent Questionnaire	144	30	1	No factor analysis reported.
Greek Nurses’ Job Satisfaction Scale	18	4	1	Principal component analysis revealed a 4 dimension solution.
Healthcare Environment Survey	60	11	7	Principal component analysis in several studies.
Halfer-Graf Job/Work Environment Nursing Satisfaction Survey	21	7	2	Factor analysis reported as being conducted but no specifics provided.
Home Healthcare Nurse Job Satisfaction Scale	30	8	2	Exploratory factor analysis and principal component analysis revealed an 8 dimension solution.
Index of Work Satisfaction	59	6	18	One study of 18 did a principal component analysis of 25 items.
Job Analysis and Retention Survey	21	7	1	No factor analysis reported.
Job Content Questionnaire	39	3	1	Exploratory factor analysis revealed 3 dimensions.

Job Descriptive Index	18	5	3	No factor analysis reported.
Job Diagnostics Survey	80	8	4	Principal component analysis, principal axis factoring, exploratory and confirmatory factor analysis from one study and revealed 2 factors.
Job Satisfaction of Nurses	22	6	1	No factor analysis reported.
Job Satisfaction Survey – Hwang	13	3	1	Principal component analysis revealed a 3 factor solution.
Job Satisfaction Survey – Lu	18	3	1	Principal component analysis revealed a 3 factor solution.
Job Satisfaction Survey – Spector	36	9	2	No factor analysis reported.
Job Satisfaction Questionnaire	32	5	1	No factor analysis reported.
Job Satisfaction Questionnaire – Wong	37	5	1	Confirmatory factor analysis confirmed 5 dimensions.
Managerial Job satisfaction Questionnaire	20	6	1	No factor analysis reported.
McCloskey-Mueller Satisfaction Scale	32	8	10	Two studies used factor analysis and revealed 3 factors and 5 factors among the 31 items.
Measure of Job Satisfaction	43	7	1	No factor analysis reported.
Minnesota Satisfaction Questionnaire	100	20	1	No factor analysis reported.
Nurse Opinion Questionnaire	13	8	1	No factor analysis reported.
Nurse Job Satisfaction	20	7	7	Principal component factor analyses revealed 4-, 6-, and 7-factor solution.
Nursing Job Satisfaction Scale	23	3	1	No factor analysis reported.
Nursing Workplace Satisfaction Questionnaire	15	3	1	Principal component analyses identified 3 dimensions.

Perceived Nurse Working Environment	42	7	1	Factor analysis referred to but no details provided.
Press Ganey Employee Perspectives Survey	67	12	1	Factor analysis identified 10 dimensions.
Quality Work Competence Questionnaire	46	11	1	No factor analysis reported.
Satisfaction in Nursing Scale	55	4	1	Exploratory and confirmatory factor analysis identified 4 dimensions.
Tsai and Wu Job Satisfaction Survey	16	3	1	Principal component analysis revealed three dimensions.
Working as a Nurse in a Caring Environment Scale	33	3	1	No factor analysis reported.
Work Quality Index	38	6	1	Factor analysis referenced but no details provided.

different multidimensional measures. Several authors found that nurses reported high levels of satisfaction with their coworkers (Chang et al., 2010; Cox et al., 2007; Giallonardo et al., 2010; Iliopoulou & While, 2010; Kotzer et al., 2006; Tinker et al., 2011). Other authors found that nurses were not satisfied with relationships with their coworkers (Golbasi et al., 2008; Matos et al., 2010; Selebi & Minnaar, 2007; Zurmehly, 2008). Satisfaction with coworker relationships had a statistically significant positive relationship with nurses' willingness to be accountable for the care they provided (Sorenson, Seebeck, Scherb, Specht, & Loes, 2009), intent to stay (AbuAlRub et al., 2009), willingness to participate in hospital affairs (Manojlovich & Laschinger, 2007), and engagement in their work (Simpson, 2008).

Satisfaction with engagement of management. This is defined as an employee's perceptions of how involved he or she is in organizational decision making and how satisfied he or she is with this involvement (Alexander et al., 1982). There were 21 multidimensional measures that examined relationship with management as it relates to nurse job satisfaction. Some studies reported low satisfaction with manager scores (Russell & Gelder, 2008; Selebi & Minnaar, 2007), while nurses from another study reported moderate satisfaction with manager scores (Abushaikha & Saca-Hazboun, 2009). The only study reporting high satisfaction with manager scores was a study of community care nurses in England (Nelson, Tinker, & Smith, 2012).

Satisfaction with nurse management varied across different health care facilities (Abushaikha & Saca-Hazboun, 2009; McCrae, Prior, Silverman, & Banerjee, 2007). Nurses who were planning to leave their unit were shown to be less satisfied with their nurse manager when compared to nurses who reported an intent to stay with their current

unit (Cohen, Stuenkel, & Nguyen, 2009; Stone et al., 2006). There were also statistically significant differences found when comparing different generation groupings, revealing Generation X (born 1965-1979) was least satisfied with unit managers (Cox et al., 2007). Tenure in the profession of nursing was characterized by a “U” shape in the data, with the least and most experienced nurses reporting the most satisfaction with management (Coshow et al., 2009). There were also statistically significant differences of satisfaction with management when comparing different role groupings of nurses (i.e. staff nurses and transplant nurse coordinators; Russell & Gelder, 2008).

A statistically significant and positive relationship between satisfaction with nurse manager and intent to stay was found by Hill (2011). There were several variables found to have a statistically significant and negative relationship with satisfaction with nurse manager, including stress experienced by nurses (Chen et al., 2009; Ouzouni & Konstantinos, 2009), job pressure, threat, tension, role ambiguity, and role conflict (Tran et al., 2010).

Satisfaction with compensation. Satisfaction with compensation is defined as the degree to which nurses are satisfied with the rewards and punishments that are distributed according to individual performance (Scheier & Carver, 1985). There were 16 measures that examined compensation as it relates to nurse job satisfaction. Satisfaction with pay was reported to be the most important dimension of nurse job satisfaction among six other dimensions measured, including autonomy, workload, policies, relationship with coworkers, and professional status (Flanagan, 2006), and the second most important in four studies (Best & Thurston, 2006; Bjørk et al., 2007; Curtis, 2007; Karanikola et al., 2007). There were several studies that reported nurses had low scores for satisfaction

with pay (Bjørk et al.; Curtis, 2007; Simpson, 2008; Sveinsdóttir, 2006). In contrast, other studies found that nurses were generally satisfied with their pay (Russell & Gelder, 2008). Nurses who were more satisfied with their pay tended to be more educated and have less work experience (Chan et al., 2009), older (Karanikola et al.), and belong to a union (Pittman, 2007). There were also differences in satisfaction with pay when comparing facility types (Abushaikha & Saca-Hazboun, 2009). Greater levels of satisfaction were reported in privately-funded facilities than in publically-funded facilities. Satisfaction with pay was found to have a positive correlation with professional satisfaction (Karanikola et al.) and work engagement (Simpson, 2008) but a negative correlation with emotional exhaustion on the part of nurses (Karanikola et al.).

Satisfaction with workload. Satisfaction with workload is defined as a nurse's satisfaction with the type and number of activities that are accomplished as a regular part of the job (Stamps & Piedmonte, 1986). There were 12 measures that included perception of workload in nurse job satisfaction. Available studies tended to indicate low satisfaction with workload by nurses (Gardulf, Orton, Eriksson, Unden, Arnetz, Kajermo, et al., 2008; Tinker, Sweetham, & Nelson, 2011; Rheingans, 2008). Workload was reported to be the most important dimension of nurse job satisfaction by one study that used the IWS to measure nurse job satisfaction (Karanikola et al., 2007). Part A of the IWS (Stamps, 1997) was used to rank the order of desired dimensions of the job while part B of the IWS was used to report degree of agreement for each job dimension. Weighting the score from Part B with the rank in Part A was used to report "satisfaction" with each dimension of the job. There was no note in the 18 articles of the IWS that challenges or supported this calculation as valid for the construct of nurse job satisfaction.

Most studies that used the IWS to measure nurse job satisfaction reported that workload was among the least important dimensions of nurse job satisfaction (Best & Thurston, 2006; Bjørk et al., 2007; Flanagan, 2006; Matos et al., 2010; Simpson, 2008; Tsai & Wu, 2010). Satisfaction with workload was found to have a statistically significant negative correlation with intent to leave one's job (Cowin et al., 2008) and emotional exhaustion (Karanikola et al., 2007). Workload was found to have a statistically significant positive relationship with work engagement (Simpson), authentic leadership, self-awareness, work engagement, vigor, and dedication (Giallonardo et al., 2010). Age was found to have a positive correlation with satisfaction with workload (Cohen et al., 2009). Statistically significant differences in several demographic groupings were also found, including unit (Karanikola et al., 2007; Kotzer & Arellana, 2008; McCrae et al., 2007), community versus hospital (McCrae et al.), pediatric versus non-pediatric (Cox et al., 2007), generation (Cox et al.), and role (Tinker et al., 2011). Those who worked in a community hospital, a pediatric setting, and were in the oldest or youngest generation were most likely to report satisfaction with their workload.

Satisfaction with professional growth. Satisfaction with professional growth is defined as the degree to which nurses are satisfied with potential upward occupational mobility within an organization (Agho, 1993). There were 11 measures that included examination of professional growth as it relates to nurse job satisfaction. Satisfaction with professional growth varied from reported low satisfaction (Al-Enezi, Chowdhury, Shah, & Al-Otabi, 2009) to high satisfaction (Gardulf et al., 2008; Mally & Penprase, 2010; Russell & Gelder, 2008). Professional growth was found to correlate positively with self-care (Tinker et al., 2011). Nurses who worked within an environment where

transformational leadership was practiced by nurse leaders were more likely to report high levels of satisfaction with professional growth (Malloy & Penprase, 2010). Wilson et al. (2008) found nurses in the Baby Boom generation were more satisfied with their professional growth when compared to Generation X (Wilson et al.). Halfer and Graf (2006) found that as professional tenure increased so did satisfaction with professional growth and this relationship was found to be statistically significant using an alpha level of .01.

Satisfaction with autonomy. Autonomy is defined as "the amount of job-related independence, initiative, and freedom, either permitted or required in daily work activities" (Stamps & Piedmonte, 1986, p. 181). There were nine measures that included autonomy in the measurement of nurse job satisfaction. Several studies that used IWS to measure perception of autonomy found that autonomy was ranked as the most important variable to nurses (Best & Thurston, 2006), second most important (Flanagan, 2006), third most important (Bjørk et al., 2007; Curtis, 2007), and fourth most important (Karanikola et al., 2007) among the six dimensions measured by IWS. It was interesting to note that rank of importance varied by context in the study conducted by Bjørk et al. (2007), who found that nurses in a clinical ladder program ranked autonomy as more important than pay, while nurses who were not in a clinical ladder program ranked pay as more important than autonomy. Level of satisfaction varied as well, with some studies reporting low satisfaction with autonomy (Larrabee et al., 2010; Ning et al., 2009; Selebi & Minnar, 2007) as well as moderate levels of autonomy (Abushaikha & Saca-Hazboun, 2009; Kotzer et al., 2006). Reported levels of satisfaction with autonomy varied among demographics, including country (Hwang et al., 2009), unit (Karanikola et al., 2007;

Kotzer et al.; Tinker et al., 2011), hospital (Abushaikha & Saca-Hazboun; Cohen et al., 2009), different groupings of satisfaction with pay (Abushaikha & Saca-Hazboun), and age (Cohen et al.). Autonomy had a statistically significant positive relationship with several variables, including nurses' self-concept, caring for one another, staff relationships, communications, knowledge, leadership (Cowin et al., 2008), engagement (Giallonardo et al., 2010; Simpson, 2008), authentic leadership, relationship transparency, self-awareness, internalized moral perspective, (Giallonardo et al.), and primary nursing after implementation of relationship-based care (Persky, Felgen, & Nelson, 2011a).

Satisfaction with resources. Satisfaction with resources is defined as the availability and ease of access to tools, materials, and properly working equipment to accomplish a job. There were nine multi-dimensional measures that were used to examine perception of staffing/resources as it relates to nurse job satisfaction. Seed, Torkelson, and Alnatour (2010) reported that nurses were moderately satisfied with the resources to do their jobs. Stone et al. (2006) reported staffing/resource adequacy was more important to nurses than collaboration with colleagues. There were statistically significant differences in satisfaction with staffing/resources across type of care units; an outpatient care unit reported the highest mean score (3.97) while the Neonatal Incentive Care Unit (NICU) reported the lowest mean score (3.68; Cox et al., 2007). There were also differences of satisfaction with support when comparing generation groupings, with nurses born after the year 1980 reporting the highest mean score (4.03) and nurses who were born between the years 1909 and 1945 reporting the lowest mean score (3.71; Cox et al.). Stone et al. (2006) found that nurses who were least satisfied with

staffing/resources also reported greater intent to leave their current job ($p < .001$). Finally, Coshow et al. (2009) found that nurses with less than 2 years and more than 10 years of nursing experience were more satisfied with staffing and resources when compared to nurses with between 2-10 years of nursing experience (similar to the results reported for other dimensions of satisfaction; see above).

Satisfaction with scheduling. Satisfaction with scheduling is defined by T. Seymour as nurses' satisfaction with the method used to assign staff to daily work (personal communication, November, 2004). There were six measures that included measurement of nurses' perceptions of scheduling. Nurses reported moderate satisfaction with scheduling (Mrayyan, 2007; Tinker et al., 2011). Mrayyan found a statistically significant difference in satisfaction with scheduling across non-teaching hospitals when compared to teaching hospitals ($p < .001$), with nurses in non-teaching hospitals reporting greater satisfaction. Al-Enezi et al. (2009) found older nurses had statistically significant higher mean scores in satisfaction with scheduling when compared to younger nurses. Nurses who reported greater satisfaction with scheduling were more likely to report intent to remain in their current job (Anderson et al., 2009). Chan et al. (2009) examined two different groups of nurses and found the group of nurses who were more satisfied with scheduling had a profile that included older nurses (35 years or more), nurses with less formal education, more years of experience (10 years or more), nurses who worked in a hospital setting with fewer nurses, nurses less likely to intend to change jobs, and nurses more likely to work in the outpatient setting. Satisfaction with scheduling was found to have a positive correlation with pride in the organization and primary nursing before implementation of relationship-based care (Persky et al., 2011a).

Satisfaction with the physician-nurse relationship. Satisfaction with the physician-nurse relationship is defined as nurses' satisfaction with "opportunities presented for both formal and informal social and professional contact during working hours" (Stamps & Piedmonte, 1986, p. 181). There were four multi-dimensional measures that examined satisfaction with the physician-nurse relationship. Matos et al. (2010) found less than half of respondents (37.5%) reported the physician relationship was influential to their job satisfaction. Relationship with physicians (Mean = 24.24) was the third and fourth ranked variable among the dimensions measured by IWS (Karanikola et al., 2007 and Giallonardo et al., 2010, respectively).

Using an alpha of .01, nurse-physician relationship was found to have a statistically significant relationship with work engagement (Giallonardo et al., 2010). Persky et al. (2011b) found relationship with physician predicted 6% pride in the organization in 1 of 13 different regression equations before and during the implementation of relationship-based care. Persky et al. (2011b) also found that relationship with physician predicted satisfaction with the operations of primary nursing in two of five groups of nurses during the implementation of relationship-based care (1.5% to 7.1% of the variance).

Among the 13 items nurses reported important for job satisfaction, relationship with the physician was the seventh most common element (Wyatt & Harrison, 2010). Relationship with physician was reported as important by 59.3% of the nurses (Wyatt & Harrison). Stone et al. (2006) used PNWE to examine relationship with physician to compare nurses who intended to leave the organization and those who were not intending to leave. There was a small difference between the two groups (mean intending to leave

2.51; and not leaving 2.70) and the difference was statistically significant ($p < .001$; Stone et al.).

Satisfaction with patient care. Primary nursing is a professional model of care that is defined as a nurses' satisfaction with activities performed on behalf of a patient by care providers of the organization. This includes nurses' assessing, planning, intervening, and evaluating care as well as collaborating with other members of the health care team (Zander, 1980). There were four instruments that measured concepts consistent with primary nursing (e.g. patient-centered care).

The Professional Patient Care Index (PPCI) is the name of the subscale that measures satisfaction with the four concepts of primary nursing (Nelson, 2001) and was used by Tinker et al. (2011) to examine this dimension of nurse job satisfaction in community care nurses of Rotherham, England. Results revealed that PPCI had the fourth highest satisfaction score among the 13 dimensions measured by HES (Tinker et al.). Persky et al. (2011b) found that satisfaction with the operations of primary nurses was the strongest predictor of satisfaction with workload as reported by nursing staff. In an analysis of 33 units, Persky et al. found 60.4% of nurses' perception of workload was predicted by primary nursing and this finding was statistically significant using an alpha of .05.

Satisfaction with executive leadership. There were three measures that included executive leadership as a dimension of nurse job satisfaction. Executive leadership was defined as the degree of satisfaction nurses have with the nurse administrator's collaboration at all levels, including interdisciplinary teams, executive officers, and other stakeholders (American Nursing Credentialing Center, 2002). Hospital nurses were found

to be more satisfied with the nurse director than were non-hospital nurses, with mean scores of 2.62 and 2.32, respectively (Sveinsdóttir, Biering, & Ramel, 2006). This difference was found to be statistically significant (p = .017; Sveinsdóttir et al.). Executive leadership, as measured by HES, revealed the mean score was ranked 11 of 13, indicating it was a dimension of satisfaction that was among the least satisfying when compared to all measured dimensions of nurse job satisfaction (Tinker et al., 2011). Persky et al. (2011b) found that executive leadership positively predicted satisfaction with operations of primary nursing in a regression analysis (Persky et al.). Coshow et al. (2009) found that nurses with less than two years' experience or more than 10 years of experience reported the greatest satisfaction with executive leadership.

Predictors of Nurse Job Satisfaction

The preceding dimensions of nurse job satisfaction have been proposed as outcomes of clarity of self, role, and system (Persky et al., 2011a). There are varying levels of empirical data to support this theoretical assertion, however. Empirical data that is available will be used to build the argument that further inquiry is warranted to test the relationships between clarity and nurse job satisfaction. Resultant findings can be used to answer a key question for this study: How does clarity of self, role, and system relate to each other, as well relate to each dimension of nurse job satisfaction?

Predictor #1: Clarity of self. Clarify of self is defined as "the extent to which the contents of an individual's self-concept (e.g. perceived personal attributes) are clearly and confidently defined, internally consistent, and temporally stable" (Campbell et al., 1996, p. 141). Cowin et al. (2008) reported clarity of self to have a statistically significant positive relationship with several dimensions of nurse job satisfaction, including

satisfaction with pay ($r = .23$), satisfaction with workload ($r = .38$), satisfaction with autonomy ($r = .43$), and satisfaction with relationships with coworkers ($r = .40$). Clarity of self has also been shown to have a statistically significant positive relationship with work engagement ($r = .14$, $p < .01$), satisfaction with autonomy ($r = .21$, $p < .01$), satisfaction with workload ($r = .16$, $p < .05$), and satisfaction with the relationship with nurses ($r = .39$, $p < .01$; Giallonardo et al., 2010). Again, as clarity of self increased, so did satisfaction with autonomy, workload, and relationships (Giallonardo et al.).

Predictor #2: Clarity of role. Clarity of role is defined as "clarity of behavioral requirements, often in terms of inputs from the environment, which would serve to guide behavior and provide knowledge that the behavior is appropriate" (Rizzo et al., 1970, pp. 155-156). Clarity of professional role has been shown to predict nurse job satisfaction (Cowin et al., 2008; Wickramasinghe, 2010). Cohen et al. (2009) found that nurses who stayed ($n = 402$) and left ($n = 51$) an organization differed in their reported clarity of role. Those who wanted to stay reported higher clarity (mean score 5.56) than those who left the organization (mean score 5.27). The difference, however, was not statistically significant ($p = .306$). Staff RNs working in a community hospital setting reported more clarity of role compared to RNs working in a health maintenance organization or government facility; this difference was statistically significant ($p < .001$; Cohen et al.). Clarity of role was found to positively contribute to a healthy work environment (Hwang & Chang, 2009). There was a negative correlation between role ambiguity and the global scale of nurse job satisfaction ($r = -.54$, $p <.01$) and satisfaction with work ($r = -.25$, $p <.01$), supervision ($r = -.42$, $p <.01$), coworkers ($r = -.19$, $p < .05$), and work pressure ($r = .50$, $p <.01$; Tran et al., 2010).

Predictor #3: Clarity of system. Clarity of system is defined as an employee's clear understanding of the established committees, technology, policies, and professional roles that have been established to support the execution of the role required of him or her within the organization. Persky et al. (2011b) assert that the success of the delivery of patient care is dependent upon the degree to which the role and system align. Specifically, a nurse who is clear in his or her role and associated systems to support this role will be most efficient in executing the professional role. Persky and colleagues (2011b) assert that the nurse must know the system is intact to support the operations of his or her professional role. If the systems are not in place, the nurse is likely to perceive increased workload from a task driven mode of work where he or she achieves the tasks but is not able to execute the full professional role (Persky et al.). The one study found that did examine clarity of system was conducted by Al-Enezi et al. (2009), who measured clarity of hospital policies using an item in a professional opportunities subscale. This item had a factor loading of .64, which the author asserts is suggestive of clarity of system being an important contributor to the construct of professional opportunities (Al-Enezi et al.).

Personal and Professional Demographics

Caers, Du Bois, Jegers, De Gieter, De Cooman, and Pepermans (2008) assert in a review of 12 instruments for nurse job satisfaction that demographics are not effectively linked to the commonly identified concept found in theoretical frameworks of nurse job satisfaction. For this reason, there is no clear understanding of how demographics relate to nurse job satisfaction. The final section of this literature review will examine the

demographics that relate to nurse job satisfaction and integrate them into a theoretical model of nurse job satisfaction.

Personal demographics. There were 18 personal demographic variables found within this literature review. Age was the most commonly measured personal demographic, found in 90 studies. Other demographics found in multiple studies included gender (n = 72 studies), marital status (n = 39 studies), race (n = 13 studies), number of dependents (n = 10 studies), ethnicity (n = 10 studies), nurse's household income (n = 8 studies), religion (n = 4 studies), and health (n = 3 studies).

Among the 90 studies that examined age, nurses' ages ranged from 19 years of age (Cai & Zhou, 2009; Ning et al., 2009) to 73 years of age (Sorenson et al., 2009). Age was found to have a positive relationship with several dimensions of nurse job satisfaction, including satisfaction with the relationship with supervisor ($r = .11$, $p < .01$), satisfaction with care planning involvement ($r = .104$, $p < .01$), and satisfaction with interaction with the patient's family ($r = .155$, $p < .001$; Robison & Pillemer, 2007). Age was found to have a positive correlation with nurse job satisfaction ($r = .213$, $p = .002$), relationship with satisfaction with the head nurse ($r = .23$, $p = .001$), satisfaction with the nurse director ($r = .26$, $p = .001$), and satisfaction with coworkers ($r = .185$, $p = .007$; Sveinsdóttir, 2006). Age was found to have a negative relationship with intrinsic job satisfaction ($r = -.33$, $p < .05$), extrinsic job satisfaction ($r = -.36$, $p < .01$), and general job satisfaction ($r = -.35$, $p < .01$) in the study by Ross et al. (2009). Extrinsic variables are those dimensions that are external, such as physical work environment and scheduling. In contrast, intrinsic dimensions are internal, which includes feeling recognized for a job well done and fulfillment of career goals.

There were 72 studies that examined gender as it relates to nurse job satisfaction. Spetz and Herrera (2010) and Kalisch et al. (2010) both found that female nurses were more satisfied with their job, in general, when compared to male nurses. Penz et al. (2008) also found that female nurses were more satisfied with their job, in general, and that gender was a statistically significant predictor of nurse job satisfaction.

Marital status was measured in 39 studies. There were 16 different marital status categories examined (e.g. single, married, divorced, single/divorced). Nurses in the married grouping of marital status were found to be more satisfied overall (Hwang & Chang, 2008; Seago et al., 2011; Spetz & Herrera, 2010).

There were 10 studies that addressed nurses who care for dependents as it relates to nurse job satisfaction or some dimension of nurse job satisfaction. All 10 studies addressed dependent children and two studies addressed nurses caring for dependent adults. Nurses with no children reported more satisfaction with administrative feedback when compared to nurses who had more than two children ($F = 2.78$, $p = .04$; Chen et al., 2009). Kovner, Brewer, Wu, Cheng, and Suzuki (2006), using ordinary least square regression, found that nurses who reported work was conflicting with their ability to balance needs within their personal life also reported decreased nurse job satisfaction ($R^2 = -.077$, $p < .001$).

There were nine studies that examined some aspect of income, including the income of the nurse and household income. Nurses' income was shown to have a positive association with both nurse job satisfaction (odds ratio 1.02, $p < .05$) and satisfaction with the nursing profession (odds ratio 1.01, $p < .05$; Spetz & Herrera, 2010). Nurses with higher incomes were more likely to report higher nurse job satisfaction in 2004 ($p < .001$)

and 2008 ($p < .001$; Seago et al., 2011). Seago et al. (2011) controlled for union status and found every increase in $1,000 of nurse income predicted an additional .1 ($p < .01$) rise in nurse job satisfaction.

Professional demographics. There were additional demographics that pertained to nurses' professional background and experience. Variables included nurses' level of education, number of years employed as a professional nurse, number of years worked on the same unit, number of hours worked, and number of continuing education classes.

There were 70 studies that measured level of education. Findings regarding education were mixed with some studies finding a positive association with level of education and other studies finding no association with level of education. Korean nurses and Chinese nurses with more education reported more nurse job satisfaction and the difference was statistically significant when compared to nurses with lower levels of education (Hwang et al., 2009). A statistically significant difference was found in nurse job satisfaction when comparing diploma-educated and baccalaureate nurses (mean scores 73.0 and 64.1, respectively), with higher scores indicating more satisfaction (Al-Enezi et al., 2009). A regression equation of nurse job satisfaction as the dependent variable revealed level of education to be a significant and positive predictor when studied alongside other covariates ($R^2 = .082$, $F = 263.7$, $p = .007$; Zurmehly, 2008). Al-Enezi et al. also found that education was a statistically significant and a positive predictor of nurse job satisfaction (0 = diploma, 1 = baccalaureate; coefficient -6.423, $t = -3.740$, $p = .000$).

In contrast to the preceding review of positive associations between nurse job satisfaction and level of education, several studies found no difference between education

levels (Golbasi et al., 2008; Lu, While, & Barriball, 2007), or no relationship between education level and nurse job satisfaction (Ahmad & Oranye, 2010; DelliFraine et al., 2006; Flanagan, 2006; Larrabee et al., 2010; Spetz & Herrera, 2010). Education was not found to be a statistically significant predictor of nurse job satisfaction in several studies (Larrabee et al., 2010; Li & Lambert, 2008; Montoro-Rodriguez & Small, 2006; Weng et al., 2010).

There were 52 studies that measured the number of professional years as an RN. The range of years within this literature review ranged from no experience (just hired) to 52 years of experience. Years of experience in nursing was found to have a positive relationship with nurse job satisfaction and was a statistically significant predictor of nurse job satisfaction ($R^2 = .459$, $F = 41.92$, $p = .000$; Li & Lambert, 2008). Years of experience explained 10% of the total variance of nurse job satisfaction (Li & Lambert). Several studies found that years in the profession of nursing had no association with nurse job satisfaction (De Gieter De Cooman, Pepermans, & Jegers, 2010; Flanagan, 2006; Kovner et al., 2006; Laschinger, Finegan, & Wilk, 2011; Leung, Spurgeon, & Cheung, 2007; Rheingans, 2008). Years of experience on the same unit was also found to have no relationship with nurse job satisfaction (Djukic et al., 2010; Li & Lambert, 2008).

There were 34 studies that measured number of hours worked by nurses. Only 2 of the 34 studies reported actual hours. Twenty-two of the 34 studies did not report hours, but rather reported if the nurse worked full time or part time as a percent of staff. Number of hours worked did not have a statistically significant relationship with nurse job

satisfaction (De Gieter et al., 2010; Fillion et al., 2009; Kalisch et al., 2011; Tabak & Koprak, 2007).

Continuing education was measured in nine studies. Among the nine studies, four reported statistics related to continuing education. Two studies reported certification, including Bjørk et al. (2007), who reported that 22% had certification in their specialty. Kekana, du Rand, and van Wyk (2007) reported that 27% of the nurses had certification in their respective specialty. No difference was found for nurse job satisfaction when comparing nurses who took advanced job training and those who did not (Kovner et al., 2006; Tabak & Koprak, 2007). Lange et al. (2009) examined the impact of hiring two educators per unit for geriatric care in an effort to help nurses meet the needs of older adults on their unit. Hiring of the unit-based educators was complemented with a 30-hour online course in geriatric care (Lange et al.). The 53 nurses who participated in the geriatric course study reported an average of 15.38 hours in educational elements (Lange et al.). Results of the geriatric course study revealed there were no statistically significant differences between pre- and post-job satisfaction (overall and sub-dimensions including satisfaction with pay, autonomy, workload, organizational policies, relationship with nurses, and relationship with physicians; Lange et al.).

Theoretical Framework

There were 36 studies from this literature review that used theory to guide research. The most commonly reported theories included sociotechnical systems (STS) theory (seven studies) and Herzberg's motivation-hygiene theory (seven studies). There were three theories reported in two studies including Kanter's empowerment theory, Maslow's hierarchy of needs, and Donabedian structure-process-outcome theory. The

remaining 14 theories identified were cited by only one study each. The seven studies that cited STS theory built models that were premised on concepts proposed within STS theory. The concepts of STS theory also guided the selection of dimensions of job satisfaction in building the multidimensional model of nurse job satisfaction for testing in this study. Careful selection of the appropriate theory is important, as theory is the underpinning of scientific inquiry, including guiding model development and testing (Fawcett, 2000; Reynolds, 1971). Furthermore, theory assists with establishing an understanding of how variables relate to one another within a specific profession, such as nursing (Walker, Stanton, Salmon, & Jenkins, 2008). Use of STS theory will assist with guiding the testing and refinement of a predictive conceptual model of nurse job satisfaction proposed in this study.

According to STS, creating a work environment where employees are both productive and satisfied within their work necessitates managing the sociological (people and their social organizations within the work place) and technical (work system, processes, equipment, and facilities) systems within the organization as interdependent systems (Maxwell, Ziegenfuss, & Chisholm, 1993). STS theory was born in the 1940s (Trist & Bamforth, 1951) in an industrial setting and was subsequently reworked in other areas (Pasmore, 1988). It has been applied to health care organizations (Maxwell et al., 1993; Parsons, 1998; Tonges, 1992; Tonges, Rothstein, & Carter, 1998). Social and technical dimensions were selected based on the literature review. This theory was deemed the most useful in studying nurse job satisfaction because it includes the input of direct line workers regarding what aspects are most important to nurses for job satisfaction. Nurses themselves are the most accurate in reporting what social and

technical dimensions make a satisfying job for a nurse. This theory facilitates leaders in operations to examine what dimensions need refinement as the variables are sorted into social and technical dimensions. Finally, this theory facilitates a sensible conversation between staff and management for interpretation of findings and collaboratively interpreting low and high scores in their respective social and technical dimensions. Accurate interpretation of findings by staff who most clearly understand the resultant scores will assist with refinement of conceptual predictive models that are likely to have less error in future models of nurse job satisfaction.

Sociotechnical systems involve the active participation of workers to help design the process of their work, because it is the worker who understands the work most intricately. If employees are clear in their own abilities (both strengths and weaknesses) and in what the organization requires for the professional role they hold, they will have a greater ability to identify what is and is not important socially and technically to execute their job. For example, Persky et al. (2011b) assert that nurses must be clear in the dependent, interdependent, and independent functions of their role in order to feel empowered and autonomous in their role. Clarity of role facilitates collaboration with coworkers and in creating systems effective for caring for patients (Persky et al.). Persky et al. asserts that the evolution of employees to act more autonomously was due in part to the educational curricular about professional role that helped nurses understand what was important in their particular professional responsibilities and how they can utilize committees and networking to co-create systems specific to their role.

Specifically, STS helps to inform the social and technical dimensions of nurse job satisfaction. For example, relationship with coworkers has been defined as “opportunities

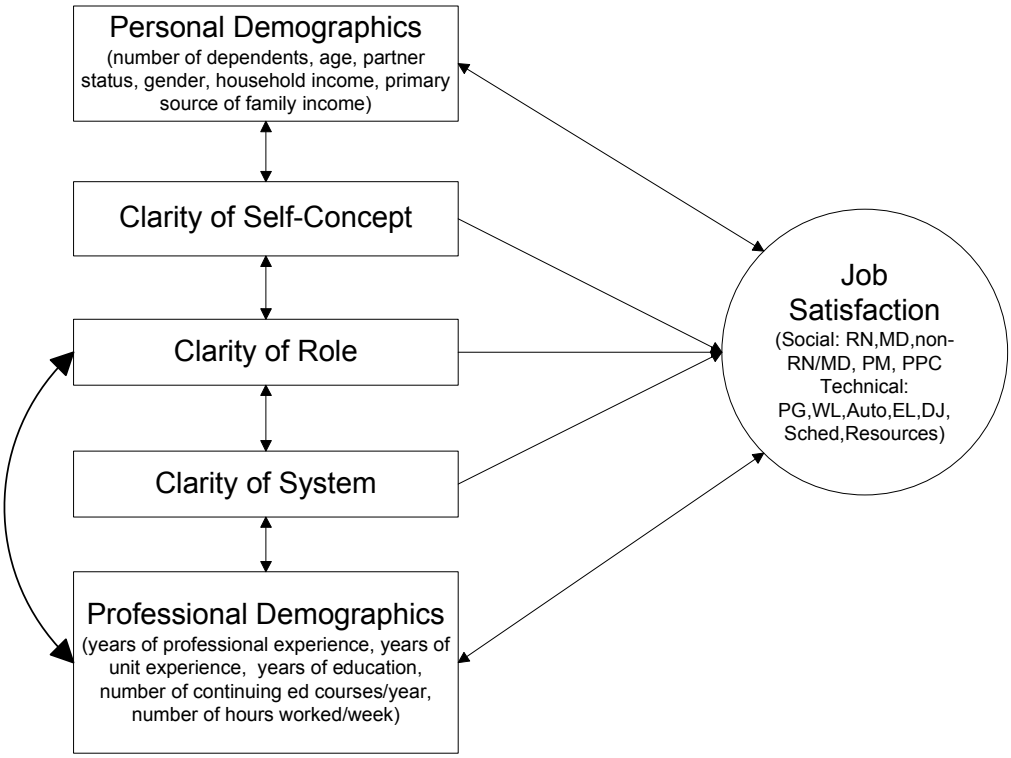
presented for both formal and informal social and professional contact during working hours" (Stamps & Piedmonte, 1986, p. 181). As a social dimension of the job, it is proposed within the model for this study that relationships with coworkers will explain a portion of the variance of the latent variable of nurse job satisfaction. Similarly, professional growth as a technical dimension of the job has been defined as the degree to which nurses are satisfied with potential upward occupational mobility within an organization (Agho, 1993). Thus, a job that allows a nurse to grow professionally will contribute to the explained variance of the latent variable of nurse job satisfaction. Combining the measurement of both social and technical dimensions of nurse job satisfaction is proposed to explain the majority of the variance of the latent variable of nurse job satisfaction. The systematic literature review provides insight to those factors that may be associated with, or help to explain variance in, nurse job satisfaction and will be considered in the current analysis: personal and professional demographics, clarity of role, clarity of self, and clarity of system.

Several demographics shown to relate to nurse job satisfaction will also be included in the theoretical model proposed for this study. For example, higher education has been associated with satisfaction with pay (Chan et al., 2009), and age positively related to satisfaction with workload (Cohen et al., 2009). Involvement in a clinical ladder program relating to satisfaction with autonomy (Bjørk et al., 2007) and number of years of experience on the same clinical care unit both related to satisfaction with executive leadership (Coshow et al., 2009). It is proposed that the relationship between personal and professional demographics found within the literature provides support for including them within the theoretical model for this study.

Various dimensions of clarity have also been shown to relate to nurse job satisfaction. Clarity of self is associated with the social dimensions of nurse job satisfaction by Cowin et al. (2008), including satisfaction with pay, workload, and autonomy. Al-Enezi et al. (2009) found that clarity of system contributed to the construct of professional opportunities. Cowin et al. reported that the social variable of relationship with coworkers related to clarity of self. There is limited research in the literature on the relationship between clarity of self and nurse job satisfaction, less research in the relationship of clarity of role and nurse job satisfaction, and almost no research has examined clarity of system and nurse job satisfaction. This relationship between clarity and nurse job satisfaction is mostly theoretical, as described in the literature review, and thus will represent a contribution to the existing literature on correlates and predictors of nurse job satisfaction.

Development of the theoretical and conceptual models guiding this study, which is based on a systematic review of the literature (see above), as well as the authors' personal experiences in nursing over the last 25 years as an RN, assisted with the articulation of a definition of nurse job satisfaction that is consistent with STS theory: Nurse job satisfaction is *the feeling derived from perceiving that the social and technical aspects of the work environment are sufficient to perform the job*. This definition, coupled with the theoretical model proposed for this study, will help this study build upon previous research by comprehensively studying how demographics and various components of clarity relate to the multidimensional latent variable of nurse job satisfaction, as shown in the conceptual model in Figure 2:

Figure 2, Theoretical Relationships between Clarity, Demographics, and Nurse Job Satisfaction



Hypotheses that will be tested include:

Hypothesis 1: The following social (relationship with coworkers, relationship with physicians, relationship with nurses, relationship with unit manager, and relationship with patient) and technical (workload, autonomy, distributive justice, scheduling, professional growth, and executive leadership) subscales will represent a multidimensional latent construct of nurse job satisfaction. This hypothesis is based on the finding of this literature review and STS that both social and technical variables are the primary dimensions of nurse job satisfaction.

1. Hypothesis 2: Clarity of Self will be positively and significantly associated with the latent construct of nurse job satisfaction. It is proposed that nurses who are clear in who they are and what they want in life will contribute to their overall nurse job satisfaction. This hypothesis is premised on the literature, previously cited, that reveals a relationship between clarity of self and nurse job satisfaction.
2. Hypothesis 3: Clarity of Professional Role will be positively related to the latent construct of nurse job satisfaction. This hypothesis is premised on the literature, previously cited, that reveals a relationship between clarity of self and nurse job satisfaction. Nurses who are clear in their role will understand what is needed in their job and work toward refinement of these areas to ensure that they are successful in their job.
3. Hypothesis 4: Clarity of System will be positively related to the latent construct of nurse job satisfaction. This hypothesis has limited empirical data in support but has been cited in theory and experts in operations. Nurses who are clear in the

systems within the organization to support their role will be more satisfied within their job.

Summary

This literature review examined 165 studies about nurse job satisfaction. Extensive examination of the articles and measures revealed several elements of the state of the science of nurse job satisfaction. First, there is confusion about the construct of nurse job satisfaction. Several authors used measures designed to examine the construct of professional practice, and not nurse job satisfaction. Second, the word “satisfaction” was not used in the majority of the measure items or in the Likert scales, bringing into question if a construct of satisfaction was measured at all.

Third, measures were used or created frequently in an ad hoc fashion with little discussion, if any, about model misspecification. Fourth, theory was not consistently incorporated in analyses that examined how nurse job satisfaction is operationalized or what the potential correlates of nurse job satisfaction are. Lack of theory along the entire trajectory of research hinders the ability to interpret and/or refine the models tested in nurse job satisfaction.

With the preceding gaps regarding the state of the science of nurse job satisfaction in mind, this study will advance current research in several ways. Specifically, this study will use a theoretical approach that includes both social and technical dimensions of nurse job satisfaction that have been identified in the literature as important to nurses when operationalizing the construct of nurse job satisfaction. The methodological approach that will be discussed in the next chapter will comprehensively test and refine the conceptual model identified in Figure 1 to provide an in-depth analysis of the multiple

dimensions of nurse job satisfaction, and the various correlates of these dimensions. The predictors of clarity of self, role, and system have yet to be studied in relationship to nurse job satisfaction. This study will not only assist with identifying social and technical dimensions of nurse job satisfaction for potential refinement, but will also assist with helping nurses and organizational leaders identify what is most important to self, profession, and system. It is hoped such clarity will not only help nurses be more clear in what is needed in their life, job, and system, but also help nurses who may not belong in nursing identify their personal talents and alignment with their professional roles and system.

Chapter 3: Research Design and Methods

Overview

The purposes of this study are to: a) describe social and technical dimensions/subscales of nurse job satisfaction using univariate statistics; b) test the fit of a measurement model of nurse job satisfaction and identify dimensions of nurse job satisfaction; and c) identify predictors of nurse job satisfaction. This chapter provides a description of the sample, procedures for collecting data, and analyses used for the purposes described above.

Preliminary Studies

Concurrent to the development and execution of this dissertation was a large study of the Healthcare Environment Survey (HES). Prior to launching the study in Jamaica, a sample of 5,500 registered nurse (RN) responses from five different clinical settings responded to HES between the years 2005 and 2011. Surveys were sent to 9,220 clinical care nurses. Nurses were in one of four institutions: 1) New York-Presbyterian Hospital located in upper Manhattan in New York City; 2) St. Joseph Medical Center located in Patterson, New Jersey; 3) Children's National Medical Center in Washington D.C.; and 4) Trinity Health System in Muskegon, Michigan. Within this sample, two participating facilities used HES three to five consecutive years. A principal component analysis (PCA) was conducted for each year the five facilities used HES to measure nurse job satisfaction. A total of 10 separate PCA analyses were conducted using a minimum factor loading of .5, no cross-loadings were accepted, an eigenvalue of 1.0 was selected for extraction, and a minimum Kaiser-Meyer-Olkin (KMO) of .85 was desired. Results revealed a 10-dimension structure of job satisfaction for nurses that was consistent across

settings and consecutive years. The general order of loading included distributive justice, patient care, relationship with coworkers, engagement with management, relationship with physicians, professional growth, autonomy, executive leadership, workload, and staffing/scheduling. Explained variance for the 10 dimensions ranged from 75% to 79%. The current study in Jamaica will test the performance of HES in a setting outside of the USA and will test the relationship of clarity of self, role, and system with nurse job satisfaction.

Study Design

This study used a cross sectional convenience sample of nurses who provided direct care to patients at the University of the West Indies Hospital (UWIH) in Jamaica to test a model of nurse job satisfaction. A cross sectional design was selected as this was deemed the most feasible method for data collection because it would capture ratings of satisfaction from a large group of nurses in a hospital in Jamaica. In addition, the resources required and potential validity threats (attrition bias) in a longitudinal design of nurses rendered such an approach unwieldy. A convenience sample, however, was deemed feasible operationally and financially. The study was approved by both the University of Minnesota (IRB code number 1110P06262) and the University of the West Indies (IRB Code Number ECP 112, 11/12).

Study Population

Inclusion criteria included respondents who were staff nurses within UWIH. Participants were required to be English speaking as the survey was in English. Exclusion criteria included float/sessional nurses. Float/sessional nurses were defined as nurses who work periodically within the hospital to ensure adequate staffing to provide patient care

for a single day or for a limited amount of time; they are not employed by the hospital. These nurses would not be able to describe or report on the social and technical aspects of the work environment when compared to regular staff who work on their respective unit every week. Thus they were excluded.

A list of the entire staff of nurses was provided by the Chief Nurse Executive of UWIH. The 29 clinical care units were grouped by UWIH into eight service lines, including Medicine Program (Hemodialysis, Ward 20, Ward 3, Ward 4, Ward 7 and Ward 8), Mental Health Program (Ward 21), Obstetrics and Gynecology (Antenatal Clinic, Domiciliary, Labor Ward, Ward 9 and Ward 12), Pediatrics Program (Ward 14, Ward 15 and Ward 16), Surgery I Program (Ward 1, Ward 2, Ward 5, Ward 6, Ward 17 and Ward 19), Survey II Program (Accident & Emergency and Out Patient Department), Surgery III Program (Intensive Care Unit, Main Operating Theatre, Recovery Room and Tony Thwaites Wing), and Miscellaneous (ATSU and Child Guidance Clinic).

Procedures

Paper and pencil format was suggested as superior to electronic survey format by the administration due to feasibility issues. The primary investigator of this study and a research assistant administered the surveys to all participating clinical units over a nine-day period from May 12-20, 2012. A co-investigator for this study was assigned by UWIH to assist with distribution of the surveys, as per UWIH study requirements. The surveys were distributed and collected through August 31, 2012.

The primary investigator (PI) trained the research assistant in two stages. The first stage of training included a review of the protocol and all instruments. All questions posed by the research assistant were answered by the PI, including how to distribute

surveys, how to direct potential respondents to contact the PI, and similar queries. The second stage of research assistant training included a full day of demonstration by the PI regarding distribution and collection of surveys. A research assistant was necessary to ensure all surveys were distributed in a timely manner on the 29 units within the limited time the PI and research assistant were on site. Surveys were hand delivered to each unit to nurses who were working that day. Wards Sisters (Charge Nurses) assisted with helping nurses find time during their 8-hour shift to respond to the survey. The survey took 30-40 minutes to complete, on average.

Upon opening the survey each employee was presented with a consent form explaining the purpose and confidentiality protocols of the study. Participants were also informed that there were no direct benefits for responding, but that the information would assist in understanding the most satisfying dimensions of the work environment. Potential respondents were also informed that the return of the survey within the sealed envelope would serve as their consent to participate in the study. Participants were informed that data would be presented only in aggregate form and no individual names would be used. Upon completion of the survey, the respondents were asked to place the survey in a sealed envelope and hand deliver it to the investigator or research assistant who were present and administrating the surveys. The sealed envelopes remained in the sole possession of the PI while at UWIH. Data were entered into the PI's computer upon return to the United States using SPSS 20.0 and transferred into Mplus 6.12 for subsequent analyses.

Protection of Subjects

The consent letter that accompanied the survey included summaries of the study purpose, a description of confidentiality, an explanation that responses were voluntary and that there would be no penalty for not responding, a description of how data would be stored and who had access to the data, and contact information of the investigators. Potential respondents were informed to retain the consent letter for instances when a question arose regarding the study. The names of respondents were also entered on the hard copy survey to ensure the linking of data to each respondent, for instances where survey reassembly might be required.

Data from this study were stored in a computer server that has two layers of security. The server is located at the Healthcare Environment office in St. Paul, Minnesota, USA. Once the data were entered into analytical software, the hard copy surveys that included each participant's code were destroyed.

Instruments

Instruments were selected to understand the relationship between clarity of self-concept, clarity of role, clarity of system, select demographics, and the multiple dimensions of nurse job satisfaction. All instruments were made available to all Registered Nurses who were responsible for patient care at the UWIH. Measures utilized for this study were selected because they have shown strong reliability and validity in prior research on nurse job satisfaction (Campbell et al., 1996; Nelson, 2001; Persky & Bakken, 2008; Rizzo et al., 1970). The only instrument that is newly developed for this study was the Clarity of System instrument (see below and Table 4).

Table 4. Instruments and Dimensions Measured

Dimension Measured	Number of items	Reliability	Author of instrument
Outcomes			
Satisfaction with the Relationship with Nurses	5	.96 (Nelson, 2011)	Drenkard (2008)
Satisfaction with the Relationship with Physician	5	.94 (Nelson, 2011)	Slavitt et al. (1978)
Satisfaction with the Relationship with Non-Nurses and Non-Physicians	5	.92 (Nelson, 2011)	Nelson (2001)
Satisfaction with Engagement with Management	5	.94 (Nelson, 2011)	Alexander et al. (1982)
Satisfaction with Patient Care	8	.91 (Nelson, 2011)	Nelson (2001)
Satisfaction with Professional Growth	8	.96 (Nelson, 2011)	Kacmar et al.(1999)
Satisfaction with Workload	6	.72 (Nelson, 2011)	Slavitt et al. (1978)
Satisfaction with Autonomy	8	.78 (Nelson, 2011)	Slavitt et al. (1978)
Satisfaction with Executive Leadership	3	.91 (Nelson, 2011)	Drenkard (2008)
Satisfaction with Distributive Justice	8	.97 (Nelson, 2011)	Price and Mueller (1981, 1986)
Satisfaction with Scheduling	4	Pearson's r = .64 (Nelson, 2011)	Nelson (2006)
Satisfaction with Resources	3	Not available	Nelson (2006)
Predictors			
Clarity of self	12	.86 (Campbell et al., 1996)	Campbell et al. (1996)
Clarity of role	6	.81 (Rizzo et al., 1970)	Rizzo et al. (1970)
Clarity of system	14	Not available	Nelson (2006)
Covariates			
Number of dependents			
Marital Status			
Household income			
Age			
Gender			
Main source of income			
Number of years worked on current unit			
Number of years in nursing			
Highest level of education			
Number of hours worked per week			
Hours of continuing education per year			

Dimensions of satisfaction: Social.

The social and psychological needs of workers are labeled as potential social dimensions of job satisfaction within a sociotechnical systems theoretical framework (Maxwell et al., 1993). Social dimensions include satisfaction with relationship with physicians, satisfaction with relationship with nurses, satisfaction relationship with non-physicians and non-nurses, satisfaction with engagement with management, and satisfaction with professional patient care.

Satisfaction with relationship with physicians. This 5-item subscale originated in the study by Slavitt et al. (1978) and was further tested by Stamps (1997). It was adapted by Nelson (2001) to measure facets of nurse job satisfaction. The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the relationship with the physician. Mean scores of item responses were used. Cronbach's alpha for the relationship with physician subscale was .94 in a sample of 180 staff RNs (Nelson, 2011).

Satisfaction with relationship with non-nurses and non-physicians. This 5-item subscale was adapted by Nelson (2001) using a 5-item subscale originated in the study by Slavitt et al. (1978) to measure the relationship of non-nurses and non-physicians. The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the relationship with non-nurses and non-physicians. Mean scores of item responses were used. Cronbach's alpha for this subscale was .92 in a sample of 180 staff RNs (Nelson, 2011). The subscale was originally termed "interaction with coworkers" by Nelson (2001) but was renamed for

this current study based on discussions with leaders from UWIH who stated this term would be more clearly understood by respondents.

Satisfaction with relationship with nurses. This 5-item subscale was adapted from the satisfaction with relationship with physician subscale by Drenkard (2008). The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the relationship with nurses. Mean scores of item responses were used. Cronbach's alpha for the relationship with physician subscale was .96 in a sample of 180 staff RNs (Nelson, 2011).

Satisfaction with engagement with management. This 5-item subscale assesses a nurse's satisfaction with the unit manager's leadership style and responsiveness (Alexander et al., 1982). The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the manager's involvement. Mean scores of item responses were used. Cronbach's alpha for this subscale was .94 (Nelson, 2011).

Satisfaction with patient care. This 8-item subscale assesses a nurse's satisfaction with his or her ability to develop a relationship with a patient, care plan with the patient and patient's family, ability to provide continuous care for the patient, and ability to collaborate with other members of the healthcare team (Nelson, 2001). The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the operations of patient care. Mean scores of item responses were used. The Cronbach's alpha of the subscale was .91 (Nelson, 2011).

Dimensions of satisfaction: Technical.

Technical dimensions operate within a company/facility. These dimensions support systems that help the worker successfully complete their required tasks within the work itself and thus are an important component of satisfaction within the sociotechnical systems framework (Maxwell et al., 1993). Technical dimensions of satisfaction included satisfaction with: autonomy, distributive justice, nursing leadership, professional growth, resources, staffing/scheduling, and workload.

Satisfaction with autonomy. This 8-item subscale was originally created by Slavitt et al. (1978) and tested in several studies reviewed by Stamps (1997). Stamps and Piedmont (1986) define this dimension as satisfaction with the freedom and independence in a job to carry out daily work activities. The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the relationship with the level of autonomy. Mean scores of item responses were used. The Cronbach's alpha of the autonomy subscale in a study of 180 staff nurses was .78 (Nelson, 2011).

Satisfaction with distributive justice. This subscale examines nurses' satisfaction with the rewards of the job when considering their level of education and experience. It is an 8-item subscale from the Job Satisfaction Scale (JSS) by Price and Mueller (1981, 1986). Items were originally on a 6-point Likert scale but adapted by Nelson (2001) to a 7-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree) in order to make the range the same as the other dimensions of nurse job satisfaction and thus have a consistent level of sensitivity in the scale. More agreement indicates more satisfaction

with distributive justice. Cronbach's alpha for this subscale in a study of 180 staff nurses in the USA was .97 (Nelson, 2011).

Satisfaction with nursing leadership. This 3-item subscale was first used in the study by Drenkard (2008) to measure nurse job satisfaction. No psychometrics were reviewed by Drenkard (2008) for this subscale. To establish content validity, the questions were reviewed by three experts in healthy work environments. Two of these experts were active in the appraisal process for hospitals seeking magnet status. The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with executive nursing leadership. Mean scores of item responses were used. Cronbach's alpha of this subscale in a study of 180 staff nurses was .91 (Nelson, 2011).

Satisfaction with professional growth. This 4-item subscale measures an employee's satisfaction with his or her own professional growth within the organization (Kacmar et al., 1999). The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the relationship with professional growth. Mean scores of item responses were used. Internal reliabilities of this scale were .83 in the initial development of this subscale (Kacmar et al.). In a more recent study of 180 nurses in the USA, Cronbach's alpha was .96 (Nelson, 2011).

Satisfaction with resources. This tool was developed by Nelson (2006). Over 10,000 comments from 2,662 employees (an 80% response rate) in healthcare in the Caribbean regarding the work environment were analyzed and themed (Nelson). Results from the comment analysis revealed lack of resources was the third most common reason

employees reported feeling stressed in their job, behind workload and coworkers (Nelson). Data from this private Caribbean hospital report was used by the PI to generate three questions that were deemed relevant to Jamaica. The three questions were presented to the co-investigator of this study from UWIH who validated that the questions were relevant. Statements in this dimension of nurse job satisfaction relate to satisfaction with availability of supplies and equipment needed to do the job. Similar to other subscales, a Likert scale was used from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating greater satisfaction.

Satisfaction with staffing/scheduling. The subscale to measure satisfaction with staffing/scheduling was also developed for an unpublished study conducted in the Caribbean (Nelson, 2006). The initial two items for the staffing/scheduling subscale was developed by the PI using interviews of leaders from the Caribbean facility (Nelson, 2006). Items inquired about a nursing staff member's satisfaction with the amount of advance time a new schedule roster is posted, as well as satisfaction with shift rotations. The two items used in the initial study had a Pearson's correlation of .54 ($n = 379$ staff nurses in the Caribbean, $p < .05$; Nelson, 2006). In a more recent study in the USA, the correlation of the two items to measure satisfaction with staffing/scheduling was .64 (Nelson, 2011). To enhance the reliability of this subscale, two items were added, including satisfaction with input into the final schedule before posting and ability to change schedule after posting. The two new items were generated by the author of this dissertation and validated by two nurse leaders in Jamaica, indicating a content validity index (CVI) of 1.0. The items are scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more satisfaction with the

scheduling methods used to staff for patient care. Mean scores of item responses were used.

Satisfaction with workload. The subscale to measure workload was originally called “task requirements” and was developed by Slavitt et al. (1978) to measure satisfaction with the type and number of tasks required within a defined time frame. It was relabeled by the author of this dissertation to reflect a more contemporary discussion. This 6-item subscale used a 1-7 Likert scale, from strongly disagree (1) to strongly agree (7). Higher scores indicate greater satisfaction with the type and number of tasks required within work. The mean score of item responses was created. The Cronbach’s alpha has been reported as .72 in a study of 180 staff nurses in the USA (Nelson, 2011).

Demographics.

Several demographics were selected based on theory and the literature review to determine potential covariates of nurse job satisfaction. Understanding what covaries with nurse job satisfaction is important for the purpose of controlling for possible variance within the model. Demographics included number of dependents, age, marital status, gender, household income, whether or not the respondent was the primary source of income in the household, number of years worked on current unit/department, number of years in nursing, highest education credential, number of continuing education hours per year, and number of hours worked per week. Below are the categories for each demographic measure that were reviewed by the co-investigator of this study, who is employed at UWIH and lives in Jamaica. All demographic categories were tailored to fit the culture and language used in Jamaica, and all items included a “prefer not to answer” option.

Number of dependents was measured using a 1-7 scale plus a “greater than 7” option. Dependents include children, elderly parents, or any others who are dependent upon the respondent’s income for daily living. *Age* was assessed using groupings of 10 years: 20-29, 30-39, 40-49, and 50-59 years of age. There were also options for less than 20 years of age and 60 or greater. *Marital status* included married, widowed, single, domestically partnered (common–law), or divorced. *Gender* was assessed using an option to select either male or female. *Household income* was noted in financial groupings likely to be reported by the respondent nurses in Jamaica. Groupings included $780,000 - $900,000, $901,000 - $1,020,000, and $1,021,000-1,260,000. There was also an option to report less than $780,000 or more than $1,260,000. A second question related to household income asked the respondent if they were the *main source of income*. Respondents could select yes or no. Items that evaluated the respondent’s *number of years worked on the current unit/department* and *number of years in nursing* used the same groupings of years. Options included: less than five years, 5-10, 11-15, 16-20, 21-25, 26-30, 30-35, and more than 35 years. There were six options for respondents to report their *highest level of education*. The options were: diploma, associate degree, baccalaureate, master’s degree, and doctoral degree. There was also an option for “other,” which was accompanied by a space to provide details of what type of education was the highest earned. There were two final demographic items that used a space for the respondent to report specifics: *number of continuing education hours per year* and the *number of hours worked per week*.

Predictors.

Predictors of nurse job satisfaction as proposed within the conceptual model of this study included: clarity of self-concept, clarity of role, and clarity of system. It is proposed that only nurses who have clarity regarding who they are as a person, what the responsibilities are within their roles, and understand how to utilize the system they work within can become engaged within their work (Felgen, 2007; Koloroutis, 2004). Three subscales to measure these predictors of nurse job satisfaction were utilized.

Clarity of self-concept. This 12-item subscale was developed using principal component factor analysis (Campbell et al., 1996). It was derived from another 40-item instrument that measured three dimensions of self (Campbell et al.). It was developed to measure the extent that self-beliefs are clearly and confidently defined and internally stable (Campbell et al.). Nine of 12 items were negatively phrased. Cronbach's alpha in the original factor analysis was .86 (Campbell et al.). The items were scored on a 1-5 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more clarity of who the respondents believe themselves to be as a person. Mean scores of item responses were used.

Clarity of role. This 6-item subscale measures how clear the employee regards the behavioral requirements for his or her job (Rizzo et al., 1970). Rizzo et al. asserts that workers who have poor role clarity will become dissatisfied with their job. Items relate to worker clarity (or lack of it) regarding their understanding of their authority within their role, the job's goals and objectives, how to divide time for each task within the work, what the responsibilities are, what is expected within the role, and each task within the job (Rizzo et al., 1970). The original scale used by Rizzo et. al was a 7-point scale, but

with the phrasings “totally false” (1) to “totally true” (7). Words used for the 7-point scale were adapted for this study to be consistent with the other subscales from 1 (strongly disagree) to 7 (strongly agree). Higher scores indicate more satisfaction with the relationship with the physician. Mean scores of item responses were used.

Clarity of system. No subscale was found that measured clarity of system; for this reason a subscale was created using the theoretical propositions by Felgen (2007). The author of this dissertation interviewed Felgen in 2009 regarding the theories of clarity of self, role, and system (interview conducted February 16th, 2011 at New York Presbyterian hospital). Notes from this interview were used to develop the 12 statements for clarity of system. The 12 items related to understanding the level of control within the hospital, continuity of patient care, how patient assignments are made, scheduling of staff, organization’s key successes, differences of responsibility, author and accountability, understanding practice change and associated principles for reason of change, shared governance, unit staff councils, manager’s support of staff, and how the nurses’ association supports nurses’ roles. The 12 statements were reviewed with the co-investigator of this study and three more items were added relating to unions. Nurses in Jamaica are very active within their professional unions at the local, regional, and international level. All statements were reviewed by Felgen for validation of final content and Felgen confirmed that all 15 statements were consistent with her theoretical propositions of clarity of system. The items were scored on a 1-7 Likert scale ranging from strongly disagree (1) to strongly agree (7). Higher scores indicate more clarity of the system. Mean scores of item responses were used.

Statistical Analysis

This next section will review the analyses used for this study. Examination of missing data, patterns of missing data, and imputation methods will be reviewed first. Secondly, preparation of the data for analysis will be reviewed. Finally, the testing, respecification, and retesting will be reviewed.

Missing data.

There were multiple phases of data analysis. The first phase involved analyzing data for missing values. This included assessment of data for patterns of missing data. Patterns may include a subscale not responded to in its entirety though subscales both preceding and following the missing subscale are responded to. Another pattern that was examined for missing data was within demographics, such as a clinical unit or nurse demographic that might have had a high percentage of non-responses. It was the goal to have no more than 5% missing data from any survey or any pattern that may suggest bias within a particular demographic. Missing values of less than 5% of the total data set in a large sample are often of little concern (Kline, 2011). Surveys that have 5% or more missing data, or a pattern of missing data, were not included in the final sample. Imputation was carried out on respondents with 5% or fewer random items missing using the random imputation option in SPSS 20.0.

Data preparation.

The second phase of the study was data preparation. The second phase included five steps core to SEM, including specification, identification, estimation, testing fit, and re-specification. There are four hypotheses for this study that each included specific elements of SEM. This next section will review each data preparation step (See Table 5).

Table 5

Research Steps in Study and Associated Methods

Step in Research	Step Description	Method used in Step
1.	Missing data and imputation	Analyze missing data
		Impute data for missing data
2.	Prepare data	Eigenvalues greater than zero
		Determinants positive
		If eigenvalue close to zero, assess for collinearity
		Collinearity assessed using variance inflation factor (VIF) values
		Outliers assessed using Mardia's index
		Mohalanobis distance to assess for multivariate outliers
		Missing values assessed if greater than 5%
		Relative variance will be examined visually
3.	Specification and identification	Establishment of model for further testing
4.	Estimation	Confirmatory factor analysis, loading social variables
		Confirmatory factor analysis, loading technical variables
5.	Model testing	Chi square
		Root square error of approximation (RMSEA)
6.	Respecification	Modification indices

The first step in data preparation was screening the data for non-positive definite (NPD), collinearity, outliers, normality, linearity, homoscedasticity, and relative variance. In addition, the instruments were assessed for reliability.

Data were assessed for NPD using eigenvalues. Eigenvalues had to be greater than zero. In addition, the determinants had to all be positive. In addition, if an eigenvalue was near zero, the data were examined more closely for collinearity. There are methods in most software to correct NPD, but this can result in another problem of biased data (Kline, 2011).Collinearity of all variables was assessed using variance inflation factor (VIF) values. Regression equations were used to assess each variable, one at a time, with the variable being assessed entered as the dependent variable and all other variables entered as predictor variables. If any regression equation had a VIF value greater than 10, the variable with such VIF value was excluded from further analysis in SEM.

Outliers were assessed using Mardia's index. Mohalanobis distance is another method that can be used to assess multivariate outliers. If outliers were confirmed, the data set was examined for outliers and a judgment was made to exclude data using pairwise deletion.

Univariate normality was assessed using skewness and kurtoses to examine for normal distribution of the data. Variables with skewness greater than 1.0 were examined visually for possible identification of why the data might be skewed, such as outlying scores. Kurtosis was desired to be close to zero, and statistics that were greater than zero or negative were examined visually using histograms to understand the statistic more thoroughly for evaluation of remedy, if needed or possible.

Multivariate normality was examined via Mardia's (1985) test. Multivariate normality was considered carefully as large sample sizes can make the smallest deviation from normality statistically significant (Kline, 2011).

Linearity and homoscedasticity are forms of multivariate normality (Kline, 2011). This was assessed in the regression equations when assessing data for collinearity using VIF values. Kline suggests plots in regression diagnostics are one way to assess for multivariate normality by assessing the predicted and actual values.

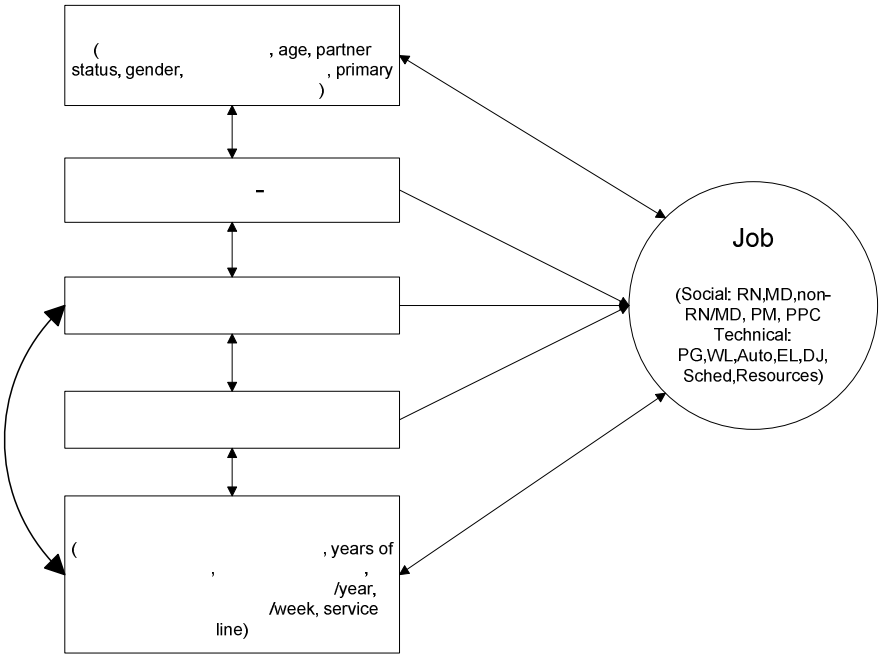
Relative variance was examined visually. If the variance of variables are extreme from one variable to the next, covariance matrices will be poorly scaled, which can cause SEM to fail (Kline, 2011).

***Specification and identification*.**

The variables and direction of hypothetic relationships for this research study were specified in the model below (See Figure 3). It is noted that latent variables are in circles and observed variables are depicted as rectangles. The single arrows from X (predictors) to Y (latent) indicate the direction of the relationship (X causes Y). The double arrows indicate X and Y mutually influence each other. Each of the variables, both latent and observed, are identified within the data set collected in Jamaica using instruments described earlier in this chapter.

***Estimation*.** A two-step process as reviewed by Brink and Wood (1998) was used for estimation. The first step included using a confirmatory analytic approach to evaluate how well each latent variable loaded within each latent construct. The social dimensions were evaluated together first, followed by the technical dimensions of satisfaction. These steps are consistent with the counsel of Brink and Wood, who suggest evaluating latent

Figure 3. Theoretical Relationships between Clarity, Demographics, and Nurse Job Satisfaction



concepts separately before testing the entire latent construct. Such evaluation is suggested to be carried out using either confirmatory or exploratory factor analysis (Brink & Wood). After evaluation of both the social and technical dimensions, all nurse job satisfaction dimensions were examined together. It is proposed that deleting any potential poorly-fitting concept within the social and technical dimensions, respectively, would assist with overall model fit when combining the social and technical dimensions into one latent construct of nurse job satisfaction. Using a two-step process risks bias if the concepts are not correlated or if they are too strongly correlated, which would indicate that they may measure the same thing (Brink & Wood). However, previous research (Nelson, 2006) has revealed that the concepts are correlated and no correlation was .80 or greater. With the previous literature in mind and sequential method of evaluating the data fit, the two-step approach was selected.

Once the items were identified for further testing, MPlus was used as the software to test the model fit. There were several software packages that could have been used, but MPlus was selected because it uses the mean rather than zero for estimation, and thus deemed more accurate in final estimates. Software that evaluates model fit does so by evaluating the fit of the covariance matrix to the observed matrix and subsequently reduces or eliminates any poorly fitting item (Brink & Woods, 1996).

Model testing. Chi square was used to evaluate model fit. It is desired to have a small and insignificant value to demonstrate that the covariance matrix is identical to the observed data set (Brink & Wood, 1996). Thus, a sample between 50 and 500 is suggested when using the Chi square to test for model fit (Brink & Wood). The final sample size for this current study was anticipated as ranging between 50 and 500. A

limitation in using Chi square is that a large sample can yield a good model fit even if this is not the case (Brink & Wood; Hu & Bentler, 1999). In contrast, a sample size that is too small can be identified as a good model fit using Chi square when it is not apparent (Brink & Wood; Hu & Bentler). Thus, additional indices for goodness of fit were used, including the root mean square error of approximation (RMSEA). RMSEA examines the noncentrality of the sample within the approximated model. Use of RMSEA is more appropriate for confirmatory procedures than exploratory procedures (Rigdon, 1996). There is some controversy for the value of RMSEA that indicates good fit (i.e., from .06 to .08; see Hooper, Coughlan, & Coughlan, 2008). For this study, .06 was selected as a conservative cut-off point. Factor loading of .3 or more for the final model was considered adequate as this was identified as the minimum loading to accept (Wang & Want, 2012).

Re-specification. The proposed initial model was evaluated for possible refinement and subsequent improved model fit. Elements that were used to improve model fit included examination of the standardized residual and modification indices (Brink & Wood, 1996). The residuals should all be zero if there is no difference between the observed and implied covariance matrices (Brink & Wood). Modification indices reveal the degree to which a Chi square value decreases if an item is removed (Brink & Wood). Theory must be the overall guide as the model is re-specified (Brink & Wood; see Figure 2 above). Furthermore, any refit model should be validated using other data sets (Brink & Wood). It is suggested that if the data set is large enough, the respecification should be tested using half of the data and reconfirmed with the remaining half of the data (Brink & Wood).

Hypothesis testing.

Hypothesis 1: Both social (relationship with coworkers, relationship with physicians, relationship with nurses, relationship with unit manager, and relationship with patient) and technical (workload, autonomy, distributive justice, scheduling, professional growth, and executive leadership) subscales would represent a multidimensional latent construct of nurse job satisfaction, as noted in Figure 1. The objective of this hypothesis was to create a measurement model that would determine if the subscale in hypothesis 1 would successfully load into a latent construct of "nurse job satisfaction." To test this model, a confirmatory factor analysis (CFA) was used to determine whether the social and/or technical dimensions existed as discrete dimensions of satisfaction. If models did not fit, the model was respecified and retested until dimensions were identified that did fit in the model of nurse job satisfaction in Jamaica.

Hypotheses 2-4: Hypothesis 2: Clarity of Self will be positively and significantly associated with the latent construct of job satisfaction.

Hypothesis 3: Clarity of Professional Role will be positively related to the latent construct of job satisfaction.

Hypothesis 4: Clarity of System will be positively related to the latent construct of job satisfaction.

Clarity of self, clarity of role, and clarity of system were all hypothesized to be positively and significantly associated with the latent construct of nurse job satisfaction. Each of these constructs, following a demonstration of their measurement consistency via internal reliability estimation and CFA, were included in a structural equation model that also incorporated nurse demographics as key covariates. The dependent variable of

interest in these hypothesis tests was the latent variable of nurse job satisfaction (Hypotheses 2-4). To further specify this mode, the predictive associates of clarity of self, clarity of role, and clarity of system were also examined within a separate structural equation model to ascertain whether these independent variables were empirically associated with the multiple dimensions of nurse job satisfaction (i.e., social and technical), again controlling for nurse demographics examined in Aim 4.

Demographics in Aim 4 were examined in an exploratory way, by dummy coding those demographics that were at least ordinal level and then examined using correlations and linear regression. Demographics that were nominal were examined using logistic regression.

Sample size/power considerations.

Recommendations on sample size for confirmatory factor analysis (CFA) vary among statistical experts. For example, Nunnally and Bernstein (1978) recommend 10 subjects per item, while more recent recommendations suggest subjects per item should be 10-15 subjects (Pett, Lackey, & Sullivan, 2003). Comrey and Lee (1992) suggest 300 are good, 500 are very good, and 1,000 are excellent. A sample of 300 is reported to be the general rule of thumb by Tabachnick and Fidell (2007) unless there are high loadings of .80 or greater, which allows for less than 300 subjects. Considering the variety of suggestions for sample size to ensure adequate power, a conservative sample of 400 was identified to ensure all expert standards were exceeded, and to overcome potential case loadings less than .80. An alpha of .05 was selected to test for statistical significance.

Demographic coding.

Two-group demographics were coded as dichotomous variables, 0 or 1, for the purpose of inclusion in regression analysis. Dummy coding of demographics was conducted for all demographics with more than two groups. Each dummy code had a reference variable with each other variable within the respective demographic grouping coded as 10, 01, etc. (See Table 6.)

Additional analysis.

Additional analyses were conducted to deepen the understanding of the work environment, including examination of univariate descriptive statistics. Mean scores of all the variables within each of the four surveys were provided for each unit using mean scores, in rank order of satisfaction. This facilitated understanding of the state of affairs of clarity of self, role, and system, as well as satisfaction of the 12 items of nurse job satisfaction across UWIH. Comparisons of each participating hospital unit were also examined to understand where the successes and vulnerabilities existed within each variable. ANOVA procedures and pooled-variance t-tests were used to examine differences between demographic groupings noted in Figure 1.

Table 6

Demographic Groupings for Dummy Coding

Demographic	Category	Reference
Age	Less than 20, 20-29, 30-39, 40 or more	Less than 20
Income	$250,000, $250,001-$500,000, $500,001-750,000, 750,000 or more	$250,000
Education	Diploma, Baccalaureate, Master's/Doctorate	Diploma

Chapter 4: Result

Methods Adjustment

Consideration of the small sample size required an adjustment of procedures to test the proposed conceptual model. The final sample included 82 individuals. For these reasons, a condensed factor model was designed and tested. Parceling was used to condense each dimension of nurse job satisfaction into 1 item. Parceling is a common practice in confirmatory factor analysis (CFA) when there are a large number of parameters (Wang & Wang, 2012). Parceling is the bundling of items of a given subscale into a single average; an average subscale score is more likely to be strongly related to a latent factor than each individual item (Wang & Wang). Parceling also allows for a more parsimonious model with more stable parameter estimates than factor models that include individual items (Wang & Wang).

The four subscales used to measure the social dimensions of job satisfaction were condensed, using parceling, into a 4-item social dimensions subscale. Social dimensions included relationship with coworkers (coworkers and nurses), relationship with physicians, engagement of manager, and patient care subscales (see Chapter 1). The five subscales used to measure the technical dimensions of job satisfaction were similarly condensed into a 5-item subscale. Technical dimensions included autonomy, workload, professional growth, distributive justice, and executive leadership. This new 2-factor model had only 28 parameters and was thus amenable to CFA for a sample size of 82.

Exploratory factor analysis (EFA) was conducted on the two new measures for satisfaction with resources and staffing/scheduling. Unlike the other nine dimensions of nurse job satisfaction that had been extensively studied in the preliminary analysis, these

two new measures required further establishment of construct validity before running a final CFA of all 11 dimensions of nurse job satisfaction. Recall within the development of this measure (see Chapter 3), the two new measures were both proposed by the sample within this study as important to nurse job satisfaction in Jamaica.

Following the establishment of measurement structure of nurse job satisfaction, hierarchical regression models were used to determine the empirical associations between the three clarity measures, demographics, and various dimensions of nurse job satisfaction as proposed in the Specific Aims.

Response Rate and Missing Data

Measures for the study were administered to 583 nurses; 168 were returned, which represents a 28.8% response rate. Among the 168 returned surveys, there were 86 that had less than 5% missing data on the principal outcome measures. Among the 86 with less than 5% missing data, there were four surveys that had no responses to the executive leadership subscale. Due to the potential bias of no responses to this subscale, these four surveys were excluded. The final count of surveys included in the final analysis was 82. Table 7 provides specific information regarding missing data.

Several trends appeared in the missing data. Four respondents did not respond to any of the eight items in the Professional Patient Care subscale, but did respond to the subscales before and after this subscale. All four respondents who did not respond to the eight items in the Professional Patient Care subscale were from the Theatre service line. Among these potential respondents, there were 82 who responded with less than 5% missing data and responded to at least some of the items of the executive leadership scale,

Table 7

Specifics Regarding Missing Data

Description of Missing Data	Number of Surveys	Percent of Surveys
No response to any item in all 4 surveys	15	8.9
No response to any of the 86 items in the HES survey	2	1.2
Quit HES at least 11 items before the end	9	5.4
No responses to any item of any of the 3 clarity surveys	10	6.0
No response to any item in clarity of self survey	4	2.4
No response to any item in clarity of role survey	3	1.8
No response to any item in clarity of system survey	5	3.0
No response to any item in clarity of role or system surveys	3	1.8
Missing 5% or more of items across 4 surveys (5-29 items)	31	18.5
No response to all items of executive leadership scale	4	2.4
Less than 5% of data missing across all 4 surveys	82	48.8
Total	168	100.0

including 7 respondents from the Medicine (8.5%), 2 from Mental Health (2.4%), 11 from the Obstetrics and Gynecology (13.4%), 9 from Pediatrics (11.0%), 14 from Surgery I (17.1%), 9 from Surgery II (11.0%), 19 from Surgery III (23.2%), 6 from Theater (7.3%), and 5 from the miscellaneous service line (6.1%).

Aim 1: Description of Dimensions of Nurse Job Satisfaction

There were 51 units in the study, organized into eight service lines plus a miscellaneous service line category. Specific names of the service lines and the number of potential participants in each service line included the Medicine Program (n = 92), Mental Health Program (n = 7), Obstetrics and Gynecology (n = 86), Pediatrics Program (n = 41), Surgery I Program (n = 86), Surgery II Program (n = 62), Surgery III Program (n = 124), Theater (n = 27), and Miscellaneous (n = 58).

Demographics.

Of the respondents, 66 of 82 (80.5%) provided their ages. Close to half of the participants were 20-29 years old (n = 31, 47.0%). Seventy-four of 82 (90.2%) respondents reported their partner status with 44 of the 74 (59.5%) as non-partnered (single, divorced or widowed), while 30 (40.5%) were partnered (married or domestically partnered). Seventy-seven (93.9%) of the respondents reported gender with 72 of the 77 as female (93.5%). Household income was evenly distributed for the 53 of 82 respondents who provided income level, with 15 (28.3%) making less than JMD $250,000 (Jamaican dollars) per year (equivalent to $2,700 United States dollars), 14 (26.4%) making JMD $250,000-$500,000 (USD $2,700 - $5,400), 14 (26.4%) making $500,000-$750,000 per year (USD $5,400 - $8,000), and 10 (18.9%) making $750,000 (USD $8,000) or more per year. Almost three-fourths (n = 47, 71.2%) of the 66

respondents indicated that they were the primary source of income for their family. Forty-seven of the 76 (61.8%) who responded to number of years on the same unit reported they had been on their unit for less than five years. There were 68 of 82 (82.9%) who reported their number of years in the nursing profession; thirty-seven (54.4%) were in nursing for 5-10 years with the remainder working less than 5 years (n = 31, 45.6%). There were 67 of 82 (81.7%) who reported that their level of education was a Baccalaureate degree (64.2%), with 13 of 67 (19.4%) holding a diploma and 11 of 67 (16.4%) holding Masters or Doctorate degrees. Fifty-six of 82 (68.3%) indicated the number of education hours taken per year, with 25 (44.6%) taking 10-29 education hours per year and 29 (51.8%) taking 30-60 hours per year. There were 74 of 82 (90.2%) who reported the number of hours worked per week: 55 (74.3%) worked 40 hours per week. Sixty-seven (81.7%) reported the number of dependents: 20 had two dependents (29.9%), while 28.4% had one dependent (n = 19), and 13.4% reported five or more dependents (n = 9).

Independent and dependent measures.

Cronbach's alpha was assessed for all satisfaction subscales. Cronbach's alpha was also assessed for the three clarity measures for self, role, and system (the independent variables of interest). The only Cronbach's alpha that was below .80 was satisfaction with workload, which was .78. All other subscales that measured dimensions of nurse job satisfaction were above .80. The Cronbach's alpha for the total 57-item nurse job satisfaction score was .96. For the 6-item scale, Clarity of Self had a Cronbach's alpha of .85; Clarity of Role had a Cronbach's alpha of .87; and Clarity of System was .88 (see Table 8).

Descriptive statistics.

Descriptive, univariate statistics were examined for all dependent and independent variables, including number of responders, range, midpoint, mean, median, mode, and standard deviation. Dependent variables were grouped by social and technical dimensions of job satisfaction. The mean scores of the satisfaction dimensions were above the midpoint except for satisfaction with professional growth (mean 3.8, SD = 1.52), relationship with physicians (mean 3.7, SD = 1.40), resources (mean 3.4, SD = 1.55), and distributive justice (mean 2.6, SD = 1.32). The highest scoring social satisfaction subscale was relationship with the patient (mean score 5.3, SD = 1.21) and the highest scoring technical satisfaction subscale was autonomy (mean score 4.5, SD = 1.54). The lowest scoring social satisfaction subscale was relationship with the physician, while the lowest technical satisfaction subscale was distributive justice. The total nurse job satisfaction score, which is the mean score for all 57 satisfaction items, was 4.1 (SD = 0.94; see Table 9).

All of the scales measuring clarity were above their respective midpoints. Clarity of self had a mean score of 3.9 (SD = 0.80, midpoint 3.0). Clarity of role had a mean score of 4.8 (SD = 1.06, midpoint 3.5). Clarity of system had a mean score of 5.4 (SD = 0.90, midpoint of 4.0). Measurements above the midpoint represent higher levels of clarity (see Table 9).

Table 8

Cronbach's Alpha for All Scales and Subscales

Scale	Alpha	Alpha from previous research
Social scales, satisfaction with:		
Relationship with physicians	.92	.97 (Nelson, 2011)
Relationship with nurses	.91	.96 (Nelson, 2011)
Relationship with coworkers	.87	.92 (Nelson, 2011)
Participative management	.93	.94 (Nelson, 2011)
Professional patient care	.93	.91 (Nelson, 2011)
Technical scale, satisfaction with:		
Distributive justice	.93	.97 (Nelson, 2011)
Autonomy	.86	.78 (Nelson, 2011)
Executive leadership	.84	.91 (Nelson, 2011)
Professional growth	.86	.96 (Nelson, 2011)
Resources	.81	-
Staffing/scheduling	.82	Correlation .64 (Nelson, 2011)
Workload	.78	.72 (Nelson, 2011)
Nurse Job Satisfaction 50 items, total score	.96	
Nurse Job Satisfaction 57 items, total score	.96	
Clarity of self	.85	.86 (Campbell et al., 1996)
Clarity of role	.87	.81 (Rizzo et al., 1970)
Clarity of system	.88	-

Table 9

Descriptive Statistics of Variables

Variable	n	Possible Range	Actual Range	Midpoint	M	Median	SD
Social Variables, satisfaction with:							
Relationship with physicians	82	1-7	1.0-6.4	4	3.7	3.8	1.39
Relationship with nurses	82	1-7	1.0-6.6	4	4.4	4.6	1.35
Relationship with coworkers	82	1-7	1.2-7.0	4	4.4	4.6	1.28
Participative management	82	1-7	1.0-7.0	4	4.6	5.0	1.64
Professional patient care	82	1-7	1.5-7.0	4	5.3	5.5	1.21
Technical variables, satisfaction with:	82						
Distributive justice	82	1-7	1.0-6.0	4	2.6	5.5	1.32
Autonomy	82	1-7	1.0-7.0	4	4.5	4.8	1.54
Executive leadership	82	1-7	1.0-6.7	4	4.2	4.7	1.39
Professional growth	82	1-7	1.0-6.5	4	3.8	4.0	1.51
Resources	82	1-7	1.0-6.5	4	3.4	3.3	1.55
Staffing/scheduling	82	1-7	1.0-7.0	4	4.0	3.8	1.66
Workload	82	1-7	1.0-6.7	4	4.3	4.5	1.48
Clarity of self	82	1-5	1.8-5.0	3	3.9	1.9	.80
Clarity of role	82	1-6	1.2-6.0	3.5	4.8	5.0	1.04
Clarity of system	82	1-7	1.8-7.0	4	5.4	5.6	.90

Note: High numbers indicate high satisfaction or high clarity

Correlational analysis.

A zero order correlation matrix was created to examine the intercorrelations among all satisfaction subscales, as illustrated in Table 6. According to Glassman and Poggio (1985), coefficients between .20 and .40 represent low to moderate correlations, .40 to .60 are moderate correlations, .60 to .80 are moderate to high correlations, and .80 to 1.0 are high correlations. A correlation matrix was created to understand if any subscale had a correlation of .80 or greater, which would indicate redundancy of measurement, and to understand if there were any subscales that had a weak or absent relationship. All 12 of the satisfaction subscales had statistically significant correlations ($p < .05$) with the total satisfaction score. Correlations ranged from .52 to .77. Intercorrelations among the satisfaction subscales ranged from .07 to .79. The correlation between satisfaction with executive leadership and distributive justice was .07. The correlation between satisfaction with relationship with nurses and relationship with coworkers was .79. These findings are noted in Table 10.

A zero order correlation matrix was also used to examine the correlations among independent variables and the total score for nurse job satisfaction. Clarity of role had a statistically significant relationship with nurse job satisfaction ($r = .29$, $p = .009$). Clarity of self and system did not have a statistically significant relationship with nurse job satisfaction. The lowest correlation was between clarity of self and nurse job satisfaction ($r = .08$, $p = .67$). These findings are noted in Table 11.

Table 10

Zero-Order Correlation Coefficients of Subscales from Total Nurse Job Satisfaction

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Total Nurse Job Satisfaction	1.0												
2. Relation with Physicians	.73**	1.0											
3. Relationship with Nurses	.75**	.58**	1.0										
4. Relationship with Coworkers	.77**	.51**	.79**	1.0									
5. Professional Patient Care	.52**	.22*	.17	.24*	1.0								
6. Participative Management	.66**	.29*	.37**	.35**	.39**	1.0							
7. Distributive Justice	.59**	.36**	.37**	.33**	.06	.31**	1.0						
8. Professional Growth	.72**	.43**	.45**	.42**	.26*	.28*	.47**	1.0					
9. Executive Leadership	.59**	.35**	.45**	.43**	.27*	.27*	.07	.43**	1.0				
10. Staffing and Scheduling	.57**	.20	.17	.24*	.33**	.36**	.14	.29**	.35**	1.0			
11. Workload	.72**	.55**	.43**	.46**	.29**	.43**	.37**	.34**	.22*	.35**	1.0		
12. Autonomy	.73**	.51**	.49**	.52**	.30**	.42**	.33**	.41**	.33**	.31**	.55**	1.0	
13. Resources	.58**	.38**	.43**	.37**	.07	.25*	.37**	.33**	.35**	.31**	.30**	.22*	1.0

**Correlations are significant at the .01 level of significance
*Correlations are significant at the .05 level of significance

Table 11

Zero-Order Correlation Coefficients of Nurse Job Satisfaction and Clarity

Variable	1	2	3	4
1. Nurse Job Satisfaction	1.0			
2. Clarity of Self	.05	1.0		
3. Clarity of Role	.29**	.21	1.0	
4. Clarity of System	.21	.29**	.37**	1.0

**Correlations are significant at the .01 level of significance
*Correlations are significant at the .05 level of significance

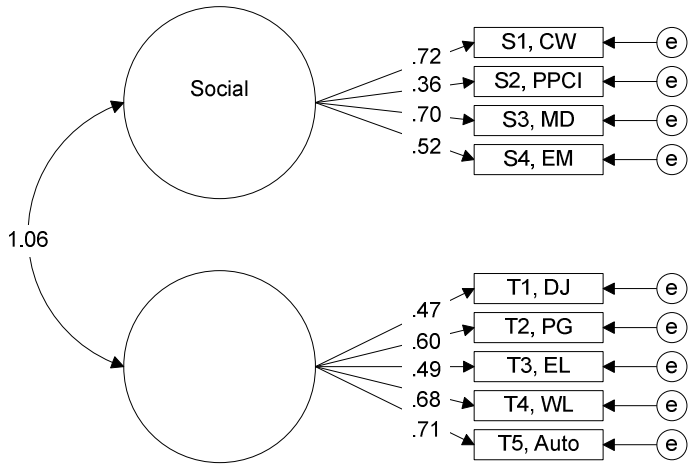
Aim 2: Multidimensional Properties of Nurse Job Satisfaction

Factor analysis.

A confirmatory factor analysis was conducted on the nine satisfaction subscales to test a 2-factor model as described in the methods adjustment section. CFA was conducted to determine the empirical integrity of the social and technical dimensions of satisfaction, as well as their potential loading onto an overall latent construct of nurse job satisfaction. Results revealed an RMSEA of .07, a CFI of .95, and a SRMR of .06. These indices of goodness of fit suggest adequate fit of the model with observed data (see Chapter 3). Path coefficients for the social dimensions were all above 0.3, including satisfaction with relationship with coworkers (.72, p = < .001), patient care (.36, p = .001), relationship with physician (.70, p = < .001), and engagement with manager (.52, p = < .001). Path coefficients for the technical dimensions were also all above .3, including satisfaction with distributive justice (.47, p = < .001), professional growth (.60, p = < .001), executive leadership (.49, p = < .001), workload (.68, p = < .001), and autonomy (.71, p = < .001). These all suggest that the various nurse satisfaction subscales loaded onto their respective dimensions (satisfaction with social or technical resources) as anticipated in Aim 2 and the conceptual model. A path coefficient between the social and technical dimensions was 1.06 (p = < .001; see Figure 4).

An exploratory factor analysis was conducted with the two new subscales developed for this study: satisfaction with resources and satisfaction with staffing and scheduling. Results using principle axis factoring and promax rotation to adjust for any possible covariance revealed a 2-factor solution. All four staffing/scheduling items loaded as one factor, with factor loadings ranging from .76 to .88. All three resource

Figure 4, Path Coefficients of Social and Technical Dimensions of Nurse Job Satisfaction, Nine Dimensions



items loaded as one factor with loadings ranging from .68 to .95. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was .68 and Bartlett's test of sphericity was statistically significant. Eigenvalue for staffing/scheduling was 3.35 and for satisfaction with resources was 1.46. Satisfaction with Staffing/Scheduling explained 48.5%, and Satisfaction with Resources explained 20.4% of the variance, and combined the two factors explained 68.3% of the variance (see Table 12).

Findings from the 2-factor CFA and EFA of the two new measures suggested all 11 dimensions of job satisfaction would load into a final, parceled 2-factor model for nurse job satisfaction in Jamaica. Both satisfaction with resources and staffing/scheduling were assigned to the technical factor, making the new model a 4-item social factor and 7-item technical factor of nurse job satisfaction. There were a total of 34 parameters in this sample of 82 respondents.

Results revealed an RMSEA of .08, a CFI of .90, and a SRMR of .07. Both RMSEA and SRMR revealed adequate fit. The CFI should ideally have been greater than .95, but according to Wang and Wang (2012), .90 is acceptable. For these reasons, the goodness of fit indices suggest the model's adequate fit to observed data. Path coefficients for the social dimensions were all above .3, including satisfaction with relationship with coworkers (.72, p = < .001), patient care (.35, p = .001), relationship with physician (.70, p = < .001), and engagement with manager (.52, p = < .001). Path coefficients for the technical dimensions were also all above .3, including satisfaction with distributive justice (.49, p = < .001), professional growth (.62, p = < .001), executive leadership (.51, p = < .001), workload (.68, p = < .001), autonomy (.70, p = < .001), staffing/scheduling (.39, p = < .001), and resources (r .50, p = < .001). These all suggest

Table 12

Factor Loadings for Satisfaction with Staffing/Scheduling and Satisfaction with Resources

Item	Factor and Loadings		Explained Variance
	1	2	
59. I am satisfied with the amount of advance notice I have prior to my new shift roster starting.	.63		48.5%
60. I am satisfied with the shift rotation I am assigned.	.66		
61. I am satisfied with the input I have into my final schedule prior to the roster being posted.	.92		
62. I am satisfied with my ability to change my schedule after the schedule roster is posted, if I need to change it.	.75		
63. I am satisfied with the availability of supplies required to do my job.		.95	20.4%
64. I am satisfied with the availability of equipment needed to do my job.		.94	
65. I am satisfied with my access to clinical experts/specialists to do my job (may include physicians, pharmacists, clinical nurse specialists, etc.).		.41	

that the various nurse satisfaction subscales loaded onto their respective dimensions (satisfaction with social or technical resources) as anticipated in Aim 2 and the conceptual model. A path coefficient between the social and technical dimensions was 1.04 ($p = < .001$; see to Figure 5).

Aim 3: Empirical Relationships between Clarity and Total Nurse Job Satisfaction

Correlations.

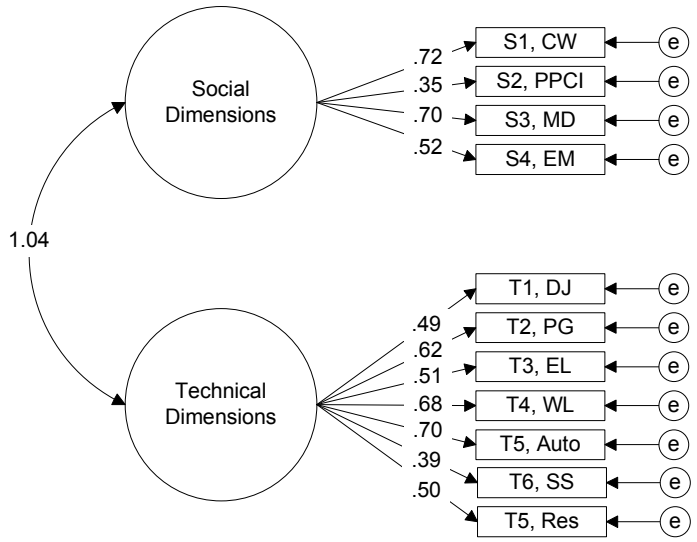
As addressed earlier (see Table 8), total nurse job satisfaction was significantly correlated with clarity of role ($r = .29$, $p = .009$). There was no statistically significant relationship between job satisfaction and clarity of self ($r = .05$, $p = .67$), or clarity of system ($r = .21$, $p = .054$). For these reasons, no further modeling of these independent variables was performed.

Hierarchical regression equation of nurse job satisfaction.

Demographics were initially screened by running regression equations on each demographic separately with total nurse job satisfaction as the dependent variable, using a p-value of .05 or less. This was done to maintain statistical power and only include demographics that were significantly associated with total nurse job satisfaction. All demographics were dummy coded prior to running regression analyses.

Two demographic variables were found to have statistically significant F values using an alpha of .05, included service line ($p = .007$) and number of years in the profession of nursing ($p = .01$). However, there were only 68 of 82 who provided information regarding the number of years in their profession, which would decrease power and thus this demographic was not evaluated further. Service line and clarity of

Figure 5, Path Coefficients of Social and Technical Dimensions of Nurse Job Satisfaction, Eleven Dimensions



role were examined in a hierarchical regression equation as the independent variables using nurse job satisfaction as the dependent variable (all 57 items combined that were confirmed in the second and final CFA). Clarity of self and clarity of system was not statistically significant, and thus were not included in regression analyses (r = .047, p = .673; r = .214, p = .054, respectively).

The first regression analysis entered service line as the first block and clarity of role as the final block. Tolerance values for service line ranged from .498 to .878 and clarity of role .956, which indicated a low level of multicollinearity.

Results revealed support for this hypothesis. Standardized Beta coefficients for the predictor clarity of role were statistically significant (β = .270, *t* = 2.682, p = .009). Standardized Beta coefficients for the remaining predictors for nurse job satisfaction were as follows: service line surgery II program, β = -.467, *t* = -3.544, p = .001. The best fitting model for predicting nurse job satisfaction was model 2, which included service line (R = .475, R^2 = .226, F (7,74) = 3.078, p = .007), and clarity of role (R = .543, R^2 = .295, F (1,73) = 7.192, p = .009). Combined, both predictors explained 29.5% of the variance in nurse job satisfaction. These findings are noted in Tables 13 and 14.

Aim 4: Empirical Relationships between Clarity, Satisfaction with Social Factor, and Satisfaction with Technical Factor of Nurse Job Satisfaction

Correlations.

The social factor of nurse job satisfaction was significantly correlated with clarity of role (r = .28, p = .01) and clarity of system (r = .29, p .01). There was no statistically

Table 13

Models for Regression, Total Nurse Job Satisfaction

	Model1			Model2		
Variable	ß	Beta (se)	p-value	ß	Beta (se)	p-value
Service Line, OB/GYN	.04	.10 (.34)	.76	.01	.04 (.32)	.91
Service Line, Surgery I	-.12	-.33 (.35)	.35	-.17	-.48 (.35)	.17
Service Line, Surgery II	-.46	-1.06 (.32)	.001	-.47	-1.08 (.30)	.001
Service Line, Surgery III	.04	-.12 (.35)	.75	.06	-.17 (.34)	.62
Service Line, Theater	-.01	-.02 (.30)	.94	-.05	-.10 (.29)	.72
Service Line, Mental Health	-.11	-.39 (.40)	.34	-.15	-.51 (.39)	.19
Service Line, Unknown	-.19	-1.04 (.61)	.09	-.18	-1.03 (.59)	.09
Clarity of Role				.27	.23 (.08)	.009

Table 14

Hierarchical Regression Equation, Total Nurse Job Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.475[a]	.226	.152	.80	.226	3.078	7	74	.007
2	.543[b]	.295	.218	.77	.069	7.192	1	73	.009

a. Predictors: (Constant), Unknown, Mental Health, Obstetrics and Gynecology, Surgery I Program, Surgery III Program, Surgery II Program, Theater

b. Predictors: (Constant), Unknown, Mental Health, Obstetrics and Gynecology, Surgery I Program, Surgery III Program, Surgery II Program, Theater, Clarity of Role

c. Dependent Variable: Nurse Job Satisfaction Total

significant relationship between the social factor of nurse job satisfaction and clarity of self (r = .08, p = .46) and thus this was not included in subsequent regression models.

Demographics were again screened for inclusion into the final regression equation. There were two demographics with significant F values, including service line (F = 2.43, p = .03), and main source of income (F = 7.92, p = .007). There were, however, only 66 respondents who provided information regarding being the main source of income. Due to concern of low power, main source of income was excluded from any further regression analyses.

The second regression analysis for the social factor of nurse job satisfaction began with entering service line as the first block, clarity of system as the second block, and clarity of role as the final block. Tolerance values for service line ranged from .389 - .878. Clarity of system and clarity of role were .822 and .826, respectively. These tolerance values being greater than zero indicated a low level of multicollinearity.

Results revealed support for the hypothesis in model 2 with service line and clarity of system and model 4 with service line and clarity of role. Standardized Beta coefficients for the predictors in model 2 for the social factor of nurse job satisfaction were as follows: service line, Surgery II, $\beta = -.266$, $t = -1.961$, p = .054; and clarity of system, $\beta = .270$, $t = 2.613$, p = .011. In Model 4, standardized Beta coefficients for the social factor of nurse job satisfaction were as follows: service line, Surgery II, $\beta = -.303$, $t = -2.236$, p = .028; and clarity of role, $\beta = .266$, $t = 2.574$, p = .012. The best fitting models for predicting the social factor of nurse job satisfaction were model 2 and model 4, which both explained 25% of the variance of the social factor of nurse job satisfaction.

Model 2 included service line (R = .432, R^2 = .187, F (1,74) = 2.430, p = .027) and clarity of system (R = .506, R^2 = .175, F (1,73) = 6.829, p = .011). Service line and clarity of system predicted 18.7% and 7.0%of the variance, respectively, of the social factor for nurse job satisfaction. Combined, they explained 25.6% of the variance. Model 4 included service line (R = .432, R^2 = .187, F (1,74) = 2.430, p = .027) and clarity of role (R = .505, R^2 = .255, F (1,73) = 6.623, p = .012). Service line and clarity of system predicted 18.7% and 6.8%, of the variance, respectively, of the social factor for nurse job satisfaction. Combined, they explained 25.5% of the variance. These findings are noted in Tables 15 through 17.

The technical factor of job satisfaction was significantly correlated with clarity of role (r = .25, p = .02). There was no statistically significant relationship between satisfaction with technical dimensions of job satisfaction and clarity of self (r = .06, p = .96) or clarity of system (r = .11, p = .31); thus, these two independent variables were not included in the final regression models.

Demographics were again screened for a regression equation. There were three significant F values, including income level (F = 4.21, p = .008), service line (F = 3.45, p = .003), and hours worked per week (F = 5.49, p = .02). However, there were only 66 who responded to income level and only 74 who responded to hours worked. A sample size of 74 with three predictors in a linear regression drops power to less than .80, using an effect size of .15 and an alpha of .05. Thus, these two demographics were excluded from further analysis in the regression equation.

Table 15

Models for Regression, Social Factor for Nurse Job Satisfaction

	Model1			Model2			Model 3			Model 4		
Variable	ß	Beta (se)	p-value	ß	Beta (se)	p-value	ß	Beta (se)	p-value	ß	Beta (se)	p-value
Service Line, OB/GYN	.15	.42 (.37)	.26	.13	.37 (.36)	.31	.12	.33 (.35)	.36	.13	.34 (.36)	.34
Service Line, Surgery I	-.05	-.14 (.39)	.72	-.07	-.22 (.38)	.56	-.11	-.32 (.38)	.40	-.10	-.30 (.38)	.43
Service Line, Surgery II	-.30	-.74 (.35)	.04	-.27	-.66 (.34)	.05	-.28	-.69 (.33)	.04	-.30	-.75 (.34)	.03
Service Line, Surgery III	.07	.19 (.39)	.62	.07	.22 (.38)	.56	.06	.17 (.37)	.65	.05	.14 (.38)	.72
Service Line, Theater	.05	.10 (.33)	.76	.08	.18 (.32)	.58	.04	.09 (.32)	.77	.01	.02 (.32)	.96
Service Line, Mental Health	-.16	-.58 (.44)	.19	-.16	-.59 (.43	.17	-.19	-.68 (.42)	.11	-.20	-.72 (.43)	.10
Service Line, Unknown	-.17	-1.01 (.68)	.14	-.17	-1.03 (.65)	.12	-.17	-1.01 (.64)	.12	-.16	-.99 (.65)	.13
Clarity of System				.27	.28 (.11)	.01	.20	.21 (.12)	.07			
Clarity of Role										.27	.24 (.09)	.01

Table 16

Hierarchical Regression Equation of Social Factor, Model 2 for Nurse Job Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.432[a]	.187	.110	.89	.187	2.430	1	74	.027
2	.506[b]	.256	.175	.85	.070	6.829	1	73	.011

a. Predictors: (Constant), Service Line

b. Predictors: (Constant), Clarity of System

d. Dependent Variable: Social dimension (28 items)

Table 17

Hierarchical Regression Equation of Social Factor, Model 4 for Nurse Job Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.432[a]	.187	.110	.89	.187	2.430	1	74	.027
2	.505[b]	.255	.173	.85	.068	6.623	1	73	.012

a. Predictors: (Constant), Service Line

b. Predictors: (Constant), Clarity of Role

d. Dependent Variable: Social dimension (28 items)

The third regression analysis for the technical factor of nurse job satisfaction began with entering service line as the first block and clarity of role as the final block. Tolerance values for service lines ranged from .50 to .88, and for clarity of role the tolerance value was .96, which indicated low levels of multicollinearity.

Results revealed support for the study hypothesis. Standardized Beta coefficients for the two predictors of the technical factor for nurse job satisfaction were as follows: surgery II program, $\beta = -.552$, $t = -4.195$, $p = < .001$; and clarity of role, $\beta = .213$, $t = 2.309$, $p = .024$. The best fitting model for predicting the technical factor of nurse job satisfaction was model 2, which included service line ($R = .496$, $R^2 = .245$, F (7,74) = 3.454, $p = .003$), and clarity of role ($R = .546$, $R^2 = .298$, F (1, 73) = 5.333, $p = .024$). Combined, these three predictors explained 29.8% of the variance of the technical factor for nurse job satisfaction. These findings are noted in Tables 18 and 19.

Summary

These data address the four aims of this study as described in Chapter 1. In brief, the aims were to: 1) describe the dimensions that constitute nurse job satisfaction; 2) examine if selected social and technical dimensions adequately represented the latent construct of nurse job satisfaction; 3) examine if clarity of self, role, and system are positively and significantly associated with nurse job satisfaction; and 4) examine if personal and/or professional demographics are associated with nurse job satisfaction.

Dimensions that constitute nurse job satisfaction.

The first aim was to comprehensively describe social and technical dimensions/subscales that constitute the construct of job satisfaction of nurses. This study

Table 18

Models for Regression, Technical Factor for Nurse Job Satisfaction

	Model1			Model 2		
Variable	ß	Beta (se)	p-value	ß	Beta (se)	p-value
Service Line, Ob/Gyn	-.07	-.20 (.36)	.59	-.09	-.26 (.35)	.46
Service Line, Surgery I	-.17	-.52 (.38)	.18	-.22	-.66 (.38)	.08
Service Line, Surgery II	-.55	-1.38 (.34)	.000	-.55	-1.39 (.33)	.000
Service Line, Surgery III	-.14	-.41 (.38)	.28	-.15	-.47 (.37)	.22
Service Line, Theatre	-.06	-.14 (.32)	.66	-.10	-.22 (.31)	.48
Service Line, Mental Health	-.06	-.20 (.43)	.64	-.09	-.32 (.42)	.45
Service Line, Unknown	-.18	-1.08 (.66)	.11	-.17	-1.06 (.64)	.10
Clarity of Role				.23	.21 (.09)	.02

Table 19

Hierarchical Regression Equation of Technical Factor for Nurse Job Satisfaction

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.496[a]	.246	.175	.87	.246	3.454	7	74	.003
2	.546[b]	.298	.221	.84	.051	5.333	1	73	.024

a. Predictors: (Constant), Surgery I Program, Unknown, Mental Health, Surgery III Program, Obstetrics and Gynecology, Surgery II Program, Theater

b. Predictors: (Constant), Income 750 or more, Income 500 to 750, Income 250 to 500, Surgery I Program, Unknown, Mental Health, Surgery III Program, Obstetrics and Gynecology, Surgery II Program, Theater, Clarity of Role

c. Dependent Variable: Technical dimension (29 items)

identified that the highest scoring social and technical variables were relationship with the patient and autonomy, respectively. This study also identified the lowest scoring social and technical dimensions of job satisfaction, which were relationship with the physician and distributive justice, respectively. There were 5 of 12 dimensions of job satisfaction below the midpoint of 4.0, indicating lower levels of satisfaction with four technical dimensions and one social dimension. The four technical dimensions below the midpoint of 4.0 included satisfaction with staffing/scheduling, professional growth, resources, and distributive justice. The only social variable below the midpoint of 4.0 was satisfaction with the relationship with physicians.

Representation of social and technical dimensions as a construct of nurse job satisfaction.

Examination of Aim 2 was conducted using CFA of the social and technical dimensions of job satisfaction. Use of parceling made it possible to examine the CFA using 28 parameters in a sample of 82 participants. Fit indices revealed adequate model fit and all path coefficients greater than .3. The nine dimensions included relationship with physicians, relationship with coworkers (both nurses and non-nurse/non-physician coworkers), engagement with unit management, relationship with the patient, executive leadership, autonomy, workload, professional growth, and distributive justice. Cronbach's alpha estimates revealed all but one of the dimensions performed well, with Cronbach's alpha greater than .80 for every subscale and a total Cronbach's alpha of .96. One subscale, workload, was .78 and still considered acceptable.

An exploratory factor analysis of two additional subscales, satisfaction with resources and satisfaction with staffing/scheduling, was performed as the subscales were developed specifically for this study. Inclusion of the four items in the resource subscale and three items in the staffing/scheduling subscale revealed a 2-factor solution with adequate model fit. A final 11-item parceled CFA model with 34 parameters was run to integrate the findings from the 9-item CFA and the 2-item EFA. Fit indices revealed adequate model fit and all path coefficients greater than .3.

Association of clarity with nurse job satisfaction.

Aim 3 hypothesized that clarity of self, clarity of role, and clarity of system would be positively related to the latent construct of nurse job satisfaction. Hypothesis 1 was not supported as the relationship between clarity of self and job satisfaction was not statistically significant. The empirical relationship between clarity of self and total nurse job satisfaction was positive but not statistically significant. Hypothesis 2, that a positive relationship between clarity of role and job satisfaction would occur, was supported. This relationship was found to have a statistically significant Pearson's correlation, and also had a statistically significant F value in the regression equation. Clarity of role was also found to have a statistically significant F value in the regression equations that examined the social and technical factors of nurse job satisfaction separately. Hypothesis 3 was partially supported. The relationship between clarity of system and job satisfaction was positive and approached statistical significance but the F value was only statistically significant as a predictor for the social factor of nurse job satisfaction. Clarity of system

did not have a significant F value in the regression equation for total nurse job satisfaction or the technical factor of nurse job satisfaction.

Association of demographics with nurse job satisfaction.

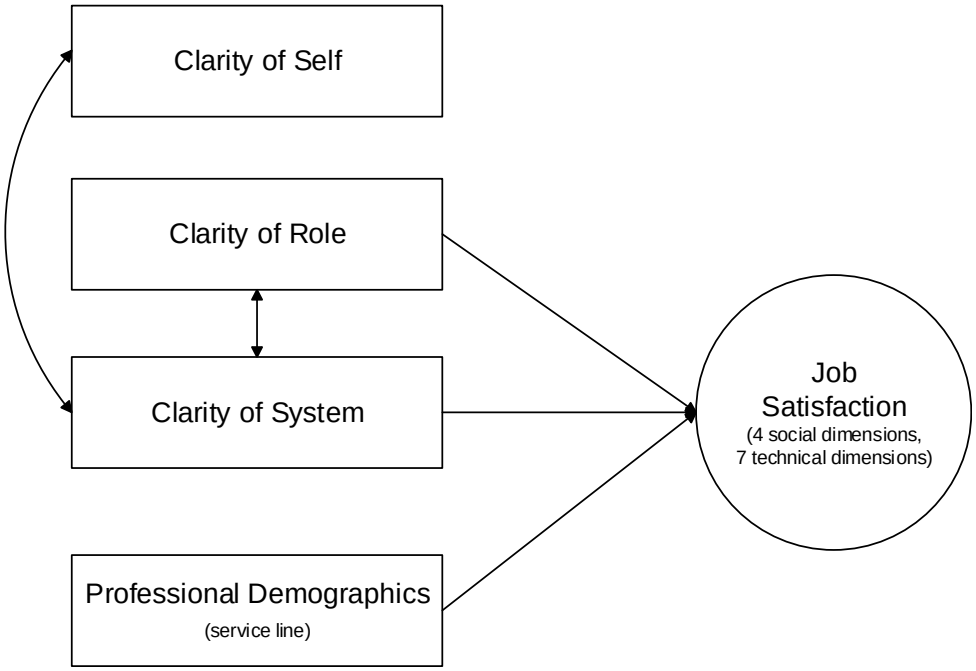
Aim 4 analyses to examine demographics in relationship to nurse job satisfaction revealed service line was the only demographic that was a statistically significant predictor of nurse job satisfaction. Service line predicted 6.9% of the variance.

When examining the social factor for nurse job satisfaction, service line was the only demographic found to be a statistically significant predictor. Service line predicted 18.7% of the variance for the social factor of nurse job satisfaction in Model 2, when examined along with clarity of system, which predicted 7.0%. Combined, these two variables explained 25.6% of the variance, which was significant using an alpha of .05. In Model 4, when service line was examined along with clarity of role, the explained variance of each predictor for the social factor of nurse job satisfaction was 18.7% and 6.8%, respectively. The change in F value was found to be statistically significant for both predictors, using an alpha of .05. Combined, the two predictors explained 25.5% of the variance.

Satisfaction with technical dimensions of nurse job satisfaction revealed service line was the only statistically significant predictor, which explained 24.6% of the variance. The most negative impacting influence on service line was working in Surgery II (standardized Beta weight = -.55, $p = < .001$). Finally, clarity of role predicted 5.1% of the technical dimension of nurse job satisfaction ($p = .02$).

Results of the analysis provided support for the 11-factor model of nurse job satisfaction in Jamaica. This includes the two factors proposed by Jamaican nurses, satisfaction with resources, and staffing/scheduling. Results also provide support for antecedents proposed within the study, including service line, clarity of role, and clarity of self. The final model is noted in Figure 6 (See Figure 6).

Figure 6, Final Model for Nurse Job Satisfaction in Jamaica



Chapter 5: Discussion

Between the years 2006 and 2011, literature in nurse job satisfaction revealed that 70 different dimensions were measured through 52 different instruments. Clearly, in this field there is no consistency across instruments or even in how the same instruments are utilized. Studies of nurse job satisfaction relied most frequently on samples from the United States from 2006 to 2011. No studies located in the Caribbean delineated an instrument of nurse job satisfaction. This study adds to the literature in nurse job satisfaction as it provides culturally-based evidence for a nurse satisfaction instrument showing the same nine factors of nurse job satisfaction loaded in the Jamaican sample as in an earlier study conducted in the United States. In addition, the current analysis identifies two additional dimensions of nurse job satisfaction that may be driven by cultural context in Jamaica.

Overview

This chapter will review the results that relate to the four aims of this study. Included within this review/discussion are a description of nurse job satisfaction in Jamaica, as well as a description of respondents' demographics and the implications of these descriptive data for overall study conclusions. This chapter will also delineate how the 11 dimensions of nurse job satisfaction fit together as a single latent variable for a sample of nurses in Jamaica. This chapter also provides a review/discussion of the proposed predictors of nurse job satisfaction, including demographics and clarity of self, role, and system. The limitations of this study, recommendations for future research, and implications of the findings conclude the chapter.

It is important to understand what influences nurse job satisfaction in places in the world where there is a shortage of nurses, often created by high turnover. The organization referred to as CARICOM, an official community of 15 Caribbean countries that includes Jamaica, published a paper in 2009 addressing the problem of losing nurses from the Caribbean to higher paying countries (Kurowski, Murakami, Ono, Shors, Vujicie, & Zolfaghari, 2009). Finding ways to keep nurses in the Caribbean, including in Jamaica, is important as the continued high migratory patterns of nurses is detrimental to the quality and efficiency of health services in CARICOM countries (Kurowski, et al.). This in turn jeopardizes the economy of CARICOM countries as good health services attract businesses and retiree communities (Kurowski et al.). The report by Kurowski et al. calls for more research on the work of nurses in CARICOM countries. There is little extant data on the work environment of nurses in these locations exists. Research such as the current study may assist ongoing efforts to decrease turnover by using quality improvement, staff training, or similar methods to increase nurse job satisfaction, aside from compensation considerations alone.

The respondents who were the focus of the report by Kurowski et al. (2009) were nurses, as they are the largest group of health professionals in CARICOM. Findings of the report revealed that there was one nurse to every 1,000 residents in CARICOM, and that emigration out-paced the number of nurses recruited to work in Jamaica with a vacancy rate of 30% in 2009 (Kurowski et al.). Emigration was primarily driven by comparatively low pay and low job satisfaction. A starting annual salary for a nurse in Jamaica is $14,000 annually, while the neighboring country of Trinidad and Tobago pays

a starting annual salary of $21,000 for a new graduate nurse (Kurowski et al.) and Canada pays about $58,000 per year for a nurse just graduating from nursing school (http://www.ona.org, Ontario nurses association web site, accessed August 11, 2013). Finding ways to attract and retain nurses is vital for the Jamaican healthcare system (lunch meeting with Caribbean nurse executives at Mary J. Seivwright Center at University of West Indies, May 30, 2013), and developing more comprehensive measurement approaches to nurse job satisfaction would likely be central to such efforts.

The other reason that identifying dimensions of nurse job satisfaction is important in Jamaica is because it may provide the ability to develop models of nurse job satisfaction that are specific to the country. This study examined nine dimensions of nurse job satisfaction that were identified in the United States (Nelson, 2013) using a modified multidimensional measure of nurse job satisfaction. There were two additional context-specific dimensions identified by Jamaican nurses as important: satisfaction with resources and satisfaction with staffing/scheduling. It was reported by Jamaican nurses who collaborated with the author (J. Nelson) that resources are affected by two factors. The first is that Jamaica is an island country, which makes importation of all products necessary to deliver nursing services. It has been reported by the Jamaican nurses association that not even basic supplies are available for nurses to do their job (http://jamaica-gleaner.com/gleaner/20110718/lead/lead2.html, cite accessed August 11, 2011). The second factor is that Jamaica was recently ranked the fifth worst economy in the world (http://www.forbes.com/sites/danielfisher/2011/07/05/the-worlds-worst-economies/, cite accessed August 13, 2013), which makes purchasing products and

paying for nursing services challenging. The nurses association of Jamaica reported that nurses will complete 16 hour shifts and still continue to tend to patients after their 16 hours of work because there are patients who have been waiting all night to see a healthcare professional (http://jamaica-gleaner.com/gleaner/20110718/lead/lead2.html, cite accessed August 11, 2013). High emigration in Jamaica and difficulty paying nurses competitively creates a challenge to schedule and staff adequately; thus it was decided to examine satisfaction with staffing/scheduling in the current study. Satisfaction with staffing/scheduling was not found as important in the United States (Nelson, 2013), but nurses who assisted in developing a measurement model of nurse job satisfaction for Jamaica reported staffing/scheduling as very important and thus it was included in this study.

Aim 1: Description of Social and Technical Dimensions of Nurse Job Satisfaction

This study provides insight into 11 dimensions of nurse job satisfaction for a sample of nurses in Jamaica and their associated demographic profile. As reviewed in Chapter 2, no studies from Jamaica were found regarding nurse job satisfaction from 2006 to 2011. One study from Jamaica was found in the literature prior to 2006 (Fajemilehin & Jinadu, 2001). However, it did not specify a measure of nurse job satisfaction. In addition, the focus of the 2001 article related to cultural and nurse turnover differences when comparing Jamaica and Nigeria. This current study is the first (to the author's knowledge) that describes multiple dimensions of nurse job satisfaction and a demographic profile of a sample of nurses in Jamaica. It is hoped that empirical description of the 11 dimensions of nurse job satisfaction will provide initial insights as

to what aspects of nurse job satisfaction are rated most highly, and whether certain variables emerge as significant correlates of job satisfaction (both overall and social and technical dimensions; see above).

Results revealed that Jamaican nurses in this sample reported to be most satisfied with patient care and least satisfied with distributive justice. In comparing the highest and lowest mean score to other countries that used the same measure, it was noted that the mean scores and associated rank of satisfaction by country varies somewhat. Rank is important to consider as it provides insight into what is working well operationally as perceived by nurses and what social or technical needs may exist within the work environment. In Jamaica, the top three ranked dimensions of nurse job satisfaction were patient care (first in rank), engagement of unit manager (second in rank), and autonomy (third in rank). The rank order for these three specific dimensions of job satisfaction in the United States (Persky, 2011a) was patient care (first), engagement of manager (fourth), and autonomy (eighth). In England (Tinker et al., 2011), the rank order for satisfaction dimensions in Jamaica was patient care (fourth), engagement of manager (first), and autonomy (fifth). The lowest ranked three dimensions of nurse job satisfaction in this current study for the Jamaican sample of nurses was professional growth, relationship with physicians, and distributive justice. The United States' rank for these three dimensions was professional growth (third), relationship with physicians (fifth), and distributive justice (ninth). In England, the rank for these low ranked dimensions in Jamaica was professional growth (third) and distributive justice (eighth). The England study, conducted by Tinker et al. (2011), did not measure relationship with physicians.

Mean scores and ranks for each of the dimensions of nurse job satisfaction for the Persky (2011a), Tinker et al. (2011) and current study are noted in Table 16. According to sociotechnical systems (STS) theory, employees pay attention to the social and technical dimensions that are expectations within the organizational strategy (Andrews, 2003). Thus, low satisfaction for social dimensions, such as satisfaction with the relationship with physicians, may indicate an area of need that relates to successfully executing the expected role. In contrast to the low-ranked dimensions, examination of dimensions that are highly ranked may help with understanding what is working well in Jamaican nurse contexts. Such understanding may also facilitate the development of staff training or retention programs to help transfer underpinnings of success to nurses who report low rank in the same dimension of job satisfaction (See Table 20).

Discussion of sample characteristics

Demographics were examined descriptively to ascertain how the Jamaican sample is unique when compared to other study samples that completed the same measure as used in this study. Previous literature has revealed that demographics such as higher education are associated with greater levels of nurse job satisfaction (Hwang et al., 2009; Zurmehly, 2008). Considering 82% of the nurse respondents from this study were Baccalaureate-prepared, it is our belief that this would have increased the mean scores and/or impacted the results in the regression equation. Fifty percent of the sample from the United States was prepared at the Baccalaureate level or higher and the sample from England had 26% who were prepared at the Baccalaureate level or higher. Despite the

Table 20

Comparison of Mean Scores of Nurse Job Satisfaction from Four Different Studies

Variable, Satisfaction with:	Study and associated mean score/rank		
	Persky, 2011a	Tinker et al., 2011	Current Study
Patient Care	5.44 / 1	5.85 / 4	5.25 / 1
Engagement of Manager	5.02 / 4	6.07 / 1	4.57 / 2
Relationship with Coworkers	5.01 / 6	5.99 / 2	4.38 / 4
Autonomy	4.74 / 8	5.57 / 5	4.49 / 3
Executive Leader	4.90 / 7	5.25 / 7	4.21 / 6
Staffing/Scheduling	5.21 / 2	5.39 / 6	3.99 / 7
Professional Growth	5.08 / 3	5.95 / 3	3.84 / 8
Relationship with Physicians	4.97 / 5	-	3.73 / 9
Workload	3.81 / 10	3.86 / 9	4.32 / 5
Distributive Justice	4.01 / 9	4.92 / 8	2.61 / 1 0

much higher percentage of Baccalaureate nurses in Jamaica, the mean scores of nurse job satisfaction were lower in Jamaica than in other studies (see Table 21).

It may be that other demographics that have been shown to negatively impact nurse job satisfaction offset any increase in the Jamaican sample brought about by higher levels of nurse education. For example, the respondents from this study reported less experience when compared to other samples (Persky, 2011a; Hozak et al., 2011), and less experience has been associated with lower nurse job satisfaction scores (Li & Lambert, 2008).

Aim 2: Multidimensional Properties of Nurse Job Satisfaction

An initial step in identifying the dimensions of nurse job satisfaction was to understand if each dimension was empirically associated using Pearson's correlation and thus plausible to proceed with factor analysis (Tabachnick & Fidell, 2007). It is especially important to study the correlation matrix to ensure there are no suspicious pairwise relationships with either very high or very low empirical relationships (Hoyle, 1999). A zero-order correlation table revealed all correlations ranged from .52 to .77. These moderate-to-high correlations provided the initial support for the dimensions of job satisfaction as relating to one another.

When examining studies that considered multiple dimensions, five studies were found that examined the correlations of each dimension within the respective measure of nurse job satisfaction (Hall & Doran, 2007; Lynn et al., 2009; Karanikola et al., 2007; Moumtzoglou, 2010; Choobineh et al., 2011). Lynn et al. used the criteria for inter-item correlations as between .30 and .70 for at least three other items prior to proceeding with

Table 21

Demographic Profile of Jamaica Sample and Study Comparisons

Demographic	Study		
	Persky, 2011a	Hozak, 2011	Current Study
Gender	Female (85%)	Female (90%)	Female (94%)
Age	20-29 years (31%)	50-59 years (28%)	20-29 (47%)
Partnered status	Partnered (51%)	Partnered (60%)	Partnered (41%)
Education	Baccalaureate (66%)	Baccalaureate (44%)	Baccalaureate (82%)
Professional experience	Less than 5 years (36%)	Less than 5 years (19%)	5-10 years (54%)
Unit experience	Less than 5 years (51%)	Less than 5 years (35%)	Less than 5 years (62%)

factor analysis. Lynn et al. found no correlations greater than .70 but did find a total of nine items that did not meet the criteria of correlation .30 with at least three other items. Karanikola et al. used item analysis after finding a low Cronbach's alpha. Item analysis of the Index of Work Satisfaction (IWS) revealed three items had poor correlations with other items in their respective subscale and subsequently these items were deleted (Karanikola et al.). Moumtzoglou reported inter-item correlations ranged from .06 to .71, but no mention was made if any item with low or high correlation was deleted prior to further testing of nurse job satisfaction. Choobineh et al. used inter-item analysis to examine the strength of relationships between each item within each subscale and found correlations ranged from .13 - .90. There was no note if high- or low-correlating items were removed prior to further analysis (Choobineh et al.). Based on these findings, there were only two studies that identified a range for correlations and action taken if correlations did not meet criteria (Lynn et al.; Karanikola et al.). This study, as in Lynn et al., found the inter-item correlations to be within .3 and .7; thus, no modifications were made prior to further analysis. This study, unlike the vast majority of others, provides details about how items fit together, which assures potential users of this measure that the tool is efficient by not using items that are too highly correlated; moreover, each item fits with the others within the respective subscale.

After identifying that the relationships between all items were within the desired range, a confirmatory factor analysis was conducted to test the nine dimensions of nurse job satisfaction. Included within the nine dimensions were four social and five technical dimensions. All nine dimensions had been found to be important in the United States

(Nelson et. al. 2013), but required further testing in Jamaica to determine their measurement/assessment value. Testing the multidimensional measure in Jamaica allowed for a determination of whether the proposed measurement structure (as proposed in this study's conceptual model; see Figure 1 in Chapter 1) had similar empirical integrity as in other national contexts. Results of factor loading and fit indices revealed the nine dimensions as specified were part of the construct of nurse job satisfaction in the Jamaican sample.

As described above, there were two additional technical dimensions proposed as part of nurse job satisfaction in Jamaica, including satisfaction with resources and staffing/scheduling. A separate exploratory factor analysis was conducted on these two factors alone to see if they loaded as two different items and included items from each of the two factors loading onto the desired construct. Results revealed each item from the respective factors loaded with overall satisfaction with staffing/scheduling explaining a greater proportion of the total variance. It is important to include items identified as important to the context under study to ensure the model is specified for that particular context (Hoyle, 1999; See Figure 3 in Chapter 3).

Using parceling of data (due to the small sample size), confirmatory factor analysis revealed sizable factor loadings for all 11 dimensions of nurse job satisfaction. The most common method for creating a context-specific model is to create a new tool (Ulrich, 2006; Flint, 2010; Chen, 2009; Lu, 2007; Tsai, 2010; Fairbrother, 2009; Stone, 2006; Lynn, 2009; Moumtzoglou, 2010), using only a portion of a tool (AlEnezi, 2009; Burtson, 2010; Mrayyan, 2006, 2007; Wilson, 2008), combining measures (Chen, 2009),

or using an existing measure and adding subscales to make the measure context-specific (Gardulf, 2008). This study used the final method for creating a context specific model for examining nurse job satisfaction. Using an existing measure in a new context such as Jamaica extends the current research to determine if there are similarities across countries and settings. In addition, if the dimensions all do load, understanding if the factor loading is different may provide insight into how dimensions of satisfaction operate differently in various geographic, cultural/ethnic, or other environments.

Factor loadings ranged from .39 for satisfaction with staffing/scheduling to .72 for satisfaction with relationship with coworker. These factor loadings and fit indices support Hypothesis 1 in Aim 2 that the available data would identify a multidimensional measurement model that supported the presence of social and technical dimensions of nurse job satisfaction in Jamaica. Establishing an 11-dimension model that fits specifically to Jamaican nurses resulted in an empirically-tested model of nurse job satisfaction for the population of nurses who live in Jamaica and the Caribbean. This is the first time such a measurement/assessment tool has been performed, and could focus future system and quality improvement efforts in Jamaican hospital settings to enhance nurse job satisfaction.

It was interesting to note that satisfaction with patient care, the highest ranked mean score, had the lowest factor loading in the final model (path coefficient = .35). This finding is in contrast to the study by Nelson (2013), which examined nurse job satisfaction in the United States and found patient care to have one of the highest factor loadings. The mean score for satisfaction with patient care was ranked second or third in

9 of 10 exploratory factor analyses in the United States and the factor loadings for the nine studies ranged from .56 to .86 (Nelson et al.), which is a notably higher loading than this study on Jamaica. It may not be that the dimension of patient care is least important within the job, but rather that the construct of nurse job satisfaction behaves differently in the context of Jamaica. It may be the case that nurses in Jamaica use a culturally bound team approach to patient care, in contrast to the United States that relies more on individual nurses' abilities and skills. Gittell (2009) has proposed team culture over individual effort is contextually based.

Sociotechnical systems theory (STS) proposes that employees will be both satisfied and productive in their work if they have the social and technical systems in place to do such work (Maxwell, Ziegenfuss, & Chisholm, 1993). In consideration of both social and technical dimensions as integral to nurse satisfaction and productivity, it is important to consider which elements are emphasized within a given system so that employees can enact what is expected of them to do the work as desired by the organization (Andrews, 2003). Employees must adapt to the changing work environment and be allowed by management to voice what the needs are within operational requirements (Plsek & Wilson, 2001). Management's view of employees' needs often differs from employees' views of their own needs (Plsek & Wilson). Employees involved in direct care work often understand what is needed socially and technically as the organization changes systems and methods of operations (Plsek & Wilson). Employees' unique views (such as those espoused by nurses) are important to consider in the different frameworks of operations used for patient care. Some frameworks are

focused on relationships (e.g. Relationship-Based Care/RBC), while others are focused on Lean Management (LM). Relationship-Based Care, as an example of relationship-focused care delivery, emphasizes teamwork and clarity of role (Koloroutis, 2006). In contrast, healthcare organizations that use LM emphasize processes, derived from manufacturing, and thus have adapted terms such as “just in time production” (Toussaint & Gerard, 2010). While RBC environments have displayed good outcomes for patients and employees (Hozak & Brennan, 2011; Persky et al., 2011a), so have LM hospitals (Toussaint & Gerard, 2010). Both methods of organizational refinement are effective, however the focus for employees, from an operational standpoint, differs, and thus emphasis and subsequent desire for the social or technical dimensions may vary. In addition, as organizations change from one process to another (e.g., if the organization changes from LM to RBC) the organizations and employees would need to adapt to the change and evolve along with the changes taking place in the organization (Andrews, 2003). Employees who successfully adapt to the operational changes of an organization are more likely to feel satisfied with the work they do and contribute (Andrews).

Considering LM focuses on the technical dimensions measured in this study (e.g. workload, autonomy, executive leadership vision of the organization, and scheduling of employees), it would seem that organizations and contexts that focus on LM would find factors of the technical dimension that would have higher factor loadings than those in an RBC context. Three of the four organizations testing the model of nurse job satisfaction in the United States, using 9 of the 11 subscales used in Jamaica, were actively implementing RBC in their organization. In contrast, employees who are employed in

Jamaica are not implementing RBC and thus the rank order of factor loading in this study may be due to an increased level of focus on technical dimensions of the work rather than the social/relational dimensions. Jamaican hospital contexts may be operating more according to LM principles due to the economic and organization challenges outlined earlier (e.g., needing to import all medical supplies).

Aim 3: Empirical Relationships between Clarity and Nurse Job Satisfaction

There were three hypotheses in Aim 3, all relating to clarity. Hypothesis 1 proposed nurse job satisfaction would be positively predicted by clarity of self. Hypotheses 2 and 3 proposed nurse job satisfaction would be positively related to clarity of role and clarity of system, respectively. Clarity of self was first examined using Pearson's correlation. Results revealed almost no correlation between clarity of self and nurse job satisfaction ($r = .05$, $p = .67$). Clarity of self also did not relate to either the social dimension ($r = .08$, $p = .46$) or the technical dimension ($r = .06$, $p = .96$) of nurse job satisfaction. Subsequently, clarity of self was not considered in subsequent hierarchical regression models attempting to predict nurse job satisfaction.

The theory proposed for this study asserts that a person who is clear in who they are, what their strengths and weaknesses are, and how they make decisions, will be more likely to know how to advocate for herself/himself regarding the social and technical dimensions of the job. Bohen (1981) proposed that being clear in one's personal strengths and skills is critical to refinement of one's job conditions, but this study did not support this theoretical relationship. The argument had been made that individuals who understand who they are personally will perceive greater control over their work

environment (Campbell et al., 1996; Lee-Flynn et al., 2011). Greater control is made possible through clear understanding of what is needed to suit one's own personality. Those who do so are more adept at negotiating the social and technical dimensions of nurse job satisfaction (Campbell et al.; Lee-Flynn et al.). It may be that only clarity of role and system relate to refining the social and technical dimensions of the job and understanding personal strengths and skills has nothing to do with refinement of the job. Within this Jamaican sample, social dimensions such as clarity of self do not relate to job satisfaction and clarity of role and system (which are more technically oriented) do. It is possible that clarity of self is important to cultures where individual autonomy and self-determination are held in greater regard, while in a culture such as Jamaica the same value for self is less important than the value placed on community. Deeper discussion and research within the context of this study is required to understand these propositions more clearly as no literature was found that examined clarity of self, role, or system in the Caribbean.

Unlike clarity of self, clarity of role did have a statistically significant relationship with nurse job satisfaction ($r = .29$, $p = .009$), including both the social dimension of nurse job satisfaction ($r = .28$, $p = .01$) and the technical dimension of nurse job satisfaction ($r = .25$, $p = .02$). Proceeding to a hierarchical regression analysis, clarity of role was examined in a model that included service line and clarity of role. Results revealed, in the best fitting model, that clarity of role explained 6.9% of the variance of nurse job satisfaction ($p = .009$). As clarity of role increased, so did nurse job satisfaction.

Clarity of role explained 6.8% and 5.33% of the variance of social and technical dimensions of nurse job satisfaction, respectively; as with overall nurse job satisfaction, elevated clarity of role was reliably associated with satisfaction with social and technical dimensions of the job. This supports Hypothesis 3 in Aim 3 that clarity of role predicts total nurse job satisfaction, social dimensions of nurse job satisfaction, and technical dimensions of nurse job satisfaction.

Employees who are most clear in their role will be more adept at asking for what they need to execute their role (Plsek & Wilson, 2001). For example, the Registered Nurse (RN) who is working on an oncology clinical care ward and also has advanced training and certification in administration of oncology drugs may have organizational protocols he or she can use to care for patients. There may be some dependent, interdependent, and independent aspects of fully executing the certified oncology role on the unit as he or she works with physicians and other nurses, which require clarity of role. The nurse who is clear in each aspect of the advanced role will more healthily interact with support staff, other nurses, pharmacists, and physicians on the ward if he or she is clear in each aspect of the certified oncology role. Previous research has shown that nurses who are able to interact in a healthy fashion with other disciplines are more satisfied with their job overall (Rosenstein, 2002; Nelson & Venhaus, 2005) and have better patient clinical outcomes, including lower mortality (Shortell, Zimmerman, Rousseau, Gillies, Wagner, Draper, et al., 1994).

Examination of the individual dimensions of nurse job satisfaction using post hoc Pearson’s correlation analyses revealed clarity of role had statistically significant,

positive empirical relationships with two technical dimensions (workload, executive leadership) and one social dimension (patient care) of nurse job satisfaction. It is interesting to note that the strongest relationship and most statistically significant relationship with clarity of role was satisfaction with patient care, as satisfaction with patient care had the lowest loading factor in the Specific Aim 2 factor analysis. This makes sense when considering the definition of clarity of role as proposed by Rizzo et al. (1970), who assert that clarity of role guides behavior that is appropriate for each respective role. Considering that patient care is the core deliverable of nurses, patient care had the strongest relationship with clarity of role. Clarity of role has been related to job satisfaction before (Cowin, Johnson, Craven, & Marsh, 2008; Gulliver et al., 2003; Jones, Smith, & Johnston, 2005; Wickramasinghe, 2010), but specific reasons why clarity of role relates to nurse job satisfaction was not found. This may be the first empirical insight into the relationship of role clarity and nurse job satisfaction.

It is reasonable to expect that clarity of role has a strong correlation with the technical variable satisfaction with executive leadership as this involves the alignment of the organization's strategy and the employee's ability to implement the strategy within his or her respectively role. According to Toussaint and Gerard (2010), keeping up with changing healthcare strategies requires time to hire and/or train organizational leaders in the newest strategy and subsequently setting up roles and systems to support the new strategy. As new strategies are implemented, employees must learn how their role aligns and fits within the new organizational strategy so the appropriate technical dimensions can be refined to support the new strategy within their role. As the nurse becomes clearer

in his or her role it could decrease workload as he or she moves from a parallel format of working alongside others to a collaborative format working *with* others (Koloroutis, 2004).

Clarity of system was also found to approach significance in its association with nurse job satisfaction using Spearman's correlation. There was also a statistically significant relationship between clarity of system and the social dimension of job satisfaction. Again, using post hoc correlation analysis between clarity of system and all social and technical dimensions of nurse job satisfaction, it was identified that one social and four technical dimensions were significantly correlated to clarity of system. The only social dimension to correlate with clarity of system was satisfaction with patient care; the four technical dimensions included satisfaction with workload, satisfaction with distributive justice, satisfaction with executive leadership, and satisfaction with staffing/scheduling. Clarity of system may parallel clarity of role in its relationship to nurse job satisfaction. Consider the example cited earlier regarding the oncology nurse. His or her ability to use the protocols within the system includes accessing the protocol via internet or hard copy, knowing what committee updates the protocol, and what the vision of leadership is regarding possible expansion of protocols and/or the certified oncology nurse. Thus it is important for the nurse to not only know his or her role, but also how the role is supported within the system. Clarity of the strategic plans of the organization can allow an employee to successfully navigate his or her role both socially and technically (Felgen, 2007).

The strongest of all correlations with clarity of system was satisfaction with patient care. Recall that the items in the dimensions of satisfaction with patient care included nurses' satisfaction with continuity of patient care from admission to discharge, satisfaction with planning patient care, satisfaction with collaborating with other disciplines in patient care, and satisfaction with development of a relationship with the patient and patient's family. The correlation between clarity of system and patient care in Jamaica may be due to the fact that patient care is the core deliverable for nurses and thus understanding how to use the system for delivery of such care is most important to expressing satisfaction with this concept (Felgen, 2007). For example, clarity of system included understanding how staff scheduling works on the unit, which may relate to satisfaction with continuity of care. There were three items that related to scheduling in the clarity of system questionnaire used for this study. Item one evaluated the nurses' clarity in how patient assignments were made as it related to continuity of patient care. Item two evaluated nurses' clarity with how schedules are made, including how part-time and full-time staff is assigned to patient care. Item three evaluated the nurses' clarity in how schedules were made in regards to vacation, education, classes for staff, and other necessary scheduling requirements for staff. To see if there was a relationship between clarity of scheduling and continuity of care, Pearson's correlation was used. Three items were evaluated in relationship to satisfaction with the social dimension of job satisfaction: patient care. Results revealed clarity in how schedules were made with regards to vacation, and education classes had a statistically significant relationship with satisfaction with patient care.

It remains curious that satisfaction with patient care had the lowest factor loading in the construct of nurse job satisfaction but had the strongest correlation with clarity of role and clarity of system. It may be that this sample of nurses in Jamaica view patient care as the core and most important aspect of their work, but use more of a team approach, which would make relationships and dimensions for the team approach important for their work environment. This suggestion that staff use a team approach is suggested by the statistically significant relationship between satisfaction with patient care and how clear staff are in how they are scheduled for vacation, classes, and other scheduling needs that impact patient care. Use of a nurse team rather than autonomous care roles to meet the goals of work has been proposed as an approach to work (Gittell, 2009). It may be that the nurses in the Caribbean, specifically Jamaica in this study, do not have the same autonomous and individualistic focus that is emphasized in the United States.

Another proposal for the low factor loading rank of satisfaction with patient care despite its empirical relationship with clarity of role and system is that staff may be less experienced regarding professional practice. Persky et al. (2011a) explained how staff nurses evolve professionally as they achieve a clearer understanding in their professional roles. Persky et al. found in a time-series design study that the predictors of satisfaction with work environment evolved as staff clarity regarding their roles and system evolved.

Results of the hierarchical regression revealed that as clarity of system increased, satisfaction with social dimensions of nurse job satisfaction increased. These results for clarity of system partially support Hypothesis 4 of Aim 3: clarity of system predicts nurse

job satisfaction. Clarity of system only predicted the social dimension of nurse job satisfaction and not the technical dimensions or total nurse job satisfaction. Employees who are clear in knowing how to use the system are most able to access knowledge necessary to execute their roles (De Clercq, et al., 2011). This ability to demonstrate accurate use of information within the system in order to execute the required role has been positively associated with nurse job satisfaction (Korunka, et al., 2003).

The theoretical framework for this study proposed that employees clear in self, role, and system would be able to advocate for themselves to create social and technical dimensions that create a satisfying job. This study supports this theory and the conceptual model that specifies that clarity of role is important for both the social and technical dimensions of nurse job satisfaction. It may be that clarity of role provides knowledge guiding behavior that is appropriate, as proposed by Rizzo et al. (1970), which in turn assists with satisfaction with autonomy, coworker relationships, patient care, and engagement with the unit manager. Clarity of system, as proposed by the theoretical framework of this study, was also partially supported as it impacted the social dimension of nurse job satisfaction. As reviewed by Korunka et al. (2003), education about the systems and processes of an organization is a strong predictor of job satisfaction. The impact of system information on nurse job satisfaction may be secondary to the individual needs of each individual as it relates to information and resources needed for access within the system (Verhoeven et al., 2009). Clarity of system within this study may also relate to nurse job satisfaction because it improves outcomes of patient care. MacPhee et al. (2010) found that access to information improved outcomes. In addition,

those who have clarity about how systems work are able to exploit relationships to their advantage (DeClercq et al., 2011).

Clarity of self does not appear to be important for nurse job satisfaction. It was thought that clarity of self would impact social dimensions of nurse job satisfaction as Besser and Priel (2011) reported; individuals who are clear in their strengths and weaknesses display better teamwork because they understand how they as individual nurses compliment the strengths and weaknesses of others on the team. It was also thought that clarity of self would relate to the technical dimension of nurse job satisfaction. As Lee-Flynn et al. (2011) reported, those who have higher clarity in self-concept have higher self-esteem, which in turn impacts perception of autonomy. Possible reasons for this, as noted above, include that clarity of role and system are the only two dimensions of clarity that facilitates refinement of work socially and technically to meet the needs of the job in the evolving work environment. It may also be that clarity of self relates to nurse job satisfaction in other cultural contexts, but not in Jamaica.

Aim 4: Examine whether/if personal and professional demographics are associated with nurse job satisfaction

Groupings from the demographics were dummy coded and utilized to determine if any demographic variables were associated with nurse job satisfaction. None of the six personal demographics were found to predict nurse job satisfaction. There were also no personal demographics that were reliably associated to the social or technical dimensions of nurse job satisfaction. Service line was the only professional demographic found to predict nurse job satisfaction. Service line also predicted both social and technical

dimensions of nurse job satisfaction. Surgery II was the only service line that had a statistically significant impact on nurse job satisfaction in the total nurse job satisfaction regression equation, social dimension regression equation, and technical dimension regression equation.

There were three articles found that examined type of service (Kotzer & Arellana, 2008; Karanikola et al., 2007; McCrae et al., 2007). Among these three studies, one examined surgical services. Kotzer and Arellana's study included surgical services and five other service lines, including neonatal intensive care, pediatric intensive care, medical, oncology, and nurses from the float team. The authors found mostly similarities for 157 nurses who were studied in six different service lines. Kotzer and Arellana found that nurses on the surgical service line were generally more satisfied with their jobs, but no statistically significant differences were reported. Karanikola et al. (2007) examined nurses from emergency services, critical care, and general nursing wards, but nothing specific that would be comparable to the nature of service lines examined in this current study. When examining the different service lines, Karanikola et al. did find statistically significant differences for autonomy, and nurses in the emergency department were more satisfied with their workload than nurses in the intensive care units. McCrae et al. (2007) examined nurse job satisfaction in service lines different from the current study.

When presenting this finding regarding Surgery II to the executives of the hospital from where the data for this study was collected, it was questioned if differences in management style would have influenced the findings. However, when comparing the mean scores of the service lines for satisfaction with engagement of manager, Surgery II

had a mean score that was in between all the other service line mean scores with five higher and three lower. In addition, the difference of satisfaction with engagement of a manager when comparing service lines was not statistically significant. It is likely that further discussion with staff and additional research at the study site is necessary to understand the rationale for why service line impacted nurse job satisfaction.

The above findings regarding demographics partially support the hypothesis that personal and professional demographics would predict nurse job satisfaction. Only service line, as a professional demographic, predicted nurse job satisfaction, including both the social and technical dimensions.

Limitations

The limitation most obvious in this study is the sample size of 82. Use of parceling was used to address this limitation. This would not have been possible if the nurse job satisfaction measure had not been extensively tested in previous studies with large samples (i.e. Nelson et al., 2013). Fortunately, the Nelson et al. study that used the 9-factor instrument in a sample of nearly 5,000 nurses from the United States facilitated parceling of the data. A related limitation regarding the small sample size relates to the power of the study. While parceling of data was helpful for examining the central model of nurse job satisfaction, the extension of the model to include clarity and demographics in regression models increases the need for a larger sample size. Due to this limitation, this study should be repeated with larger samples to ensure the assertion that demographics did not impact nurse job satisfaction and is not a function of Type II error. It is important to further test demographics using larger sample sizes to establish if

personal and/or professional demographics really do impact nurse job satisfaction, socially and/or technically. Another limitation is that this is a cross-sectional study; there is a need for longitudinal research to examine: how/whether clarity is actually predictive of satisfaction over time, and whether the various dimensions of satisfaction considered here are linked to key nurse outcomes, such as turnover.

This study examined job satisfaction using the theory of sociotechnical systems theory. It must be considered that other theories may also inform additional dimensions of job satisfaction to measure. Some theories have examined job satisfaction as a "feeling" (Chang et al., 2010; Cortese et al., 2010; Curtis, 2007; Lu, Chang et al., 2007), a "connection" (i.e. Duddle and Boughton, 2008) or an affect (i.e. Abushaikha and Saca-Hazboun, 2009; Coomber and Barriball, 2007; Djurik et al., 2010; Kovner et al., 2006; Güleryüz et al., 2008; Yang and Chang, 2008). However, relying on sociotechnical systems theory led to a measurement model that explained 68.3% of the total variance of nurse job satisfaction; even if other dimensions of nurse job satisfaction were considered (such as job dissatisfaction or pay), it is unlikely that including these dimensions would have added significantly to what is already a robust measurement model.

Another limitation for this study is that the instrument has not been subject to other types of measurement validity. For example, other constructs such as professional practice or work environment could be measured concurrently with the nurse job satisfaction survey to offer additional discriminant validity. In addition, use of a unidimensional measure of nurse job satisfaction could have offered some assessment of criterion validity.

Recommendations for Further Research

No study published in the Caribbean that tested a multidimensional model of nurse job satisfaction was found. This is the first study to examine the multidimensional latent variable of nurse job satisfaction. Further testing will need to be conducted to identify if the model tested in this study is a good fit for other samples of nurses in Jamaica and can influence clinical care provision.

Future research should utilize mixed methods to better examine the cultural context of nurses working in Jamaica. This suggestion is made in light of the finding that clarity of self did not predict nurse job satisfaction, either socially or technically. In addition, satisfaction with staffing and scheduling was also found to load in the factor analysis for nurses in Jamaica within this study, but in studies from the USA these dimensions did not load. It may be the case that cultural influences contribute to these differences. Using mixed methods could offer the opportunity to study the cultural context of Jamaica and how this context influences the empirical structure of nurse job satisfaction.

The theoretical framework used for this study provided insight into important social and technical dimensions of nurse job satisfaction in Jamaica. This is especially important when considering only 36 of the 165 studies found in the literature review used theory to guide research in nurse job satisfaction. Theory is the underpinning of scientific inquiry and must be used to guide the development of conceptual or other scientific models (Fawcett, 2000; Reynolds, 1971). Among the 36 studies, 5 used sociotechnical system theory and examined the social and technical dimensions of nurse job satisfaction

(Hozak, 2011; Nelson & Hinds, 2008; Persky, 2008, Nelson, 2006; Tinker, 2011). In addition, the use of concepts such as clarity assists in the understanding of what antecedents are important for nurse job satisfaction in Jamaica. Identification of clarity is important as it provides some operational direction to improve nurse job satisfaction. By holding classes in clarity, nurses may be helped to improve their own efficiency and satisfaction within their work (Rizzo et al., 1970).

The first recommendation derived from this analysis is to evaluate the low response rate. Higher response rates provide greater credibility for research, enhance power, and enable smaller confidence intervals (Baruch & Holtom, 2008). In addition, convenience samples that are small may not represent the population of interest and thus distort the true effect (Baruch & Holtom). A recent analysis of a response rate of 490 studies using survey research was conducted (Baruch & Holtom). The 490 studies included 400,000 individuals (Baruch & Holtom). Results revealed an average response rate of 52.7 percent and standard deviation of 20.4 for individuals (Baruch & Holtom). The two principle reasons people do not respond to surveys are due to the survey not reaching the desired sample or the reluctance of people to respond (Baruch & Holtom). Considering this study used hand delivery to reach each employee over a 10-day period, it appears the reason for the low response rate here would have to be reluctance to respond. Baruch and Holtom cited that the primary reason for reluctance was employees being “over-surveyed”. When presenting results on site after data collection and analysis, several employees and organizational leaders in Jamaica stated that there were many other student projects and organizational surveys.

Baruch and Holtom found response rates declined over the 1970s, 1980s, and 1990s with stabilization in the years 2000 to 2005, with a range from 48.4 to 48.3 percent and standard deviations of 21.1 to 22.2, respectively. Higher response rates were found for non-executive/managerial staff and studies published in scientific journals in the United States (Baruch & Holtom). Incentives did not increase response rates and reminders were associated with a declined response rate. Surveys that were distributed in person by a researcher were found to have a higher response rate (62.4%) when compared to internal mail in the organization (55.5%) or surveys sent through the postal service (44.7%; Baruch & Holtom). It is suggested that if the response rate is lower than 50% that an explanation be identified within the respective context (Baruch & Holtom). The explanation provided by staff and leaders who listened to the presentation of results in Jamaica for this study was that there exists a high level of paranoia amongst staff that the data would somehow reveal their responses (presentation to staff at the UWI campus, May 30, 2013). It was suggested that in a subsequent measure of nurse job satisfaction an anonymous process be used that would not use names, employee ID, unit, or any other identifying component. This is in contrast to the confidential process that was used where names and units were collected and approved by the ethics committee as only aggregate data would be reported. It was also suggested that the presentation that was made on May 30th be put on an audio-enabled PowerPoint presentation that could be accessed by all staff via the internet. The staff who attended the presentation on May 30th felt if staff could see the results and see the data was truly only in aggregate this might decrease the paranoia and likely increase response rate. Staff reported when they complete surveys

required by the hospital, nothing seems to change so there was a lack of incentive to spend the time completing yet another survey. Staff who attended the presentation on May 30th said if the staff saw results comparing units, they would feel the data could be used for social and technical refinement of the work environment and this would in turn increase job satisfaction and subsequently increase response rate. It was suggested to distribute the Power Point slides that included notes for unit managers and staff to review and discuss (See Appendix B).

When the study was presented in May 2013 to about 50 nurse leaders and staff nurses, they were very pleased to see the results and reported that viewing the data was very informative in order to understand the strengths and vulnerabilities of the different service lines (personal communication, May 30, 2013). It also helped staff to understand the factor analytic results and what dimensions had high factor loadings and which dimensions had low factor loadings. Attendees of the presentation also reported reviewing de-identified data in aggregate form was helpful to understand that the results were indeed confidential.

Another recommendation was to present this study at the Caribbean Council of Nurses to see if any of the island countries in the Caribbean would be interested in using the study methods to replicate research of nurse job satisfaction in their own country. There has already been interest voiced from a private hospital in Jamaica and a public hospital in Trinidad and Tobago to replicate this study. Conversations are in process to do just this.

It was also suggested to repeat this study at the same facility in a longitudinal design, using both a between- and within-subject design. Persky et al. (2011a), who used the same measure as this study identified how a multi-year study of the same units and nurses over time allowed visualization of the evolution of the staff over time as they became clearer in their role and system (Persky et al.). Replication studies that use this measure of nurse job satisfaction in Jamaica and beyond should also consider using similar procedures to assist with internal validity of the study itself. Use of the same measure, methods, and procedures supports the scientific process, which in turn assists with the development of a measure for nurse job satisfaction that may be generalizable to nursing across settings and time (Hoyle, 1999; Polit & Hungler, 1999).

Another recommendation was to test this measurement model of nurse job satisfaction in other island countries and non-island countries to determine if resource need is unique to island countries, which have to import a large portion of their resources. It may also be important to test this measurement model in other remote areas of the world to ascertain if similar issues are present. There were no studies in the literature review for this study that examined island countries, remote areas that are at risk for resource acquisition, or comparison of low, medium, and high income countries. The need for resources was most obvious to the author of this report during a tour of the sample site. There were kerosene lamps prepared on table stands for each patient for the event that electricity is unavailable. It was not clear how pervasive power outages were, but staff nurses during the tour reported power outage was not an unusual event. This suggests the need not only for empirical assessment of these issues, but perhaps the use of

further observational or other methodological tools to better understand how resource shortages influence nurse job satisfaction in remote areas (Brink & Wood, 1998; Hoyle, 1999; Polit & Hungler, 1999).

Item analysis, used in this study, as well as continued factor analysis, may assist with identifying which items are most explanatory for the dimensions and constructs of interest. The repeated studies proposed for this specific study site using larger samples may confirm that demographics do not impact nurse job satisfaction. Any demographic that is revealed to not contribute to the model of nurse job satisfaction in Jamaica could also be considered for removal, thus further decreasing the length of the measure used to further test the multidimensional measurement model of nurse job satisfaction.

After refinement of this model, it is suggested to examine other suspected antecedents and outcomes of nurse job satisfaction. A more complex model that has been developed by the staff, leaders, and researchers in Jamaica would provide more information on how nurse job satisfaction benefits employees, patients, and the organization. In addition, adding other constructs to this model, including covariates, may assist with establishing discriminate validity. For example, measuring perceived stress of staff, burnout, or plans of leaving the position may assist with understanding if stress is related to nurse job satisfaction in Jamaica.

Finally, if the hospital does not have unit practice councils to address the issues identified by the research, it is advised to form such councils. The practice councils would be charged with understanding and implementing the research to not only interpret the results but also to consider the implications of the research findings as they relate to

their unit (consistent with sociotechnical systems theory). Once programs are proposed and implemented to address the identified unit needs, a post-test assessment using the same instrument should be conducted to understand the impact of unit interventions to improve the social and/or technical dimensions of nurse job satisfaction (Felgen, 2007; Koloroutis, 2004).

Scientific Implications

In addition to the implications of this study to the operations of nursing, there are several contributions that this study makes to the science of measuring and studying nurse job satisfaction. The results of the factor analysis suggested that the multidimensional measure of nurse job satisfaction performed in a fashion similar to prior research in the United States (Nelson, 2013), which suggests a stable measure of nurse job satisfaction that has relevance for understanding what comprises and predicts nurse job satisfaction. Operationally, ascertaining the rank order of dimensions of the latent variable of nurse job satisfaction will assist with prioritization of organizational refinement aimed at improved nurse job satisfaction. In addition, demonstrating that education in legal and operational aspects of various nurse roles will assist with enabling nurses to create a satisfying job for themselves.

The fact that the same factors all loaded in the same latent variable of nurse job satisfaction in the CFA is important as it provides a measure that has been developed through decades of nursing research that has examined what is important to nurses' job satisfaction. Commonly used instruments in contemporary nursing today have been shown to be unstable (Choi et al., 2004, Fillion et al., 2010). The nine subdimensions

tested in this and previous studies using factor analysis provide support for construct validity of the social and technical measurement model of nurse job satisfaction; this in contrast to the little attention that has been paid to measurement validity in prior instruments (Fairbrother et al., 2010; Lynne et al., 2009; Tone et al., 2006). In addition, the current measure from this study provides an 11-factor measure that provides a broader scope than other measures that are currently in use (Djukic, et al., 2010, Kalisch, et al., 2011; Malloy & Penprase, 2010; Rafferty, et al., 2007, Seago, et al., 2011; Sveinsdóttir, 2006). This is especially important when considering the 165 studies examined in preparation for this current study and 17 studies (10.3%) that either developed their own instrument or used a single item, as existing measures were considered inadequate. The development of a multidimensional measure seems to be especially critical in light of the weakness of unidimensional measures (Hill, 2011; McCarthy et al., 2007). Use of a multidimensional measure provides a broader discussion that is more helpful operationally to identify important variables for job satisfaction (Spector, 1997).

As summarized above, the multidimensional measure emphasizes that the core deliverable of nursing, patient care, is integral to social and technical dimensions of nurse job satisfaction. Only 4 of the 55 measures found in the literature included the dimension of patient-centered care. There were no measures found in the literature that examined the concepts of a model of nursing care, such as primary nursing, in which satisfaction with patient care emerged as central. Included within this study's construct of patient care is satisfaction with continuity of care, care planning, collaboration with other disciplines,

and developing a relationship with the patient and patient's family. In both the United States and Jamaica, this dimension of nurse job satisfaction had factor loadings that revealed it to be critical when understanding the construct of nurse job satisfaction.

Finally, this study identified many limitations in the existing literature and implemented methods and processes that would ensure a scientific approach to measurement and conceptual model refinement. First, there were only two studies that used item analysis to ensure the fit of all items. Next, this study used a measure that had been tested using factor analysis in 10 different studies in the USA (Nelson et al., 2013). The only replication of the measurement integrity of nursing satisfaction found within the literature was conducted by Laschinger (2011). No other measure found in the literature behaved so consistently while explaining about 70% of the variance of nurse job satisfaction. The final tool used to measure nurse job satisfaction included 57 items in total. The average number of items for the measures found in the literature review was 77. In addition, most of the items in the measure of nurse job satisfaction used for this study are the same as the United States, with 50 of the 57 items being identical. Using the same items in a validated model facilitates comparison of results across countries with an associated conversation of refinement or improvement of nurse job satisfaction within healthcare systems.

Summary

This study, despite its limitations, has provided initial insight into the construct of nurse job satisfaction in Jamaica using a multidimensional measure. It validated nine previously tested dimensions of nurse job satisfaction derived from the United States and

added two new dimensions reported as important in the context of Jamaica. Use of a measure that has 9 of 11 dimensions of nurse job satisfaction consistent with the United States will facilitate discussion and comparison of work environments and sharing of research and quality improvement efforts.

Examination of clarity of self, role, and system using hierarchical regression revealed that clarity of self did not impact nurse job satisfaction as a single construct, nor did it impact the social or technical dimensions of nurse job satisfaction. Clarity of role was found to impact nurse job satisfaction as well as the social and the technical dimensions of nurse job satisfaction. Clarity of system was found to impact only the social dimension of nurse job satisfaction. This was consistent with sociotechnical systems theory, in that employees who are clear in their role and system are more likely to have jobs they feel satisfied with.

This study also studied the impact of service line using hierarchical regression and found a service line within surgical care to have a negative impact on nurse job satisfaction. Examination of the prediction of service lines or unit type using hierarchical regression was not found in the literature and thus this study provides insight into the possibility that clinical care type may impact nurse job satisfaction. The hierarchical regression methods used for this study may serve as a template for studying the impact of service line on job satisfaction across facilities in Jamaica and other countries. Existing literature did not provide any insight into the impact of specific service line on nurse job satisfaction, but the methods used within this study, if replicated, could help if clinical or healthcare setting impacts nurse job satisfaction.

Finally, the methods and procedures used for this study considered the weaknesses existing within the literature from 2006 to 2011, resulting in a measure that was carefully examined and tested scientifically. There was no measure found that was tested so extensively, explained so much variance of nurse job satisfaction, and performed so consistently across settings using factor analysis methods that yielded good model fit. Use of a carefully developed and tested measure and model of nurse job satisfaction is more reliable than using a measure and/or model that have not been extensively tested. This provides added assurance to healthcare leaders and nurses to use the measures included in this study as a tool to assess the social and technical dimensions of nurse job satisfaction.

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Appendix A, Instrument, Job Satisfaction of Nurses in Jamaica

healthcare environment
Discovering meaning in data

Healthcare Environment Survey II

Lastname, Firstname **Unit Name**

Clip Here — Clip Here

Consider your level of satisfaction for each of the statements on this page. Fill in the circled number that best represents your level of satisfaction, in your current job.

Use one of the following answers.

1= Strongly disagree
2= Disagree
3= Slightly disagree
4= Neutral
5= Slightly agree
6= Agree
7= Strongly agree

Physician Relationships
(ONLY employees who work with physicians, please respond to statements 1-5.)

1. I am satisfied with how physicians in general cooperate with staff in my unit or department.

① ② ③ ④ ⑤ ⑥ ⑦

2. I am satisfied with how physicians and staff in my unit/department work together as a team.

① ② ③ ④ ⑤ ⑥ ⑦

3. I am satisfied with how physicians I work with are respectful of the skill and knowledge of all the staff in my unit/department.

① ② ③ ④ ⑤ ⑥ ⑦

4. I am satisfied with how physicians at this hospital/facility generally understand and appreciate what all the staff members do.

① ② ③ ④ ⑤ ⑥ ⑦

5. I am satisfied with how physicians at this hospital/facility show respect for staff members.

① ② ③ ④ ⑤ ⑥ ⑦

Nurse Relationships
(ONLY employees, who work with nurses, please respond to questions 11-15.)

6. I am satisfied with how nurses at this hospital/facility show respect for staff members.

① ② ③ ④ ⑤ ⑥ ⑦

7. I am satisfied with how nurses in general cooperate with staff in my unit or department.

① ② ③ ④ ⑤ ⑥ ⑦

8. I am satisfied with how nurses and staff in my unit/department work well together as a team.

① ② ③ ④ ⑤ ⑥ ⑦

9. I am satisfied with how nurses I work with are respectful of the skill and knowledge of all the staff in my unit/department.

① ② ③ ④ ⑤ ⑥ ⑦

10. I am satisfied with how nurses at this hospital/facility generally understand and appreciate what all the staff members do.

① ② ③ ④ ⑤ ⑥ ⑦

Work Relationships
(These next five statements relate to all co-workers that are not medical doctors or nurses.)

11. I am satisfied with how easy it is for new employees to feel welcome in my unit or department.

① ② ③ ④ ⑤ ⑥ ⑦

12. I am satisfied with the teamwork and cooperation in the unit/department I work in.

① ② ③ ④ ⑤ ⑥ ⑦

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Healthcare Environment Survey II

Lastname, Firstname **Unit Name**

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13. I am satisfied with how friendly and outgoing people are on my unit or department.

① ② ③ ④ ⑤ ⑥ ⑦

14. I am satisfied with how people I work with on my unit or department get along, no matter what the level of their education and experience is.

① ② ③ ④ ⑤ ⑥ ⑦

15. I am satisfied with how people I work with in my unit/department help me out when I get really busy and need help.

① ② ③ ④ ⑤ ⑥ ⑦

Workload (workload refers to the type and amount of work I am required to do in my shift).

16. I am satisfied with the amount of data entry and "paperwork" I have to do in my job.

① ② ③ ④ ⑤ ⑥ ⑦

17. I am satisfied with my current level of workload.

① ② ③ ④ ⑤ ⑥ ⑦

18. I am satisfied with the types of activities that I do on my job.

① ② ③ ④ ⑤ ⑥ ⑦

19. I am satisfied with the amount of time and opportunity to discuss job related problems with other staff members in my unit or department when I need to.

① ② ③ ④ ⑤ ⑥ ⑦

20. I am satisfied with the amount of time I have to complete the tasks required of me.

① ② ③ ④ ⑤ ⑥ ⑦

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21. I am satisfied with the job I did at the end of the day.

① ② ③ ④ ⑤ ⑥ ⑦

Autonomy

22. I am satisfied with the amount of supervision I have in my job.

① ② ③ ④ ⑤ ⑥ ⑦

23. I am satisfied with the level of input I have into the processes required to get my work done.

① ② ③ ④ ⑤ ⑥ ⑦

24. I am satisfied with the level of authority I have in my job when I consider the amount of responsiblity I have.

① ② ③ ④ ⑤ ⑥ ⑦

25. I am satisfied with how much control I have over my own work. My supervisors do not make all the decisions for me.

① ② ③ ④ ⑤ ⑥ ⑦

26. I am satisfied with the level of independence I have within my work.

① ② ③ ④ ⑤ ⑥ ⑦

27. I am satisfied with the amount of flexibility I have in my unit/department for me to get the job done the way I feel it should be done.

① ② ③ ④ ⑤ ⑥ ⑦

28. I am satisfied with how I am able to use my judgment. I am never required to go against my better judgment.

① ② ③ ④ ⑤ ⑥ ⑦

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healthcare environment
Discovering meaning in data

Healthcare Environment Survey II

Lastname, Firstname **Unit Name**

Clip Here — Clip Here

29. I am satisfied with the amount of freedom I have in my work to make important decisions as I see fit, and can count on my supervisors to back me up.

① ② ③ ④ ⑤ ⑥ ⑦

Distributive Justice

The following statements are about the rewards you receive in your job. Indicate how much you agree or disagree with each statement. Please note that number 1 in the scale indicates you strongly disagree and 7 indicates you strongly agree.I am satisfied with my rewards . . .

30. Considering the responsibility I have.

① ② ③ ④ ⑤ ⑥ ⑦

31. Taking into account the amount of education and training I have had.

① ② ③ ④ ⑤ ⑥ ⑦

32. In view of the amount of experience I have had.

① ② ③ ④ ⑤ ⑥ ⑦

33. For the amount of effort I put forth.

① ② ③ ④ ⑤ ⑥ ⑦

34. For the work I have done well.

① ② ③ ④ ⑤ ⑥ ⑦

35. For the stresses and strains of my job.

① ② ③ ④ ⑤ ⑥ ⑦

36. In terms of the pay I receive.

① ② ③ ④ ⑤ ⑥ ⑦

37. Considering the contribution I make toward the hospital/facility operation.

① ② ③ ④ ⑤ ⑥ ⑦

The Professional Patient Care Index

NOTE: The Professional Patient Care Index (questions 38-45) should be answered ONLY if you provide or participate inpatient care. This includes-but is not limited to-physicians, nurses, social services, physical and occupational therapists, dieticians and chaplains. Below are four concepts of patient care. Indicate how strongly you disagree or agree that theprocess of care delivery within your institution facilitates your performance of each item. Remember: The more strongly you feel about the statement, the further from the center you should click, withdisagreement to the left and agreement to the right. Use 4 for neutral or undecided if needed, but please try to use this number as little as possible.

38. I am satisfied with my ability to daily establish a relationship with the patient and his/her family in order to understand and communicate the patient's story and actively involve them in decision making.

① ② ③ ④ ⑤ ⑥ ⑦

39. I am satisfied In my daily work how I am able to build trust with the patient and family by utilizing: Processes of caring/advocacy

① ② ③ ④ ⑤ ⑥ ⑦

40. I am satisfied In my daily work how I am able to build trust with the patient and family by utilizing: Demonstration of clinical skills and knowledge

① ② ③ ④ ⑤ ⑥ ⑦

41. I am satisfied In my daily work how I am able to build trust with the patient and family by utilizing: Effective communication

① ② ③ ④ ⑤ ⑥ ⑦

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healthcare environment
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Healthcare Environment Survey II

Lastname, Firstname **Unit Name**

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42. I am satisfied In my daily work how I am able to build trust with the patient and family by utilizing: Consistent relationships and continuity of plan of care

① ② ③ ④ ⑤ ⑥ ⑦

43. I am satisfied In my daily work how I am able to build trust with the patient and family by utilizing: Follow through of a mutually determined plan

① ② ③ ④ ⑤ ⑥ ⑦

44. I am satisfied with my ability to daily develop, communicate and facilitate the plan of care from admission of the patient through discharge to aid smooth patient transitions.

① ② ③ ④ ⑤ ⑥ ⑦

45. I am satisfied with my ability to daily collaborate with the multidisciplinary team to assure coordinated care.

① ② ③ ④ ⑤ ⑥ ⑦

Participative Management Scale
The following statements pertain to the Ward Sister who runs your unit or department and is responsible for the operational needs of your unit or department.

46. I am satisfied with how the Ward Sister of my unit takes an interest in me as a person as well as how competently I do my job?

① ② ③ ④ ⑤ ⑥ ⑦

47. I am satisfied with how the Ward Sister of my unit gives me adequate and meaningful consideration when I ask her a question about my work?

① ② ③ ④ ⑤ ⑥ ⑦

48. I am satisfied with how the Ward Sister of my unit gives me adequate opportunity to present problems, complaints, or suggestions to her?

① ② ③ ④ ⑤ ⑥ ⑦

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49. I am satisfied with how the Ward Sister of my unit is interested in my ideas and suggestions?

① ② ③ ④ ⑤ ⑥ ⑦

50. I am satisfied with how the Ward Sister of my unit gives me recognition for work well done?

① ② ③ ④ ⑤ ⑥ ⑦

Professional Growth Scale

51. I am satisfied with the opportunities I am given to improve my skills.

① ② ③ ④ ⑤ ⑥ ⑦

52. I am satisfied with my opportunities for growth and development within this organization.

① ② ③ ④ ⑤ ⑥ ⑦

53. I am satisfied with the amount of personal growth and development I get in doing my job.

① ② ③ ④ ⑤ ⑥ ⑦

54. I am satisfied with programs made available to assist me with my development at this organization.

① ② ③ ④ ⑤ ⑥ ⑦

Executive Leadership
The following questions relate to the executive team member in your facility who is responsible for your profession within your facility (i.e. Chief Medical Officer oversees all physicians within the facility, or the Chief Nurse Officer oversees all nursing staff within the facility) If you are unsure who your executive team member is, who is responsible as the lead executive over your profession, please respond to only the first question and skip the remaining questions (q. 77, 78, and 79).

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Healthcare Environment Survey II

Lastname, Firstname **Unit Name**

Clip Here

55. I am not sure what executive team member is responsible for my profession within this facility.

① ② ③ ④ ⑤ ⑥ ⑦

56. I am satisfied with the level of respect other professions in this faciliy show to the chief executive of my profession (e.g. the Chief Nurse Officer is well respected by other disciplines such as medicine, pharmacy,etc.).

① ② ③ ④ ⑤ ⑥ ⑦

57. I am satisfied with the level of respect nurses in this faciliy show to the chief executive of my profession (e.g. the Chief Nurse Officer is well respected by nursing staff).

① ② ③ ④ ⑤ ⑥ ⑦

58. I am satisfied with how much I feel the executive leader in my profession cares for nurses. (e.g. the Chief Nurse Officer cares about nursing staff).

① ② ③ ④ ⑤ ⑥ ⑦

Staffing and Scheduling

59. I am satisfied with the amount of advance notice I have prior to my new shift roster starting.

① ② ③ ④ ⑤ ⑥ ⑦

60. I am satisfied with the shift rotation I am assigned.

① ② ③ ④ ⑤ ⑥ ⑦

61. I am satisfied with the input I have into my final schedule prior to the roster being posted.

① ② ③ ④ ⑤ ⑥ ⑦

62. I am satisfied with my ability to change my schedule after the schedule roster is posted, if I need to change it.

① ② ③ ④ ⑤ ⑥ ⑦

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Resources

63. I am satisfied with the availability of supplies required to do my job.

① ② ③ ④ ⑤ ⑥ ⑦

64. I am satisfied with the availability of equipment needed to do my job.

① ② ③ ④ ⑤ ⑥ ⑦

65. I am satisfied with my access to clinical experts/specialists to do my job (may include physicians, pharmacists, clinical nurses specialists, etc.).

① ② ③ ④ ⑤ ⑥ ⑦

Qualitative Questions

Below are a few questions that address the dynamic state of the work environment. Please limit your response to only a few sentences for each question.

66. The one aspect of my current job or work environment that really makes me want to STAY in my current job is:

67. The one aspect of my current job or work environment that really makes me want to LEAVE my current job is:

68. The one aspect of my job or work environment that makes me feel the most STRESS is:

69. The one aspect of my job that I ENJOY the most is:

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Healthcare Environment Survey II

Lastname, Firstname **Unit Name**

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Demographics

70. Number of dependents. Include both children, dependent parents, or others who are dependent on your income for daily living.

❍ 1 ❍ 2 ❍ 3 ❍ 4 ❍ 5
❍ 6 ❍ 7 ❍ > 7 ❍ Prefer not to answer

71. Age

❍ Less than 20 ❍ 20 to 29 ❍ 30 to 39 ❍ 40 to 49
❍ 50 to 59 ❍ 60 or greater ❍ Prefer not to answer

72. Marital status

❍ Married ❍ Widowed ❍ Single ❍ Domestically partnered (common law) ❍ Divorced ❍ Prefer not to answer

73. Gender

❍ Male ❍ Female ❍ Prefer not to answer

74. Household income (combined annual income of all income earners in your home)

❍ < $780,000 ❍ $780,000 - $900,000 ❍ $901,000 - $1,020,000
$1,021,000 - 1,260,000 ❍ > $1,260,000 ❍ Prefer not to answer

75. Are you the main source of income for your household?

❍ Yes ❍ No ❍ Prefer not to answer

76. Number of years worked on current unit/department

❍ Less than 5 ❍ 5-10 ❍ 11-15 ❍ 16-20 ❍ 21-25
❍ 26-30 ❍ 31-35 ❍ More than 35 ❍ Prefer not to answer

77. Number of years in nursing

❍ Less than 5 ❍ 5-10 ❍ 11-15 ❍ 16-20 ❍ 21-25
❍ 26-30 ❍ 30-35 ❍ more than 35 ❍ Prefer not to answer

78. Highest education credential in your profession

❍ Diploma ❍ Associate degree ❍ Baccalaureate
❍ Master degree ❍ Doctorate ❍ Other (please list)

79. Number of continuing education hours per year (write number of hours in space below)

80. Number of hours worked per week (on average)

To keep your answers anonymous, please clip off the top section (the part with your name on it) before submitting.

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Appendix B, Instrument, Clarity of Self Concept

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Discovering meaning in data

Clarity of Self-Concept

Lastname, Firstname **Unit Name**

Clip Here

1. My beliefs about myself often conflict with one another.

① ② ③ ④ ⑤

2. On one day I might have one opinion of myself and on another day I might have a different opinion.

① ② ③ ④ ⑤

3. I spend a lot of time wondering about what kind of person I really am.

① ② ③ ④ ⑤

4. Sometimes I feel that I am not really the person that I appear to be.

① ② ③ ④ ⑤

5. When I think about the kid of person I have been in the past, I'm not sure what I was really like.

① ② ③ ④ ⑤

6. I seldom experience conflict between the different aspects of my personality.

① ② ③ ④ ⑤

7. Sometimes I think I know other people better than I know myself.

① ② ③ ④ ⑤

8. My beliefs about my self seem to change very frequently.

① ② ③ ④ ⑤

9. If I were asked to describe my personality, my description might end up being different from one day to another day.

① ② ③ ④ ⑤

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10. Even if I wanted to, I don't think I would tell someone what I'm really like.

① ② ③ ④ ⑤

11. In general, I have a clear sense of who I am and what I am.

① ② ③ ④ ⑤

12. It is often hard for me to make up my mind about things because I don't really know what I want.

① ② ③ ④ ⑤

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Appendix C, Instrument, Clarity of Role

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Discovering meaning in data

Clarity of Role

Lastname, Firstname **Unit Name**

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1. I feel certain about how much authority I have.

① ② ③ ④ ⑤ ⑥

2. I have clear, planned goals and objectives for my job.

① ② ③ ④ ⑤ ⑥

3. I know that I have divided my time properly.

① ② ③ ④ ⑤ ⑥

4. I know what my responsibilities are.

① ② ③ ④ ⑤ ⑥

5. I know exactly what is expected of me.

① ② ③ ④ ⑤ ⑥

6. Explanation is clear for me of what has to be done.

① ② ③ ④ ⑤ ⑥

To keep your answers anonymous, please clip off the top section (the part with your name on it) before submitting.

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Appendix D, Instrument, Clarity of System

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Clarity of System

Lastname, Firstname **Unit Name**

Clip Here

1. I understand what I do and do not have control over within this hospital as it relates to my job.

① ② ③ ④ ⑤ ⑥ ⑦

2. I understand how patient assignments are made as it relates to continuity of care.

① ② ③ ④ ⑤ ⑥ ⑦

3. I understand how patient assignments are made as it relates to hospital policy.

① ② ③ ④ ⑤ ⑥ ⑦

4. I understand how schedules are made, including how part-time and full-time staff are assigned.

① ② ③ ④ ⑤ ⑥ ⑦

5. I understand how the schedule is made in consideration of vacation, education classes for staff, and other necessary scheduling requirements for staff.

① ② ③ ④ ⑤ ⑥ ⑦

6. I understand what our organization's key success is and it makes us stand apart from other hospitals.

① ② ③ ④ ⑤ ⑥ ⑦

7. I understand the difference between responsibility, authority and accountability.

① ② ③ ④ ⑤ ⑥ ⑦

8. I understand practice change (what I do in my job) is linked to principle (a rationale or reason).

① ② ③ ④ ⑤ ⑥ ⑦

Clip Here

9. I believe in shared governance where staff and managers both have input into decisions.

① ② ③ ④ ⑤ ⑥ ⑦

10. I believe managers should support staff so staff can manage patients.

① ② ③ ④ ⑤ ⑥ ⑦

11. I believe unit practice councils (small group of unit staff leaders) are helpful in setting unit policy and helping make unit decisions.

① ② ③ ④ ⑤ ⑥ ⑦

12. I know the place the nurses' association plays in my job locally.

① ② ③ ④ ⑤ ⑥ ⑦

13. I know the place the nurses' association plays in my job regionally.

① ② ③ ④ ⑤ ⑥ ⑦

14. I know the place the nurses' association plays in my job internationally.

① ② ③ ④ ⑤ ⑥ ⑦

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Appendix E, PowerPoint Presentation Slides, University of West Indies

Assessment of a Model of Job Satisfaction

Mr. John W. Nelson, PhDc, MSc, RN
Mrs. Pauline Anderson-Johnson, MSc, RN
Dr. Hilda Ming, PhD, RN
UWI School of Nursing, Mona
May 30, 2013

Objectives

- Test if 11 dimensions of work (4 social and 7 technical dimensions) were important to nurse job satisfaction in a sample of Jamaican nurses
- Identify if clarity and nurse demographics related to nurse job satisfaction in Jamaica.

2

Agenda

- Background
- Methods
- Result
- Discussion

3

Background

- Research in nurse job satisfaction remains underdeveloped when compared to other disciplines
- Lack of adequate instruments to measure nurse job satisfaction

4

Background

- Job satisfaction linked to:
  - intent to stay in the organization,
  - decreased absenteeism from work,
  - Increased retention

5

Background

- Job satisfaction is
  - negatively associated with burnout by nurses
  - positively associated with
    - nurses' perceived organizational support
    - satisfaction with being a nurse,
    - nurses' assessments of quality of care

6

Methods

- Literature Search (2006-2011)
  - Medline,
  - Cumulative Index to Nursing and Allied Health Literature (CINAHL),
  - Social Sciences Citation Index,
  - Ingenta Connect, and
  - Web of Science

7

Background

- 165 articles in nurse job satisfaction (2006-2011)
  - 416,449 nurse respondents
  - sample sizes ranged from 23 to 72,866 with a mean of 2,892 per study.

8

Background

- 165 articles in nurse job satisfaction (2006-2011)
- Most commonly studied countries:
  - United States (n = 62)
  - Canada (n = 12),
  - China (n = 8), and
  - Australia (n = 7).

9

Background

- There were no published studies found in Jamaica between January, 2006 and August, 2011
- One study from Jamaica in 2001

10

Background

- 55 different measures of nurse job satisfaction from 2006 to 2011
- 70 different dimensions of job satisfaction

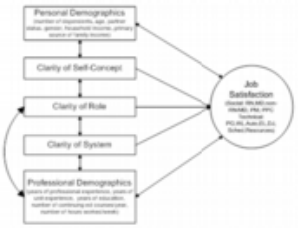
11

Background

- Healthcare Environment Survey
  - Psychometrically tested
  - Multidimensional measure (9 dimensions)
  - Theoretically based (sociotechnical systems theory)
  - 10 studies using EFA in USA
  - CFA (n=2,500 nurses) in USA

12

Background



13

Methods

- Cross sectional convenience of nurses
- University Hospital of the West Indies (UHWI)
- 29 clinical care units were grouped by UHWI into 8 programs (service lines)
- Self administered questionnaire
- 583 nurses on 29 clinical care units

14

Methods

- Healthcare Environment Survey
  - Social factors (28 items, 1-7 Likert))
    - Coworker relationship
    - Physician relationship
    - Patient care
    - Engagement with Ward Sister/Manager

15

Methods

- Healthcare Environment Survey
  - Technical factors (40 items, 1-7 Likert)
    - Workload
    - Autonomy
    - Professional growth
    - Executive leadership
    - Distributive justice
    - Resources
    - Staffing/Scheduling

16

Methods

- Predictors
  - Clarity of self (12 items, 1-5 Likert)
  - Clarity of role (6 items, 1-6 Likert)
  - Clarity of system (15 items, 1-7 Likert)

17

Methods

- Covariates
  - Professional demographics
    - Years of professional experience
    - Years of unit experience
    - Years of education
    - Number of continuing education courses/year
    - Number of hours worked/week

18

Methods

- Covariates
  - Personal demographics
    - Number of dependents
    - Age
    - Partner status
    - Gender
    - Household income
    - Primary source of family income

19

Methods

- Confirmatory Factor Analysis
  - Step 1, test 7 factors already tested
  - Step 2, test 2 factors from Jamaica
  - Step 3, test entire model
- Hierarchical Regression
  - Clarity
  - Demographics

20

Results

- 168 surveys returned (28.8%)
- 86 less then 5% missing data
- 4 surveys did not respond to executive leadership subscale
- Final, 82 surveys for analysis (14.1%)

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Results

- Demographics
  - 47% were 20-29 years old (n = 31, 47.0%). Seventy-four of 82 (90.2%)
  - 59.5% non-partnered (single, divorced or widowed)
  - 93.9% of the respondents were female

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Results

- Demographics
  - Household income
    - 28.3% making less than $250,000 per year
    - 26.4% making $250,000-$500,000
    - 26.4% making $500,000-$750,000 per year
    - 18.9% making $750,000 or more per year.

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Results

- Demographics
  - Household income
    - 71.2% were the primary source of income for their family.
    - 61.8% reported working on the same unit less than 5 years
    - 54.4% reported were in nursing for 5-10 years with the remainder working less than 5 years in nursing (45.6%).

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Results

- Demographics
  - 64.2% held a Baccalaureate degree
  - 44.6% reported taking 10-29 education hours per year

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Results

- Demographics
  - 74.3% worked 40 hours per week.
  - 29.9% reported having 2 dependents, 28.4% reported having 1 dependent and 13.4% reported 5 or more dependents

26

Results

- Cronbach's alpha
  - Total scale .96
  - All subscales > .70

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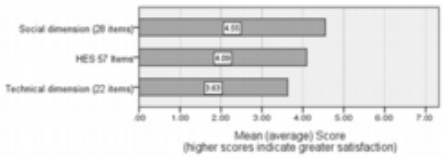
Results



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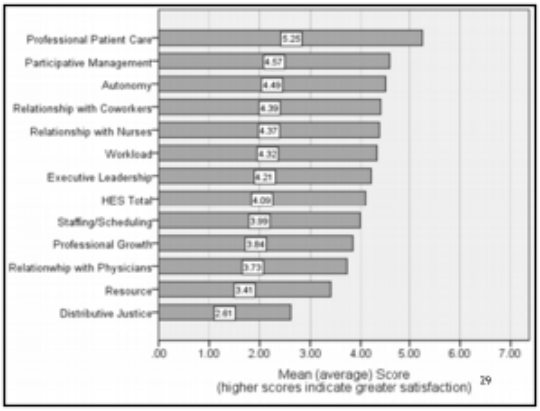

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Results

Variable	n	Possible Range	Actual Range	Midpoint	M	Median	SD
Social Variables, satisfaction with:							
Relationship with physicians	82	1-7	1.0-6.4	4	3.7	3.8	1.39
Relationship with nurses	82	1-7	1.0-6.6	4	4.4	4.6	1.35
Relationship with coworkers	82	1-7	1.2-7.0	4	4.4	4.6	1.28
Participative management	82	1-7	1.0-7.0	4	4.6	5.0	1.64
Professional patient care	82	1-7	1.5-7.0	4	5.3	5.5	1.21

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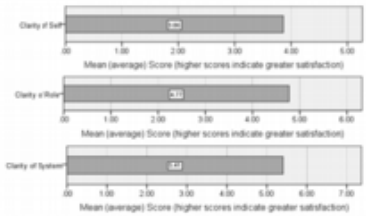
Results

Variable	n	Possible Range	Actual Range	Midpoint	M	Median	SD
Technical variables, satisfaction with:	82						
Distributive justice	82	1-7	1.0-6.0	4	2.6	5.5	1.32
Autonomy	82	1-7	1.0-7.0	4	4.5	4.8	1.54
Executive leadership	82	1-7	1.0-6.7	4	4.2	4.7	1.39
Professional growth	82	1-7	1.0-6.5	4	3.8	4.0	1.51
Resources	82	1-7	1.0-6.5	4	3.4	3.3	1.55
Staffing/scheduling	82	1-7	1.0-7.0	4	4.0	3.8	1.66
Workload	82	1-7	1.0-6.7	4	4.3	4.5	1.48

31

Results



32

Results

Variable	n	Possible Range	Actual Range	Midpoint	M	Median	SD
Clarity of self	82	1-5	1.8-5.0	3	3.9	1.9	.80
Clarity of role	82	1-6	1.2-6.0	3.5	4.8	5.0	1.04
Clarity of system	82	1-7	1.8-7.0	4	5.4	5.6	.90

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Results

- Methods adjustment
  - Parceling of data
  - 36 parameters for sample of 82

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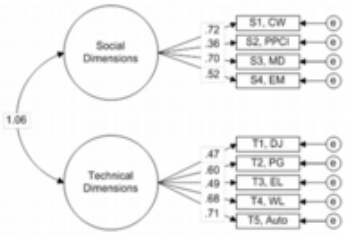
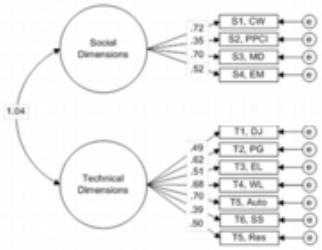
Results



35

Results



36

Results

- The best fitting model nurse job satisfaction, model 2
  - Program (service line; R = .475, R^2 = .226, F (7,74) = 3.078, p = .007), and
  - Clarity of role (R = .543, R^2 = .295, F (1,73) = 7.192, p = .009).
  - Combined, both predictors explained 29.5% of the variance of nurse job satisfaction.

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Results

	Model1			Model2		
Variable	B	Beta (se)	p-value	B	Beta (se)	p-value
Service Line, OB/GYN	.04	.10 (.34)	.76	.01	.04 (.32)	.91
Service Line, Surgery I	-.12	-.33 (.35)	.35	-.17	-.48 (.35)	.17
Service Line, Surgery II	-.46	-1.06 (.32)	.001	-.47	-1.08 (.30)	.001
Service Line, Surgery III	.04	-.12 (.35)	.75	.06	-.17 (.34)	.62
Service Line, Theater	-.01	-.02 (.30)	.94	-.05	-.10 (.29)	.72
Service Line, Mental Health	-.11	-.39 (.40)	.34	-.15	-.51 (.39)	.19
Service Line, Unknown	-.19	-1.04 (.61)	.09	-.18	-1.03 (.59)	.09
Clarity of Role				.27	.23 (.08)	.009

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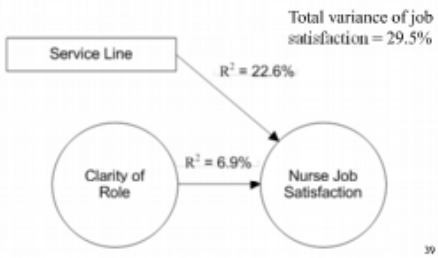
Results



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Results

- Social dimensions
  - Service line and clarity of system predicted 18.7% and 7.0%, respectively, of the variance of the social factor for nurse job satisfaction.

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Results

	Model1			Model2		
Variable	B	Beta (se)	p-value	B	Beta (se)	p-value
Service Line, OB/GYN	.15	.42 (.37)	.26	.13	.37 (.36)	.31
Service Line, Surgery I	-.05	-.14 (.39)	.72	-.07	-.22 (.38)	.56
Service Line, Surgery II	-.30	-.74 (.35)	.04	-.27	-.66 (.34)	.05
Service Line, Surgery III	.07	.19 (.39)	.62	.07	.22 (.38)	.56
Service Line, Theater	.05	.10 (.33)	.76	.08	.18 (.32)	.58
Service Line, Mental Health	-.16	-.58 (.44)	.19	-.16	-.59 (.43	.17
Service Line, Unknown	-.17	-1.01 (.68)	.14	-.17	-1.03 (.65)	.12
Clarity of System				.27	.28 (.11)	.01

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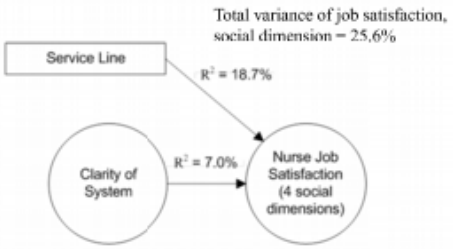
Results



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Results

- Social dimensions
  - Service line and clarity of role predicted 18.7% and 6.8%, respectively, of the variance of the social factor for nurse job satisfaction.

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Results

	Model 3			Model 4		
Variable	B	Beta (se)	p-value	B	Beta (se)	p-value
Service Line, OB/GYN	.12	.33 (.35)	.36	.13	.34 (.36)	.34
Service Line, Surgery I	-.11	-.32 (.38)	.40	-.10	-.30 (.38)	.43
Service Line, Surgery II	-.28	-.69 (.33)	.04	-.30	-.75 (.34)	.03
Service Line, Surgery III	.06	.17 (.37)	.65	.05	.14 (.38)	.72
Service Line, Theater	.04	.09 (.32)	.77	.01	.02 (.32)	.96
Service Line, Mental Health	-.19	-.68 (.42)	.11	-.20	-.72 (.43)	.10
Service Line, Unknown	-.17	-1.01 (.64)	.12	-.16	-.99 (.65)	.13
Clarity of Role				.27	.24 (.09)	.01

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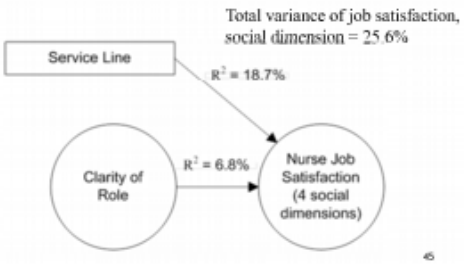
Results



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Results

- Technical dimensions
  - Model 2 was the best fitting model, included service line (R = .496, R^2 = .245, F (7,74) = 3.454, p = .003), and clarity of role (R = .546, R^2 = .298, F (1, 73) = 5.333, p = .024).
  - Combined these two predictors explained 29.8% of the variance of the technical factor for nurse job satisfaction.

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Results

	Model1			Model 2		
Variable	B	Beta (se)	p-value	B	Beta (se)	p-value
Service Line, Ob/Gyn	-.07	-.20 (.36)	.59	-.09	-.26 (.35)	.46
Service Line, Surgery I	-.17	-.52 (.38)	.18	-.22	-.66 (.38)	.08
Service Line, Surgery II	-.55	-1.38 (.34)	.000	-.55	-1.39 (.33)	.000
Service Line, Surgery III	-.14	-.41 (.38)	.28	-.15	-.47 (.37)	.22
Service Line, Theatre	-.06	-.14 (.32)	.66	-.10	-.22 (.31)	.48
Service Line, Mental Health	-.06	-.20 (.43)	.64	-.09	-.32 (.42)	.45
Service Line, Unknown	-.18	-1.08 (.66)	.11	-.17	-1.06 (.64)	.10
Clarity of Role				.23	.21 (.09)	.02

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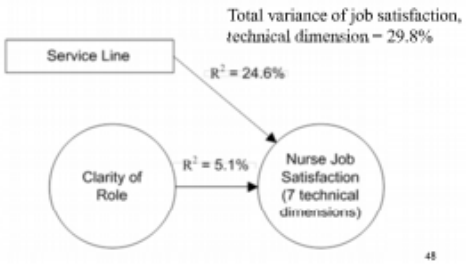
Results



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Discussion

- Results reveal this 9-dimension model is a good fit for nurse job satisfaction in Jamaica
- The only demographic to predict nurse job satisfaction (socially and technically) was service line

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Discussion

- Clarity of role was important for both social and technical dimensions of nurse job satisfaction
- Clarity of system was important for the social dimensions of nurse job satisfaction

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Questions

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THANK YOU!

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