University of Alberta

Understanding clinical nurses' intent to stay and the influence of leadership practices on intent to stay

by

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Dedication

This thesis is dedicated to the clinical nurses who live the reality of hands-on patient care. May the knowledge discovered within promote healthier work environments that result in higher intentions to stay and facilitate the delivery of quality nursing care.

Abstract

Background: High nursing turnover and early nursing career exit rates evidenced by the current global nursing shortage is the impetus for effective strategies aimed at retaining nurses in their current positions. Nurses' behavioral intentions to leave or stay are not well understood.

Aim: This thesis aims to increase understanding of why clinical nurses choose to remain in their current positions and to assess the influence that nursing leaders have on staff nurses' intent to stay.

Methods: Two systematic literature reviews were conducted; one to synthesize current research on clinical nurses' intentions to stay and the influence of leadership practices on those intentions; the other to determine the appropriateness of conceptualizing intentions to stay and leave as opposite ends of a continuum. Building on two published conceptual models (Boyle et al. 1999; Tourangeau & Cranley (2006), a new theoretical model of nurses' intent to stay was developed and tested as a structural equation model using LISREL 8.8 and a subset of the QWEST study data provided by 415 nurses working in nine hospitals in one Canadian province.

Results: The systematic reviews identified positive relationships between relational leadership practices and nurses' intentions to stay, supporting the assertion that managers influence the behavioral intentions of nurses and their intentions to stay and leave. Intentions to stay and leave were found to be separate but correlated concepts. Model testing results, χ^2=169.9, *df*=148 and *p*=0.105, indicated a fitting model that explained 63% of the variance in intentions to stay. Concepts with the strongest direct effects on intent to stay were empowerment, organizational commitment, and desire to stay. Leadership had strong total effects and indirectly influenced intent to stay through empowerment.

Conclusions: Findings suggested that intent to stay or leave should be investigated as separate but correlated concepts. Relational leadership that focuses on individual nurses and supports empowering work environments will likely affect nurses choosing to remain in their current positions.

Keywords: intent to stay, desire to stay, relational leadership, structural equation models, theory

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Table of Contents

Tables

Figures

Chapter One

Understanding Clinical Nurses' Intent to Stay and the Influence of Leadership Practices on Intent to Stay: An overview of studies comprising this thesis

Introduction

The current nursing shortage is a global phenomenon evident in 57 countries (Buchan & Aiken, 2008). In North America alone, Canada will have an estimated deficit of 60 000 nurses by the year 2022 (Tomblin Murphy, Birch, Alder, MacKenzie, Lethbridge, Little & Cook, 2009) and the United States will have a shortage of 285 000 nurses by the year 2020 (Donelan, Buerhaus, Desroches, Dittus & Dutwin, 2008). A number of factors have been identified as contributors to the shortage and are primarily attributed to increasing healthcare demands of the population and changes in the nursing workforce (Goodin, 2003). The situation is further exacerbated as qualified nurses choose to change positions (El-Jardali, Merhi, Jamal, Dumit & Mouro, 2009) or choose not to work in the health sector (Buchan & Aiken, 2008). Nursing turnover rates across the world range from 10 to 22% per year (Hegney, McCarthy, Rogers-Clark, & Gorman, 2005; Hayhurst, Saylor & Stuenkel, 2002). High turnover rates have negative consequences for the quality of patient care (Aiken, Clarke & Sloan, 2002; Needleman, Buerhaus, Mattke, Stewart & Zelevinsky, 2002), the quality of work environments (El-Jardali et al., 2009), overall unit productivity (Hayes, O'Brien-Pallas, Duffield, Shamian, Buchan, Hughes, Laschinger, North & Stone, 2006) and hospital budgets (Jones, 2008). Nurses are leaving the profession as a result of poor staffing ratios, adverse working conditions and lack of autonomy (Kleinman, 2004). Three percent of Canadian nurses are not renewing their licenses each year (Tomblin Murphy et al., 2009) and up to 14% of new graduates are leaving the profession within the first five years of their career (Lavoie-Tremblay, O'Brien-Pallas, Gelinas, Desforges & Marchionni, 2008), making it difficult to assess and plan for an adequate supply of nurses in the workforce.

Spend just one shift on any nursing unit in any department and one is left wondering what compels nursing staff to work in such a seemingly chaotic, stressful and demanding work environment. The literature is limited in regards to the determinants of clinical nurses' intentions to remain in their positions and the causal sequence of the development of those intentions. While findings from research explain 12% (Mrayyan, 2008) to 52% (Boyle, Bott, Hansen, Woods & Taunton, 1999) of the variance in intent to stay, findings are not consistent across studies,

indicating a need to further examine the predictors of intent to stay. Understanding why clinical nurses stay in their current positions is paramount to managing the nursing shortage.

The aim of this doctoral thesis was to gain an increased understanding of why nurses choose to remain in their current positions and to assess the influence of nursing leadership practices by formal nursing leaders on clinical nurses' intent to stay. In this thesis, intent to stay and intent to leave were seen as separate but correlated concepts.

Definitions

For the purposes of the studies within this thesis, intent to stay (ITS) was defined as the stated probability of an individual remaining in the current organization (Gregory, Way, LeFort, Barret & Parfrey, 2007). Intent to leave (ITL) was defined as an individual's anticipated plan to exit the organization at some future time (Larrabee, Janney, Ostrow, Withrow, Hobbs, & Burant, 2003). Leadership practices were defined as the processes by which formal nurse leaders influence clinical nurses to attain common goals.

Studies and Papers

Three separate studies using four paths of inquiry were undertaken to understand nurses' ITS and the influence nursing leaders have on those intentions. The first study was a systematic review of the literature and was conducted to synthesize the current published research on the relationship of leadership practices and clinical nurses' ITS. This first step in the research process then led to each subsequent step of the investigation. As the terms *intent to stay* and *intent to leave* were used interchangeably within the first systematic review (Cowden, Cummings & Profetto-McGrath, in press), the issue of whether or not this was an appropriate approach was raised. This led to an investigation to distinguish the two concepts. Therefore, a second systematic review of the literature was completed to examine the concepts and predictors of ITS and ITL. The results of these two systematic reviews, and my experience and assessments of previous models of intent to stay, were used to develop a theoretical model of the relationships among the concepts that influence clinical nurses' *desire* and intent to stay in their current positions. The new model was built largely on the models of Boyle et al. (1999) and Tourangeau and Cranley (2006). The testing of theoretical models and the linking of theory to practice is integral to the expansion of nursing

knowledge (Barrett, 2002). The model was then tested as a structural equation model to validate prior research, confirm hypothesized predictors of ITS and to identify the causal relationships between model concepts. See Figure 1-1 for the study overview.

Results

Systematic Review - Leadership and Intent to Stay

The aim of the review was to describe the findings from studies where the relationship between managers' leadership practices and nurses' intentions to remain in their current position were examined. The search included English language articles on leadership and staff nurses' intent to stay published between 1985 and 2010. The systematic review resulted in the critical review of 23 moderate to strong quality studies. Nine different conceptual models were used across the studies. The eight common leadership practices identified in the studies were leadership style, manager characteristics, power, influence, supervisor support, decision making style, trust and the use of praise and recognition. The findings of the review identified a positive relationship between transformational leadership, supportive work environments and staff nurses' ITS, and support the premise that leadership practices influence staff nurses' intentions to remain in their current positions. This systematic review resulted in paper number one, *Leadership Practices and Staff Nurses' Intent to Stay: a Systematic Review*. This paper is currently in press in the *Journal of Nursing Management.* Refer to paper one, chapter two, for full manuscript details.

Distinction between Intent to Stay and Intent to Leave

The systematic review on leadership practices and staff nurses' ITS also revealed that researchers were commonly using the terms *intent to stay* and *intent to leave* as measures of the same concept. The literature was unclear as to whether they were opposite ends of a continuum of the same concept, or separate, but correlated concepts. The purpose of the second inquiry was to describe the theoretical and measurement distinctions and similarities between the two concepts. A systematic review of published English language articles examining nurses' ITS and ITL between 1985 and 2010, resulted in an analysis of 43 quantitative studies. The review confirmed the research practice of viewing the concepts of ITS and ITL as interchangeable concepts which are

the inverse of each other. It also identified both shared and concept-specific predictors of ITS and ITL.

The shared predictors of ITS and ITL were access to resources, age, autonomy, control over practice, education, empowerment, group cohesion, job satisfaction, kinship responsibilities, liking nursing work, mentoring, opportunities elsewhere, organizational commitment, physical load, professional opportunities, quality of care, risk of assault/violence, routinization, satisfaction with administration, satisfaction with pay, supervisor support, supervisor management style, and workload. Predictors specific only to ITS were culture, distributive justice, managerial environment, manager's position influence and power, praise and recognition, tenure, ties to the community and trust. ITL-specific predictors were emotional abuse, on-call shifts, psychological demands, scheduling satisfaction, time pressures and unacceptable work environments.

The conclusions drawn from this systematic review were that different factors seem to influence the development of clinical nurses' intentions to stay or leave their positions, the formation of behavioral intentions are not well understood, and the concepts of ITS and ITL are potentially theoretically separate but correlated concepts. It became apparent that ITS and ITL should be investigated as distinct entities. The second study resulted in the second paper, *Clinical Nurses' Intent to Stay or Leave: Is there a difference?* This paper has been submitted to *Journal of Advanced Nursing***.** See paper number two in chapter three for full manuscript details.

Development of the Conceptual Model

A new conceptual model of nurses' intent to stay was developed for this study and was based on the previously published "*Conceptual Model of Intent to Stay"* (Boyle et al., 1999) and "*Determinants of Nurse Intention to Remain Employed"* (Tourangeau & Cranley, 2006) models, the two systematic reviews, the literature and personal experience. This model was based on the assertions that intent to stay is a direct predictor of clinical nurse retention and is not the same concept as intent to leave.

Concepts postulated to influence clinical nurses' *intent to stay* included nurses' perceptions of *shared decision making* practices, level of *supervisor support,* ability to practice with *autonomy*, degree of workplace *empowerment,* adequate *time to nurse,* the level of *quality of care*

provided, the adequacy of *staffing* levels, the degree of *work group cohesion*, the experience of *joy* at work, the amount of *praise and recognition* received, the level *of moral distress, job satisfaction, organizational commitment, desire to stay* working in their current position, nurse assessments of *leadership* effectiveness, nurse *work status* and *position preference*, perceptions of *opportunities elsewhere* and internal *career development opportunities*, perception of the presence of *abuse* experienced in the work place, as well as the personal characteristics of *age, tenure* at the facility and *education* level achieved.

Desire to stay has not been previously explored in the research on nurses' intentions to stay. In this thesis, it was defined as the positive feelings a nurse has about staying in his/her current position. Previous conceptual models focused more on the cognitive (knowing) response to factors in the work place that may influence ITS and not the affective (emotional) response. The addition of the concept of desire to stay into the theoretical model introduced the emotional responses to one's work. It was hypothesized that this concept would be affected by nurses' perceptions of the level of quality of care provided, degree of work group cohesion, experience of joy at work, level of workplace violence, experience of moral distress and overall job satisfaction.

The concept of empowerment, which was not a component of Boyle et al.'s (1999) or Tourangeau and Cranley's (2006) models, was also added to the new model, since it had been identified in the two systematic reviews as an important predictor of clinical nurses' intentions to stay. For the purposes of this study, empowerment is defined as the clinical nurse's perception of being empowered in their workplace (Laschinger, 2008) which arises from both psychological empowerment (Spreitzer, 1995) and structural characteristics present in the workplace that support optimal performance (Laschinger et al., 2010). As the influence of leadership practices was a key focus of the dissertation; it was added to the model. This portion of the investigation resulted in paper number three, *Developing a Conceptual Model of Staff Nurses' Intent to Stay*. This paper will be submitted to the *Journal of Advanced Nursing***.** Refer to paper number three in chapter four for full details of the model development.

Testing the Theory

Structural equation modeling (SEM) is a theory-testing statistical technique that is able to estimate both direct and indirect effects as well as the causal sequences of effects among concepts in a model. Model testing resulted in a χ^2=169.9, *df*=148, and *p*=0.105. The model was found to be a fitting model by traditional *p* value standards. This result indicated it was a plausible, though not proven, model of the causal world. The model fit may be considered borderline due to the number of post-hoc modifications made after the analyses of model testing runs. The final model is an approximation of the initial model and the model results point out a number of important findings. The model explained more variance in clinical nurses' intent to stay than any other previously published model. Explained variance of staff nurses' ITS was 63%. This is much higher than Boyle et al.'s (1999) finding of 52%. The concepts of desire to stay, empowerment and organizational commitment were the strongest influences on ITS.

The model clearly identified three concepts that directly influenced nurses' ITS. Model testing also confirmed the role that nurses' emotional responses to their work plays in the development of behavioral intentions to stay or leave. Model estimation also confirmed the influence of leadership practices and empowering work environments on nurses' ITS.

Desire to stay was directly influenced by opportunities elsewhere, nurses' age, empowerment, job satisfaction and organizational commitment, and had a direct effect on ITS. The model explained 54% of the variance in desire to stay.

Empowerment was a concept of influence in the model. Not only did it have a direct effect on ITS, it also directly influenced two other concepts that directly influenced ITS - desire to stay and organizational commitment. Leadership and autonomy were the only two concepts in the model that directly influenced empowerment. The model explained 48% of the variance in empowerment.

Organizational commitment had a direct effect on intent to stay and mediated the indirect effects of empowerment, job satisfaction, work group cohesion and tenure on intent to stay. The model explained 31% of the variance in organizational commitment.

Leadership had strong direct and indirect effects throughout the model. It was found to directly influence the leadership practices of shared decision making and supervisor support, and

nurses' perceptions of autonomy, empowerment, staffing, and praise and recognition. However, leadership practices did not directly influence desire to stay or intent to stay. They indirectly influenced job satisfaction, organizational commitment and desire to stay, mediated by empowerment. Leadership was found to influence ITS, but was its effect was mediated by empowerment.

Model testing confirmed the presence of several causal pathways between leadership and clinical nurses' ITS. This portion of the study is discussed in paper number four in chapter number 5, *Testing a Conceptual Model of Intent to Stay: Results and Implications*. This paper will be submitted to the *Nursing Research* journal.

Discussion

This dissertation builds on previous ITS research and has added new nursing knowledge to the discipline. This study has implications for research, practice and health workforce policy development.

Implications for Nursing Research

Understanding the development of clinical nurses' intentions to stay is essential to manage the current and projected nursing shortage. Given that the behavioral intention to stay or leave has been identified as the transitional link between staying and leaving (Borda & Norman, 1997), it is critical that the examination of those intentions be a focus of nurse researchers. While the concepts of retention and turnover appear to be more or less unidimensional, the intentions that lead to them may be quite different. Examining ITS and ITL as potentially theoretically separate, but correlated entities will increase the understanding of each concept. Measuring each concept individually and investigating the concepts separately and within the same studies will illuminate the individual and common causes of both. Continuing to build on the current conceptual models of ITS and ITL will increase the understanding of the causal consequences of identified predictors. Testing a refined conceptual model of intent to stay, using other data sets, in a variety of settings (eg. specialty areas, countries and cultures) and with different samples (eg. nursing managers and nursing education faculty) to validate its merit and to add to the understanding of ITS and desire to stay, is suggested. Qualitative inquiry into intent to stay will inform the quantitative findings and

potentially identify other predictors that influence staying intentions. Continued inclusion of desire to stay and empowerment in further intent to stay research is recommended, as is an examination of the distinction between the concepts of desire and intent to stay.

Implications for Nursing Practice

This thesis confirms the effects that leadership and empowerment have on clinical nurses' ITS. It identifies the causal influence of leadership practices, through empowering work environments, on the development of nurses' behavioral intentions to remain in their current positions. It also emphasizes the need for managers to be sensitive to nurses' emotional responses to their work.

Relational leadership practices influence the work environment. Many factors that influence nurses' ITS are potentially within the control of healthcare administrators and nurse managers. Leaders who include staff in their decision-making, are focused on the individual needs of staff, support autonomy in practice, recognize and praise staff for their contributions, and ensure access to required resources, stand a much better chance of retaining their staff than those who do not. Investing in relational leadership development and embracing empowering work environments should positively influence retention and reduce turnover. Relational leadership practices and the implementation of quality work environments are potentially powerful tools to manage the nursing shortage.

Implications for Health Workforce Policy

The results of this thesis have implications for health workforce policy. Management of the nursing shortage must include measures to improve the quality of working environments in the healthcare sector. This includes attention to leadership practices and the ability of nursing professionals to work to their full scope of practice within empowering environments. Professional nursing bodies need to advocate on behalf of nurses at both the provincial and national levels to attain magnet-like work environments. Health workforce retention plans must address factors that influence nurses' intentions to stay.

Limitations

The lack of causal homogeneity across the studies examined in the systematic reviews of this inquiry and the lack of researcher statements about the causal structures of their research limit the generalizability of the model testing outcomes. The conceptual model was based largely on the empirical outcomes of non-experimental correlational research which is able to make prediction statements but not cause and effect claims. The inconsistencies in study outcomes used as a base for this research can be attributed to a number of methodological issues between studies. This includes such challenges as different study populations and settings, varied analytical techniques, diverse operational definitions, dissimilar study variables, a variety of theoretical frameworks and unknown or singular causal understandings. The validity of tools employed was not reported in some studies, which limits the external validity of study outcomes. Measures used to assess intent to stay or leave generally used a scaled response which appeared to consistently measure both ITS and ITL; unfortunately some studies measured one concept and reported on the other. The practice of viewing the concepts as inverse to one another may not be appropriate.

Conclusion

The nursing shortage has served as an impetus for increased understanding as to why nurses choose to remain in their current positions. This study has added to the researcher's understanding of the development of nurses' behavioral intentions to stay and has contributed to the body of nursing knowledge specific to clinical nurses' ITS. It has confirmed the influence nursing leaders have in the development of clinical nurses' staying intentions and identified several plausible causal sequences of that influence. Viewing staying or leaving as opposite ends of one continuum has been brought into question and evidence has been presented that merits investigation of ITS and ITL as separate, but correlated concepts. The conceptual model results explained 63% of the variance in intent to stay, with three concepts contributing strongly to that variance. Leadership was found to influence ITS through the mediating variable of empowerment.

The identification of causal pathways that lead to intentions to stay is an important contributor to nursing knowledge and should be examined further and used in the development of retention strategies. Further ITS research should include the concepts of desire to stay, empowerment, leadership, organizational commitment and job satisfaction. This study supports

the premise that a better understanding of the factors that influence nurses' ITS will facilitate the identification of critical and modifiable features of nursing work environments that positively affect staff nurses' ITS. Relational leadership that is focused on the individual nurse's needs and supports empowering work environments will affect the development of staying or leaving intentions. Attention to the development of behavioral intentions and the essential components of quality practice environments should lead to increased retention rates and more nurses willing to work in the healthcare sector.

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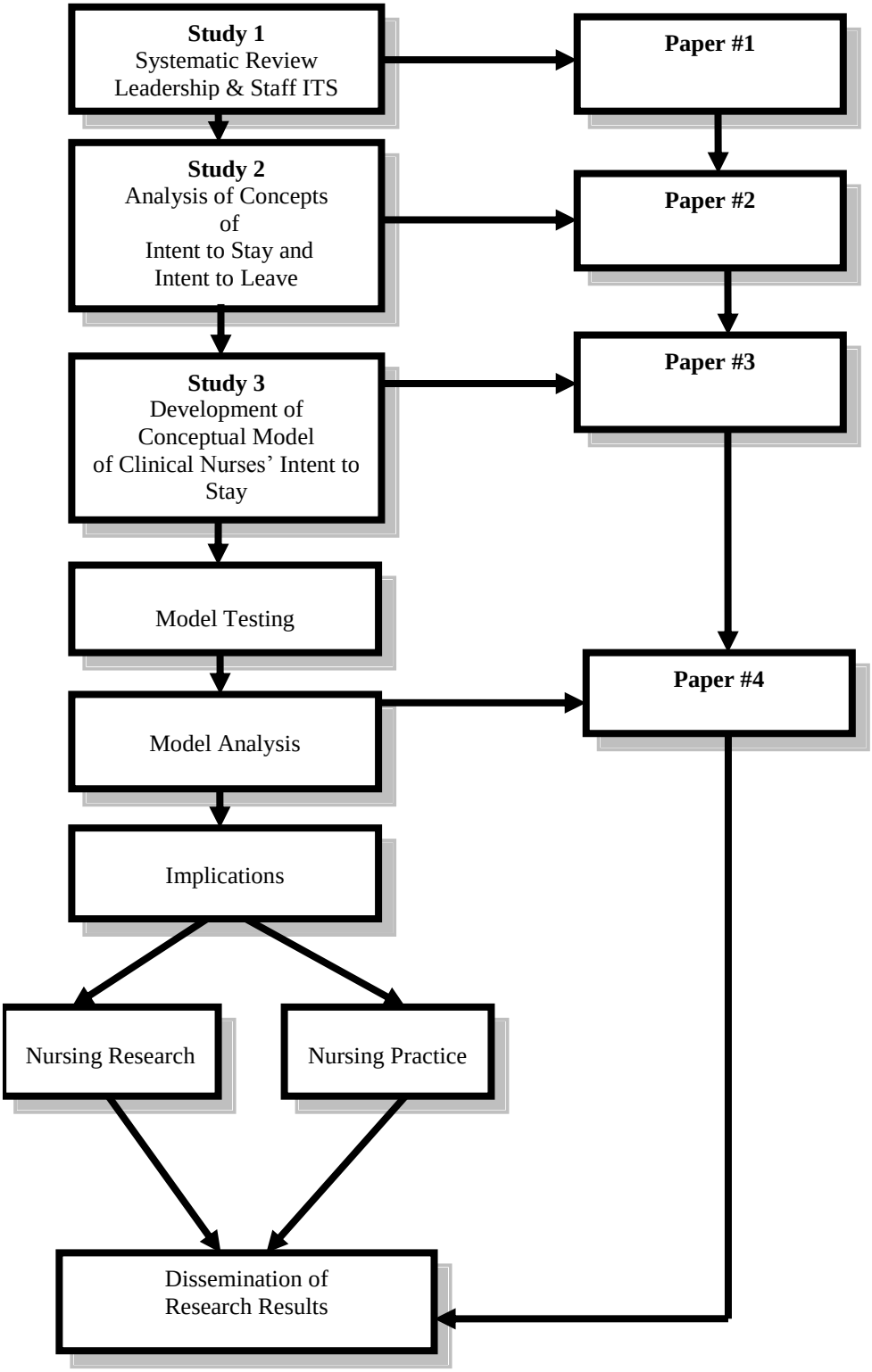
FIGURE 1-1
Study Overview



Chapter Two
Leadership Practices and Staff Nurses' Intent to Stay: A Systematic Review (Paper #1)

Introduction

The current nursing shortage has evolved over the past 30 years. Nursing shortages are described in the literature as being clearly present in 1990, with a U.S. vacancy rate of 11% and appearing to settle down in 1992 (Fox & Abrahamson, 2009). After 1992, adequate numbers of nurses were present in the healthcare system for approximately five years. In 1997 the demand for nurses started to outpace the supply of nurses in the workforce. By the year 2001 U.S. vacancy rates had reached 13% (Fox & Abrahamson, 2009) and then steadily climbed to the current global turnover rate, reaching as high as 21% per year (Hayhurst, Saylor & Stuenkel, 2005). The nursing shortage is a global phenomenon (Buchan & Aiken, 2008). A survey of 105 nursing organizations representing 69 countries identified a nursing shortage in 85.6% of the respondents' countries or organizations (Lynn & Redman, 2005). Defining what a nursing shortage is or setting the threshold for criteria to denote when a nursing shortage is present is difficult for two reasons, since both the supply and demand shifts, and since professional practice standards for appropriate staffing levels have not been defined (Fox & Abrahamson, 2009). Determining the supply of qualified applicants to fill open positions is also difficult as there may be sufficient nurses, but not necessarily those willing or qualified to work in the current work environments (Buchan & Aiken, 2008; Fox & Abrahamson, 2009). The World Health Organization (WHO) confirmed the perception of many health organizations and professional nursing associations of a global deficit in health workers (Buchan & Aiken, 2008). Canada experienced a shortage of approximately 11 000 registered nurses in 2007 and forecasts a shortage of 60 000 registered nurses by the year 2022 (Tomblin Murphy, Birch, Alder, MacKenzie, Lethbridge, Little & Cook, 2009).

Factors contributing to the shortage are primarily attributed to changes in the health needs of the population and in the health workforce. An aging population (Goodin, 2003), increased life expectancy and prevalence of chronic disease (Mosley, Jeffers & Paterson, 2008) have increased the demand on the healthcare system. An aging nursing workforce (McCarthy, Tyrrell & Lehane, 2007; Storey, Cheater, Ford & Leese, 2009), fewer entrants into nursing programs (Goodin, 2003), quality of work life issues (Coomber & Barriball, 2007), nursing turnover (Beecroft, Dorey & Wenten, 2008) and low job satisfaction (Zurmehly, Martin & Fitzpatrick, 2009) have resulted in

fewer numbers of healthcare workers to meet the industry demand. Nurses are abandoning nursing as a career in response to inadequate staffing ratios, undesirable working conditions and lack of autonomy (Kleinman, 2004). No simple strategy or "one size fits all" action plan will resolve the nursing shortage. Solutions to the nursing shortage involve action at all levels, from global health policy to individual manager action on the nursing unit (Buchan & Aiken, 2008). The magnitude of factors contributing to the shortage results in the need to resolve the problem from multiple perspectives at multiple levels.

Nursing management and leadership practices affect nursing environments (Tomey, 2009). Nursing leaders employ a number of different leadership styles to achieve organizational goals. These styles can be grouped into two distinctive categories: those that focus on the task and those that focus on the individual and relationships between individuals. Task-focused leadership styles include management by exception, laissez faire, transactional, dissonant and instrumental leadership. Relationally-focused leadership styles refer to transformational, individual consideration and resonant leadership (Cummings, MacGregor, Davey, Lee, Wong, Lo, Muise & Stafford, 2010). Staff nurses' perceived levels of job satisfaction (Hayes, O'Brien-Pallas, Duffield, Shamian, Buchan, Hughes, Laschinger, North & Stone, 2006; Ellenbecker, Samia, Cushman & Porell, 2007), quality of work life (Boyle, Bott, Hansen, Woods & Taunton, 1999; Tomey, 2009), job stress (Tomey, 2009) and organizational commitment (Taunton, Boyle,Woods, Hansen & Bott, 1997) are all influenced by nurse managers' leadership behaviors. Individual manager practices can affect the intent of nurses to remain in their current position or the nursing profession as a whole. Retaining qualified nurses in their positions will reduce the impact of the nursing shortage. The Canadian Nurses Association estimates that reducing the exit rate of nurses to 2% per year will reduce the projected nursing shortage for the year 2022 by half (Tomblin Murphy et al., 2009).

The issue examined in the present study is focused on why staff nurses stay in their current positions rather than why they leave and the influence manager practices have on intentions to stay. Exploring the impact of managers' *leadership practices* on staff nurses' *intent to stay* will potentially provide valuable insight into creating a work environment that supports staff nurses

remaining in their current position. The key variables associated with this review are leadership practices and intent to stay. *Leadership practices* refer to the processes by which individuals influence others to achieve a common goal (Northouse, 2004). *Intent to stay* is defined as the stated probability of an individual staying in his/her present position (Price & Mueller, 1981; Cavanagh, 1989; Yoder, 1995; Boyle et al., 1999; Nedd, 2006; Gregory, Way, LeFort, Barrett & Parfrey, 2007). Intent to stay is a negative predictor of turnover or voluntarily leaving the organization (Yoder, 1995; McCarthy et al., 2007). The term *manager* refers to supervisors of nurses. Not all nurses in the selected studies were supervised by nurses. Where applicable the term *nurse manager* has been used to denote findings specific to nurses that are also managers. The terms *staff nurse* and *clinical nurse* are used interchangeably referring to nurses who deliver direct patient care.

The purpose of this study was to describe the findings of a systematic review of studies in the literature that examined the relationship between managers' leadership practices and staff nurses' intent to stay in or to leave their current position. An objective of this review was to make recommendations for further study.

Methods

Search Strategy, Data Sources and Screening

The search strategy involved a review of six electronic databases: CINAHL, Medline, PsychInfo, ERIC, Embase and SCOPUS. Key words included "leadership", "intent to stay", "intent to leave", "organizational commitment", "career commitment", and "professional commitment". As intent to stay, and intent to leave are used interchangeably throughout the literature (Ingersoll, Olsan, Drew-Cates, DeVinney & Davies, 2002), both terms were included in the search strategy. Each key word was searched independently and then "and" was used linking each search term. The terms "retention" and "turnover" were not used in the search strategy as the focus was on the behavioral intention and not the outcome action. Manual searches of specific nursing journals including the Canadian Journal of Nursing Leadership, Journal of Nursing Administration, Journal of Nursing Management and Leadership Quarterly were also completed. The search included English language articles published between 1985 and 2010 that examined

manager leadership and staff nurse intent to stay. See Table 2-1 for Search Strategy.

Inclusion Criteria

Titles and abstracts were selected if they met the following inclusion criteria: peer reviewed research; English language publication; measurement of manager leadership practices; measurement of intent to stay; measurement of one or more factors contributing to staff nurses' intent to stay; and correlation of leadership practices with intent to stay. Both qualitative and quantitative studies were included. The inclusion tool was adapted from previously published systematic reviews (Lee & Cummings 2008). See Appendix 2-A for Inclusion Screening Tool.

Screening

All the selected manuscripts were reviewed twice for the relationship between the dependent variable *intent to stay* and the independent variable *leadership practices*. The measurement of nursing leadership practices met the criteria if it was the focus or a component of the study measures. Staff nurses and their managers were the sample population for the review. Studies were eliminated if they did not meet the inclusion criteria specific to staff nurses. See Figure 2-1 for Search and Retrieval Process.

Quality Assessment

All studies were reviewed twice for quality assessment. A published quality assessment tool for correlational studies, used in several systematic reviews, was adapted to assess the methodological quality of quantitative studies retrieved (Cummings & Estabrooks, 2003**;** Wong & Cummings, 2007; Lee & Cummings, 2008). See Appendix B for the Quality Assessment Tool. The adapted tool was used to assess the research design, sampling, measurement and statistical analysis of each study. Thirteen criteria resulted in a total of 14 possible points. Twelve items were scored as 0=not met or 1=met. One item related to measurement of intent to stay was measured as 0=not met, 1=self-reported and 2=observed via retention data. Studies were divided into 3 categories based on summed point values: weak (0-4), moderate (5-9), and strong (10-14). Only studies rated as moderate to strong were retained. The qualitative study was assessed using a modified checklist from the Critical Appraisal Skills Program (Lewin, Glenton & Oxman, 2009). The first author reviewed, assessed and performed all quality assessments, data extractions and

analysis. The second review of all studies was completed by a nursing colleague and resulted in 100% inter-rater agreement.

Data Extraction

The following data elements were extracted: author, journal, country, research purpose or objective, theoretical framework, design, setting, subjects, sampling method, measurement instruments, reliability and validity, identified leadership practices, factors contributing to intent to stay, and significant/non-significant results.

Results

Search Results

The search yielded a total of 30 639 abstracts and titles and 148 manuscripts relevant to leadership and staff nurse intent to stay were retrieved and screened using the inclusion criteria. Twenty-three studies were retained following quality assessment screening. This included one qualitative and 22 quantitative studies. Figure 2-1 provides a summary of the search strategy results.

Characteristics of Included Studies

Sixteen studies were conducted in hospital settings**,** six studies were conducted in provincial or state nursing associations, and one study took place in home health agencies. Five studies took place in single sites; all other studies were completed in multiple sites. Staff nurses constituted the sample population of all the studies. Eighteen studies included only registered nurses. Three studies combined registered nurses and nurse managers. Two studies included a cross-section of health care staff, although they were predominantly nurses. Fifteen studies were conducted in the United States, four in Canada, one in Australia, one in Germany, one in Jordan and another in Taiwan. In total, there were 27 293 nurse participants within the 23 included studies. The 23 studies can be divided into two distinct time frames. Six studies took place over a period of eight years between 1989 and 1997. Seventeen of the studies took place over seven years between 2003 and 2010. Between 1997 and 2003, there was a five year void of studies addressing leadership practices and intent to stay in nursing. See Table 2-2 for characteristics of included studies.

Summary of Quality Review

All 23 studies were rated as moderate or strong in quality. Quantitative studies were predominantly non-experimental, cross-sectional or exploratory descriptive designs. Two studies were retrospective and 21 studies were correlational. Lack of random sampling, response rates less than 60%, and lack of attention to outliers were the most common weaknesses identified. Probability sampling was used in 8 studies and 15 studies had response rates of 59% or less. Seventeen studies did not address the management of outliers. Sixteen studies addressed protection of anonymity of participants. All studies used valid and reliable instruments. Eleven studies utilized theoretical frameworks to guide their research. Thirteen studies reported using multivariate analysis including multiple regression, hierarchical linear modeling and structural equation modeling. Studies were divided between moderate and high overall study validity rating. See Table 2-3 for a summary of the quality assessment of included studies.

Theoretical Frameworks

Theoretical frameworks were used to guide 11 of the studies; nine different models were used across the included studies. Frameworks included an Anticipated Turnover Model (Leveck & Jones, 1996), Conceptual Model of Behavioural Intentions (Mueller & Price, 1990), Conceptual Model of Intent to Stay (Boyle et al., 1999), Determinants of Nurse Intention to Remain Employed Model (Tourangeau & Cranley, 2006), Kanter's Theory of Structural Empowerment (Kanter, 1977), Model of Nursing Turnover (Price, 2001), Nursing Systems Outcomes Research Model (Mark, Sayler & Smith, 1996), Organizational Dynamics Paradigm of Nurse Retention (Taunton et al., 1997) and Psychosocial Work Environment (Lavoie-Tremblay, O'Brien-Pallas, Gelinas, Desforges & Marchionni, 2008). Taunton's Organizational Dynamics Paradigm of Nurse Retention was used in three studies. The dependent variable, intent to stay in a current position, was the focus of all frameworks in the review. The outcome variables used in the frameworks included intent to stay (5), retention (4), and turnover (2). The outcome variables were often used interchangeably throughout the literature. The nine independent leadership practices identified were collaborative relations, leadership style, manager ability and support, manager characteristics, management style, satisfaction with managers, supervisor support, social support

and support.

Measures

Twenty-two different tools were used to measure leadership practices which were broad in scope and measured a wide variety of independent variables. The most frequently used tools were the *Multifactor Leadership Questionnaire* (four studies), *Nursing Work Index-Revised* tool (three studies) and *Kim, Price, Mueller and Watson's* tool (two studies). Leadership practices were the primary focus in only six of the 22 leadership measurement tools used. Measurement of leadership practices was embedded within the other 16 multi-focused tools. A common definition of leadership practices was not present in studies reviewed. The Cronbach's alpha of leadership tools ranged between 0.61 and 0.94. Validity of measures was not reported in five studies and reliability measures were missing in two studies.

Eleven different tools were used to measure intent to stay by staff nurses. The dependent variable intent to stay was the primary focus of the tools employed for that purpose. Cronbach's alpha of intent to stay tools ranged between 0.56 and 0.97. Four studies did not report validity while three did not report reliability measures. The qualitative study used researcher-developed focused questions and content analysis to arrive at findings. Tools were reported to be valid via previous reported research findings, factor loading, factor analysis, Pearson correlations, Chi Square and expert review for 14 of the 23 studies. Measurement tool validity was reported for 19 of the 23 studies.

Study Results

Research studies have been able to identify 12% (Mrayyan, 2008) to 52% (Boyle et al., 1999) of variance in nurses' intent to stay. The eight common leadership practices identified across the studies included leadership style, manager characteristics, power, influence, supervisor support, decision making style, trust and use of praise and recognition. A summary of these findings follows.

Leadership Practices and Intent to Stay

Leadership was not always specifically defined in terms of behavior or type of leadership style. Transformational leadership is a management style that empowers others (Kelly-Heidenthal,

2004). Three studies found transformational leadership style to have a positive significant relationship with intent to stay (Bycio, Hackett & Allen, 1995; Leveck & Jones, 1996; Boyle et al., 1999). Larrabee et al. (2003) reported a non-significant relationship between transformational leadership style and intent to stay.

Autocratic leadership is reflective of centralized decision making with the leader having the power and control (Kelly-Heidenthal, 2004). Taunton et al. (1997) found that autocratic leadership employing centralized decision making was significantly negatively correlated with staff nurse intent to stay. Management by exception is present when the leader actively looks for errors and takes corrective action when errors occur (Kanste, Kaariainen & Kyngas, 2008). Management by exception was the specific leadership behavior significantly correlated with nursing turnover (Larrabee et al., 2003; Kleinman, 2004). See Table 2-4 for relationships of leadership practices to intent to stay.

Staff nurses' perceptions of their managers' leadership power was significantly positively related to their own intention to stay (Boyle et al., 1999). Staff nurses who perceived their nurse manager to have power and influence within the organization had a stronger sense of personal control over their practice, which in turn resulted in a significant positive correlation with intent to stay (Taunton et al., 1997). Supervisor support of staff nurses was investigated in 11 included studies; seven of which reported a significant positive relationship between supervisor support and intent to stay (Fisher, Hinson & Deets, 1994; Sourdif, 2004; Leveck & Jones, 1996; Lynn & Redman, 2005; Nedd, 2006; Lacey, Cox, Lorfing, Teasley, Carroll & Sexton, 2007; Chen, Chu, Wang & Lin, 2008). Tourangeau and Cranley (2006) found that nurse managers' ability and support were not significantly related to nurses' intent to stay. They did, however, find the manager practice of praise and employee recognition to have a significant positive relationship with intent to stay. Strachota, Normandin, O'Brien and Krukow (2003) reported that nurses who voluntarily exited from their positions left because they were unhappy with management and hospital support. Staff nurses who trusted their managers also voiced a significant positive intent to stay (Gregory et al., 2007). Intent to stay was higher for employees whose managers sought their opinion and involved them in decision making (Taunton, Krampitz & Woods, 1989b). Boyle

et al. (1999) found manager characteristics alone accounted for 12% of explainable variance in intent to stay. Empowerment, control over practice and shared decision making were all positively significantly correlated with intent to stay (Fisher et al., 1994; Larrabee et al., 2003; Nedd, 2006; Ellenbecker et al., 2007; Mrayyan, 2008). Larrabee et al. (2003) found that low control over practice explained 26 % of the variance in intent to stay and was a negative predictor of intent to stay. Participative management resulted in perceptions of higher levels of group cohesion (Leveck & Jones, 1996). Work group cohesion was found to have a significant positive relationship with intent to stay (Leveck & Jones, 1996; Lynn & Redman, 2005). In nine studies, group cohesion was significantly positively related to intent to stay in current nursing position (Taunton et al., 1989a,b; Boyle et al., 1999; Leveck & Jones, 1996; Taunton et al., 1997; Larrabee et al., 2003; Tourangeau & Cranley, 2006; Ellenbecker et al., 2007; Gregory et al., 2007; Chen et al., 2008). Managers' leadership practices, which included type of leadership style, perceived manager power, support provided to staff nurses, recognition and praise of staff nurses' contribution, method of decision making, empowerment and promotion of group cohesion, all effect staff nurses' intent to stay.

Time Frames

The similarities between the two waves of research focus on nurse managers and how they influence staff nurse decisions to leave their position. Wave one (1989-1997) focused on the characteristics of the individual manager or nurse leader. Research focused on the managers' leadership style, influence and use of power. In the second wave of studies (2003-2010), the focus on the manager shifted from individual leader characteristics towards interactions and relationships with others. The recognition of staff nurses as a valuable and contributing component in the achievement of unit objectives was identified in the second wave of studies. The concept of shared leadership was found in several studies, although not identified as such. Shared leadership is an organizational structure where individuals share the responsibility for achieving collective goals (Sullivan & Decker, 2005). The autonomy of staff nurses and control over practice were addressed in over half of the studies. The managers' relationships with staff and their impact on retention were minimally addressed in the first wave of studies, whereas they were a large component of the second wave of studies. Twelve of the seventeen studies in the second wave

measured managerial support or manager-staff relationships. The concept of relational or connective leadership was implied through the recognition of the collaboration and teamwork required to meet organizational goals (Sullivan & Decker, 2005).

Discussion

The findings of this systematic review support the claim that leadership practices influence staff nurses' intentions to remain in their positions. Leadership practices and the focus of leadership research have evolved over time. A shift in the emphasis of the nursing research exploring the relationship between leadership practices and staff nurses' intent to stay from one wave of nursing shortage to the next was noted. Research moved beyond the attributes of the leader to an examination of the leader's interactions with others. Examining manager–nurse relations identified different staff nurse behavioral intentions between manager leadership styles. Transformational or relational leadership approaches resulted in greater intentions to stay while task-focused leadership styles, such as a management by exception approach, resulted in lower intentions to stay. These findings have implications for nursing practice, theory development and future areas of nursing research.

Implications for Nursing Practice

The nursing shortage is projected to continue well into the future. Efforts to retain current staff are critical to minimizing the effects of the shortage of nurses. Staff nurses' perceptions of nursing leadership and the practice environment are directly related to their behavioral intentions of staying with or leaving the organization. The literature has reported that relationally-focused leadership results in quality nursing work environments (Cummings et al., 2010). Nurse managers also need to attend to the generational differences of the staff nurses that report to them (Wieck, Dols & Landrum, 2010). Nurse managers focused on the individual needs of their staff, and who strive to meet those needs, are more likely to retain their staff. The work environment affects staff nurses' intent to stay. Nurses employed in environments where they felt supported by their managers and peers, autonomous in their practice, recognized and valued for their contributions, encouraged to participate in decision making and empowered to reach their full potential were generally more likely to remain in their positions, and were more satisfied and committed to the

organization. Health care managers need to address quality of workplace issues in order to provide an environment conducive to decisions to remain.

Leadership development programs have been demonstrated to significantly influence leadership behavior. A systematic review of the literature investigating factors contributing to nursing leadership assessed nine studies that evaluated outcomes of leadership development programs. Pre and post measures for all studies indicated an increase in observed rated leadership skills and competencies. Only three studies monitored leadership competency beyond three months. Two of the three studies reported continued competency of leadership skills. The longitudinal effect of leadership development programs and the translation of leadership development research into practice have not been reported in the literature (Cummings, Lee, MacGregor, Davey, Wong, Paul & Stafford, 2008). A collaborative effort between health facilities, researchers and educators to develop competency-based leadership development programs with adequate monitoring and longitudinal assessment will facilitate the delivery of effective leadership education. The long-term outcomes of leadership development programs remain an area for further research. Health care organizations should focus on the development and support of relational leaders across all levels of the organization. The identification of barriers to implementing effective relational leadership and providing adequate opportunities for staff interaction with their managers should be investigated, as educating leaders and then placing them in situations that preclude them from leading in a successful manner is futile. To effectively support relational leadership, it must be embraced as part of the organizational culture and operational at all levels of the organization.

Implications for Nursing Theory Development

Nine different conceptual models were used in the included studies to illustrate the relationship between leadership behaviors and staff nurses' intent to stay and the predictors of nurses' intent to stay. A conceptual model identifies and describes the theoretical relationships among concepts and predicts the outcome of those relationships (Chinn & Jacobs, 1978). A conceptual model gives structure to the concepts and relationships within the context of the study. Conceptual models clarify concepts and relationships and are the foundation for research

(Wardell, 2009). The terms intent to stay and intent to leave were used interchangeably in a number of studies implying that the variables were measures of the same concept. Whether or not intent to stay and intent to leave share the same predictors or are measures of the same concept is not known. A further evaluation of the variables of intent to stay and intent to leave is necessary to validate their similarity or distinctness. Clear definitions of the outcome variables are necessary to compare model findings. Expanding current conceptual models and incorporating a broader, clearly defined set of predictors into the model would build on current nursing knowledge of staff nurses' intent to stay.

Implications for Nursing Research

Nursing research should be focused on the needs of the population and be relevant to nursing practice (Meleis, 1992). The timeframes of the intent to stay research were reflective of that, as they coincided with waves of nursing shortages reported in the literature. As the adequate supply of nurses will be an issue well into the future, further research regarding staff nurses' intentions to stay is warranted. If the concepts intent to stay and intent to leave are examined and deemed to be different, research specific to either concept will lead to enhanced understanding of behavioral intention.

The review identified a number of practice environment variables that were positively significantly correlated with nurses' intent to stay. Examining the relationship between leadership style and the variables within the practice environment that have a direct relationship with intent to stay will not only increase the understanding of how managers can influence the work environment, but also how they can directly or indirectly affect intentions to stay.

Limitations

The variability in definition and measurement of manager leadership practices limits the generalizability of the present study findings. The five studies which did not report measurement tool validity limit the external validity of the study findings. As the theoretical underpinnings and causal understandings of studies were not reported by many researchers, the synthesis of findings among studies may not be appropriate. The collection of included studies was not appropriate for a meta-analysis and statistical summary of the studies. Published reports have a tendency to over-

report positive and significant findings. The inclusion of studies published only in the English language may have eliminated other potentially illuminating research from the systematic review.

Conclusion

The nursing shortage and high turnover rates demand that nurse managers focus increased attention on the retention of currently employed nurses. The findings of the present study support a positive relationship between transformational leadership, supportive work environments and staff nurses' intent to remain in their current position. Stated intentions to stay are strongly predictive of retention and turnover. Relational leadership styles attentive to the individual needs of the nurse promote staff nurses' intentions to stay. The development of relational leaders is one avenue to improve the quality of work environments, influence intent to stay, increase the supply of nurses in the workforce and ultimately meet the health care needs of the population. Further examination of the uniqueness or difference of the concepts intent to stay and intent to leave is required to establish a clear theoretical foundation for further intent to stay research. Building on current conceptual models will increase knowledge of staff nurses' intent to stay. Studying staff nurses' intent to stay is important in the context of addressing the global nursing shortage.

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leave current position and/or profession. *Journal of Nursing Management, 17*, 383-391.

Table 2-1

Search Strategy

Database 1985-May 2010	Search Terms	Number
CINAHL	Leadership Practices AND intent to stay intent to leave organizational commitment professional commitment career commitment	369
EMBASE	Leadership Practices AND intent to stay intent to leave organizational commitment professional commitment career commitment	15151
ERIC	Leadership Practices AND intent to stay intent to leave organizational commitment professional commitment career commitment	8728
PsychINFO	Leadership Practices AND intent to stay intent to leave organizational commitment professional commitment career commitment	4252
MedLine	Leadership Practices AND intent to stay intent to leave organizational commitment professional commitment career commitment	1431
SCOPUS	Leadership Practices AND intent to stay intent to leave organizational commitment professional commitment career commitment	695
Manual Search		13
Total abstract and titles reviewed (duplicates removed)		30639
Total articles reviewed for inclusion		148
First Selection of Studies		24
Second Selection of Studies		23

Table 2-2

Characteristics of Included Studies - Quantitative

Author(s) Journal Country & Year	Theoretical framework	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Boyle et al. American Journal of Critical Care USA 1999	Conceptual Model of intent to Stay	255 ICU staff nurses in 4 hospitals	Researcher developed tool based on prior work of Price & Mueller (1981b,1986b) and Hinshaw et al. (1987)	20 items	0.61- 0.94	Reported as prior evidence of sound validity	Causal modeling Path analysis
Bycio et al. Journal of Applied Psychology USA 1995	None	1376 RNs in a nursing association	MLQ-5 (Bass, 1985) Allen & Meyer (1987)	53 items 24 items	0.68 - 0.89 Not reported	Not reported	CFA LISREL 7 Hierarchical Regression
Chen et al. International Journal of Nursing Studies Taiwan 2008	Conceptual Model of Nursing Turnover	308 RNs in 1 hospital	Researcher developed tool based on: Positive/Negative Affectivity (Watson, 1987) Distributive Justice Scale (Price, 2001)	 10 items 6 items	0.60 - 0.88	Back translation Committee approach Factor loading Prior research	Descriptive statistics Exploratory factor analysis Multiple regression, Hierarchical linear regression
Ellenbecker et al. Home Health Care Services Quarterly USA 2007	None	2459 nurses in 123 certified home health agencies	Home Healthcare Nurse Job Satisfaction Scale (Ellenbecker & Byleckie, 2005)	30 items	Not reported	Previous research (Ellenbecker & Byleckie, 2005)	Descriptive statistics Multiple regression
Fisher et al. JONA USA 1994	None	524 RNs in 8 adult acute care hospitals	Managerial Environment scale (Tomey et al., 1990) Intent to leave scale (ITS), researcher developed	20 items 5 items	0.90 0.90	Prior research (Tomey et al., 1990; Graham, 1982)	ANOVA Factor analysis

Table 2-2

Characteristics of Included Studies - Quantitative

Author(s) Journal Country & Year	Theoretical framework	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Gregory et al. Health Care Manager Review Canada 2007	Conceptual Model of Behaviour Intentions (Mueller & Price, 1990)	343 RNs in province of NL	Employee Attitude Survey (EAS) which included: Collaborative Relations (Way et al., 1995) Organizational Commitment Questionnaire (Mowday, Steers, & Porter, 1979) Intent to Stay Scale (Turnley & Feldman, 1998)	 5 items 9 items 3 items	 0.86 0.92 0.72	Factor analysis	Descriptive statistics Structural equation modeling
Kleinman. Hospital Topics USA 2004	None	79 staff nurses & 10 managers in one hospital	Multifactor Leadership Questionnaire (Bass & Avolio, 2000)	45 items	0.68 - 0.89	Not reported	Descriptive Statistics Pearson's product-moment correlations ANOVA
Lacey et al. Journal of Nursing Administration USA 2007	None	3327 RNs in 15 hospitals	Individual Workload Perception Scale (Cox, 2003)	32 items	0.61 - 0.91	Prior research (Cox et al., 2006)	Descriptive statistics ANOVA Tukey post-hoc test

Table 2-2

Characteristics of Included Studies - Quantitative

Author(s) Journal Country & Year	Theoretical framework	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Larrabee et al. JONA USA 2003	Nursing Systems Outcomes Research Model (Mark, Saylor & Smith, 1996) Cognitive Model of Empowerment (Thomas & Velthouse, 1990)	90 RNs on 5 units in 1 hospital	Work Quality Index (Whitley & Putzier, 1994) Intent to Leave (Price, 1981a) Multifactor Leadership Questionnaire (MLQ-5X-Short) (Bass & Avolio, 1995) Group Cohesion Scale (Good & Nelson, 1973)	38 items 1 item 9 items 6 items	0.58 - 0.94 Not reported 0.74 - 0.94 0.82	Factor Analysis	Descriptive Statistics ANOVA Multivariate regression Logistic regression
Lavoie-Tremblay et al. Journal of Nursing Management Canada 2008	Psychosocial Work Environment	309 RNs in the province of Quebec	Job Content Questionnaire (Karasek, 1998)	29 items	0.68 - 0.85	Factor Analysis	Descriptive Statistics Chi-Square tests
Leveck & Jones Research in Nursing and Health USA 1996	Anticipated turnover Model (Hinshaw & Atwood, 1985)	358 RNs on 50 units in 4 hospitals	Profile of Organizational, Characteristics (Likert & Likert, 1976) Group Cohesion Scale (Good & Nelson, 1973) Organizational Job Satisfaction (Hinshaw & Atwood, 1985) Nursing Job Satisfaction Scale (Hinshaw & Atwood, 1985)	16 items 6 items 32 items 23 items	0.90 0.87 0.85 0.91	Prior research (Likert, 1967, Likert & Likert, 1976, Lucas, 1988, Lucas, 1991 Hinshaw & Atwood 1985)	Descriptive statistics ANOVA Regression Structural Equation Modeling

Table 2-2

Characteristics of Included Studies - Quantitative

Author(s) Journal Country & Year	Theoretical framework	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Lynn & Redman JONA USA 2005	None	787 nurses in 8 US states	Intent to Leave (Price & Mueller,1981a) Satisfaction in Nursing Scales (Lynn, 1986) Organizational Commitment Questionnaire (Mowday, Steers & Porter, 1979)	6 items 54 items 5 items	0.88 0.87 - 0.92 0.76	Prior research (Price & Mueller 1981) Expert panel Not reported	Multiple Regression
Mrayyan Journal of Nursing Research Jordan 2008	None	362 nurses in 3 hospitals	Nursing Practice Environmental Scale (Farley & Nyberg 1990) McCain's Behaviour Commitment Scale (McCloskey, 1990)	60 items Not reported	0.85 0.75	Not reported	Descriptive Statistics Regression Analysis
Nedd Nursing Economics USA 2006	Kanter's Theory of Structural Empowerment (1977)	206 RNs in the state Florida	Job Activities Scale (Laschinger et al., 1993) Organizational Relationship Scale (Laschinger et al., 1993) Conditions for Work Effectiveness) Questionnaire (Chandler, 1987) Untitled intent to stay Kim, Price, Mueller & Watson, (1996)	9 items 18 items 31 items 4 items	0.81 0.92 0.96 0.86	Not reported	Descriptive Statistics Pearson's product-moment correlation coefficients

Table 2-2

Characteristics of Included Studies - Quantitative

Author(s) Journal Country & Year	Theoretical framework	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Raup Journal of Emergency Nursing USA 2008	None	15 managers, 30 staff nurses in 15 hospitals	Multifactor Leadership Questionnaire version 5X (Bass, 1985)	Not reported	Not reported	Past research (Ohman, 1999; Huber et al., 2000)	Fisher's exact test
Roche et al. Journal of Nursing Scholarship Australia 2010	None	2487 nurses in 21 hospitals	Nursing Work Index-Revised, NWI-R (Aiken et al., 2001) Environmental Complexity Scale (ECS) O'Brien-Pallas et al., 2004)	49 items 2 items	0.63 - 0.83 0.56 - 0.82	Not reported	Regression
Simon et al. Journal of Advanced Nursing Germany 2010	None	2119 registered nurses in 16 hospitals	NEXT questionnaire (Kummerling et al., 2003)	52 items	0.67 - 0.91	Not reported	Generalized Linear mixed model (GLMM)
Sourdif Nursing and Health Sciences Canada 2004	Organizational Dynamics Paradigm of Nurse Retention (Taunton et al., 1997)	221 RNs in a one hospital	Nurses' Intent to Stay Questionnaire (Taunton et al.,1997)	74 items	0.77	Correlations	tests ANOVA Pearson's correlations Linear regression

Table 2-2

Characteristics of Included Studies - Quantitative

Author(s) Journal Country & Year	Theoretical framework	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Taunton et al. JONA USA 1989	Organizational Dynamics Paradigm of Nurse Retention	59 RNs, 12 clinical dieticians and social worker in 1 hospital	Researcher developed tool based on Price & Mueller's (1981b, 1986b) Job satisfaction, intent to stay, indexes and, Michigan Organizational Questionnaire Supervisory module	Not reported	0.70 - 0.93	Chi square Factor analysis	Factor Analysis Correlations t-tests
Taunton et al. Western Journal of Nursing Research USA 1997	Organizational Dynamics Paradigm of Nurse Retention	95 Nurse Managers, 1171 RNs at 4 hospitals	Intent to Stay (Price & Mueller, 1986b) Ohio State University Leadership Behaviour Description questionnaire (Kruse & Stogdill, 1973)	Not reported	0.61 - 0.94	Pearson's correlations	Multiple regression Discriminant function analysis
Tourangeau & Cranley Nursing & Healthcare Management Policy Canada 2006	Determinants of Nurse Intention to Remain Employed	8456 RNs & RPNs In Ontario	Ontario Nurse Survey which included: Nursing Work Index - Revised (Lake, 2002) McCloskey Mueller Satisfaction Scale (Mueller & McCloskey, 1990)	49 items 31 items	0.91 0.52 - 0.84	Past research (Tourangeau & McGilton, 2004)	Descriptive Statistics Multiple regression
Wieck et al. Nursing Forum USA 2010	None	1773 staff nurses at 22 hospitals	Nursing Work Index – Revised, NWI-R (Aiken & Patrician, 2000) Nurse manager's Desired Traits survey (Wieck, et al., 2002)	49 items Not reported	0.82 - 0.97 Not reported	Previous research	Descriptive statistics

Table 2-2

Characteristics of Included Studies – Qualitative (n=1)

Author(s) Journal Country & Year	Theoretical framework	Subjects	Data collection	Rigour	Analysis
Strachota et al. JONA USA 2003	none	84 RNs in one hospital system	Researcher developed questionnaire and telephone interviews	Paired pilot interview Alternate forms of questions Expert review	Content analysis, common themes and categories.

Table 2-3

Summary of Quality Assessment of Included Studies (N=22 quantitative studies)
Leadership Practices and Intent to Stay in Current Nursing Position

Design:	**No**	**Yes**
Was the study prospective?	2	20
Was probability sampling used?	14	8
Sample:		
Was sample size justified?	6	16
Was sample drawn from more than one site?	4	18
Was anonymity protected?	6	16
Response rate was more than 60%?	14	8
Measurement: **Leadership practices (IV) (assess for IV correlated with DV)**		
Are leadership factors contributing to intent to stay measured reliably?	0	22
Were leadership factors contributing to intent to stay measured using a valid instrument?	1	21
Effects on Intent to Stay (DV):		
Is intent to stay self-reported or observed?	0	22
If a scale was used for measuring effects, is internal consistency >=.70?	3	19
Was a theoretical model/framework used for guidance?	11	11
Statistical Analysis:		
If multiple effects are studied, are correlations analyzed?	3	19
Are outliers managed?	16	6

Overall Study Validity Rating (circle one) low med 13 high 9
(key 0-4=low; 5-9=med; (10-14=high)

*scores 2 points

(Adapted from Cummings & Estabrooks, 2003; Lee & Cummings, 2008; Wong & Cummings, 2007)

Table 2-4

Relationship of Leadership Practices to Intent to Stay by Category

Leadership Practices	Sources	Significant Relationship with Intent to Stay
Leadership Style		
Transformational	Boyle et al. (1999)	+
	Larrabee et al. (2003)	+
	Bycio et al. (1995)	+
	Leveck & Jones (1996)	-
	Larrabee et al. (2003)	NS
	Raup (2008)	NS
Autocratic	Taunton et al. (1997)	-
Management by exception	Larrabee et al. (2003	-
	Kleinman (2004)	-
Manager characteristics	Taunton et al. (1997)	+
Power	Boyle et al. (1999)	+
	Taunton et al. (1989)	+
Influence	Boyle et al. (1999)	+
	Taunton et al. (1989)	NS

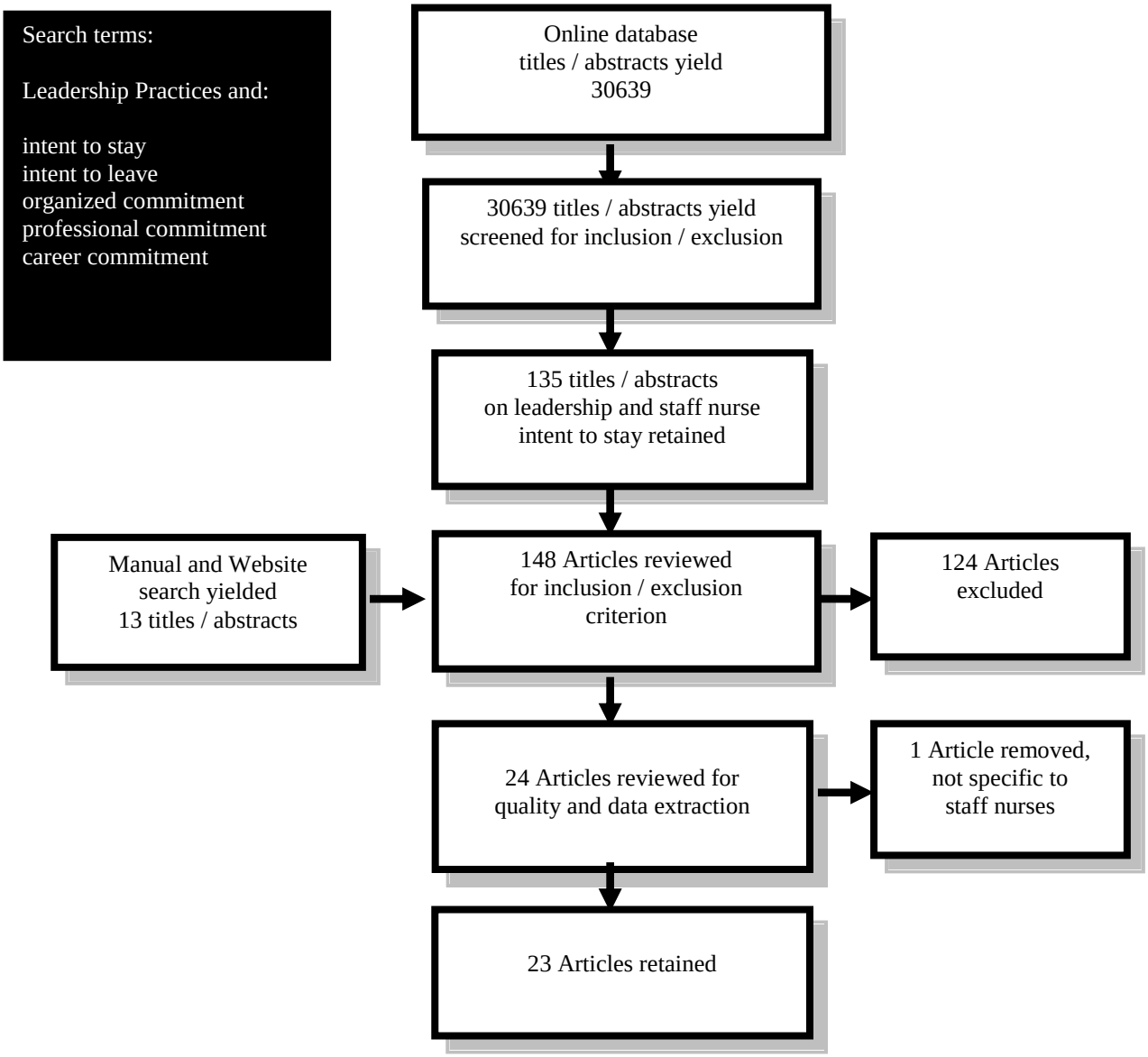
Table 2-4 continues

Table 2-4 Continued

Relationship of Leadership Practices to Intent to Stay by Category

Leadership Practices	Sources	Significant Relationship with Intent to Stay
Supervisor support	Chen et al. (2008)	+
	Fisher et al. (1994)	+
	Lacey et al. (2007)	+
	Lavoie-Tremblay et al. (2008)	-
	Leveck & Jones (1996)	+
	Lynn (1986)	+
	Nedd (2006)	+
	Sourdif (2004)	+
	Tourangeau & Cranley (2006)	NS
	Strachota et al. (2003)	NS
Decision-making style	Ellenbecker et al. (2007)	+
	Mrayyan (2008)	-
	Taunton et al. (1989)	+
Trust	Gregory et al. (2007)	+
Praise & Recognition	Tourangeau & Cranley (2006)	+

FIGURE 2-1
Search Strategy Results



Appendix 2-A

Inclusion Screening Tool – Leadership and Intent to Stay Review
Leadership Practices and Intent to Stay in Current Nursing Position

Study:

First Author:

Publication Date: Journal:

Instruction for completion:

Circle **Y**es or **N**o for each criterion

Inclusion /Exclusion

Study measures – formal leadership:	**Y**	**N**
• Behaviours: • Style: • Others:		
Study measures	**Y**	**N**
• Intent to stay: • Intent to leave: • Commitment: • Others:		
Is the relationship between leadership and intent to stay or leave evaluated?	**Y**	**N**
Evidence of direction P values Statistics		
Include in Study Comments	**Y**	**N**

(Adapted from Lee, H., & Cummings, G.G., 2008)

Appendix 2-B

Quality Assessment and Validity Tool for Correlational Studies
Leadership Practices and Intent to Stay in Current Nursing Position

Study:_____
First Author:_____
Publication Date:_____
Journal:_____

Design:	**No**	**Yes**
Was the study prospective?	0	1
Was probability sampling used?	0	1
Sample:		
Was sample size justified?	0	1
Was sample drawn from more than one site?	0	1
Was anonymity protected?	0	1
Response rate was more than 60%?	0	1
Measurement: **Leadership practices (IV) (assess for IV correlated with DV)**		
Are leadership factors contributing to intent to stay measured reliably?	0	1
Were leadership factors contributing to intent to stay measured using a valid instrument?	0	1
Effects on Intent to Stay (DV):		
Is intent to stay self-reported or observed?	0	2
If a scale was used for measuring effects, is internal consistency >=.70?	0	1
Was a theoretical model/framework used for guidance?	0	1
Statistical Analysis:		
If multiple effects are studied, are correlations analyzed?	0	1
Are outliers managed?	0	1

Overall Study Validity Rating (circle one) low med high
(key 0-4=low; 5-9=med; (10-14=high)

(Adapted from Cummings & Estabrooks, 2003; Lee & Cummings, 2008; Wong & Cummings, 2007)

Appendix 2-B Continued

Quality Assessment and Validity Tool for Correlational Studies
Leadership Practices and Intent to Stay in Current Nursing Position

Definitions for Correlational Tool

Design:

(1) Was the design prospective?

Most studies are probably retrospective but prospective studies would be preferable.

(2) Was probability sampling used?

A random sample of some form or a systemic sample with a random start is acceptable. Most researchers probably used a convenience sample, i.e. studying all the patients available to them in one or more settings that agreed to participate, which is scored 0.

Sample:

(1) Was sample size justified?

Sample size is justified if it is based on appropriate power calculations (power=80), or follows other rules of thumb such as an N of at least 10 per IV studied. Even if researchers try to justify lower standards, a 0 is scored if these cut-offs are not met. This assessment is a judgment based on available information. Two rules of thumb will apply:

- If using a multivariate approach, 10 cases per IV are required; and
- If using several correlations or t-tests, a sample of 80 or more reflects adequate power.

Sample sizes that suggest very high power, e.g. because it is so large, will also be noted.

(2) Was sample size drawn from more than one site?

This refers to physical location – multiple groups belonging to the same system count as multisite. Several units within the same hospital do not count as multisite, but several hospitals within the same system or region do.

(3) Was anonymity protected?

If the researcher studied nurses in his/her own facility, the researcher may be able to determine the identity of the responders. Subjects who think their responses are identifiable tend to give more politically correct or socially desirable responses.

Appendix 2-B Continued

Response rate more than 60%?

Operationally defined as the number of people who participated divided by the number of people who were sampled (i.e. given or sent or offered a questionnaire). If not reported, information that allows calculation will be sought and the same rule applied.

Measurement:

Leadership (IV) (Assess for IV's correlated with DV only)

(1) Are factors contributing to intent to stay measured reliably?
Any factors contributing to nursing leadership affecting intent to stay are measured.

Effects on Intent to Stay (DV):

(1) Are the effects of leadership observed rather that self-reported?
1 is scored for patients self-report of the effects of leadership. 2 is scored for the self-report of nursing leaders in addition to some independent measure or observation of leadership.

(2) If a scale was used for outcome, is internal consistency >=.70?

The coefficient needs to be for the sample studied in order to score as 1.

Statistical Analysis:

(1) If multiple factors contributing to intent to stay were studied, study scored 0 if results reported using numerous bivariate statistics (e.g. reports multiple t's, r's, etc.).1 is scored if there was an attempt to explore relationships contributing to intent to stay, i.e. correlations are reported, multiple regression is used or interactions are reported (the discussion noted that specific predictors were or were not highly correlated with each other).

(2) Are outliers managed?
If not, relationship could be spurious. If one of the following was reported to decrease disproportionate effects of outliers, 1 is scored:

- Outliers removed:
- A technique used to moderate their effects (e.g. winsorizing, jackknifing):
- Non-parametric statistics used (Spearman's rho or MWU, etc)

Omitting any discussion of outliers or mentioning but not managing was scored as 0.

(Adapted from Cummings & Estabrooks, 2003; Lee & Cummings, 2008; Wong & Cummings, 2007)

Chapter Three
Clinical Nurses' Intentions to Stay or Leave: Is there a Difference? (Paper #2)

Introduction

The global nursing shortage has emphasized the need for further examination of nursing workforce retention efforts. The World Health Organization (WHO) reports that 57 countries are experiencing critical shortages of healthcare providers (Buchan & Aiken, 2008). The United States estimates that by the year 2020, they will have a deficit of 285 000 nurses (Donelan, Buerhaus, Desroches, Dittus, & Dutwin, 2008) and Canada anticipates a shortage of 60 000 by the year 2022 (Tomblin Murphy, Birch, Alder, MacKenzie, Lethbridge, Little & Cook, 2009). The large number of nurses who are actively changing positions adds to the difficulty in managing the nursing workforce supply. A recent Quebec-based study found 61.5% of new nurses expressing intent to leave their current position (Lavoie-Tremblay, O'Brien-Pallas, Gelinas, Desforges & Marchionni, 2008). Stated intention to leave an organization has been identified as a strong predictor of turnover (Kovner, Brewer, Greene, & Fairchild, 2009).

Understanding why nurses stay or leave their place of employment is fundamental to dealing with the nursing shortage. Behavioral intention statements have consistently been reported as the strongest predictors of nurse turnover and retention, and account for more variance than any other predictor (Lum, Kervin, Clark, Reid & Sirola, 1998). Attitudes affect behavioral intentions, which in turn are a precondition to behavioral action. Behavioral intentions are a function of personal attitude, subjective norms and perceived control over performing the behavior (Smith-McLallen & Fishbein, 2008).

The terms intent to stay and intent to leave have been used interchangeably in the literature that examined variables affecting nurse turnover and retention. Researchers have not generally differentiated between the two terms, assuming that the concepts of intent to stay and intent to leave are opposite ends of a continuum (e.g. more or less of a unidimensional phenomenon). The concepts, intent to stay and intent to leave, are presumed to be the inverse of one another; that is, as the probability of one increases, the probability of the other is anticipated to decrease. The strength of the relationship between intent to stay and intent to leave and the distinction between the concepts have not been explored in the literature, thus leading tomyquestion, "are the variables intent to stay and intent to leave a true measure of the same thing or measures of something much

different?"

Purpose

The purpose of this paper was to examine the concepts of intent to stay and intent to leave to determine if they are opposite ends of a continuum of one phenomenon, or separate but correlated concepts. In this paper, I describe the findings of a systematic review of published studies that explored the relationships between identified predictors of nurses' intentions to stay or leave their nursing positions.

Definitions and Use of Terms

Intent to stay (ITS) is defined as the stated probability of an individual staying with the current organization (Cavanagh, 1989; Gregory, Way, LeFort, Barret & Parfrey, 2007; Price & Mueller, 1981a,b). It infers a conscious and purposeful decision to remain with the organization (Cho, Johanson & Guchait, 2009). Often the definition of intent to stay includes only the current position (Mrayyan, 2008a,b; Sourdif, 2004) and indicates a specific timeframe of one to five years (Ingersoll, Olsan, Drew-Cates, DeVinney & Davis, 2002; Kunaviktikul, Nuntasupawat, Srisuphan, & Booth, 2000). Other terms used to denote the same concept are *intent to leave* (Kovner et al., 2009; Lynn & Redman, 2005; Nogueras, 2006), *turnover intention* (McCarthy, Tyrrell, & Lehane, 2007), *anticipated turnover, intent to work, desire to quit* (Brewer, Kovner, Greene & Cheng, 2009), *intention to remain* and *intention to quit* (Tallman & Bruning, 2005), and *behavioral intention* (Gregory et al., 2007).

Intent to leave (ITL) is an individual's anticipated plan to exit the organization at some future time (Larrabee, Janney, Ostrow, Withrow, Hobbs & Burant, 2003; McCarthy et al., 2007). ITL is viewed as a calculated decision and a component of the withdrawal process (Cho et al., 2009). This perception becomes behavior when acted upon and results in termination and turnover (Cavanagh, 1989). Brewer et al. (2009) identified a concept *desire to quit*, defining it as the degree of positive affect one has to the idea of voluntarily leaving the organization. Other terms used to denote plans to leave the organization include: *turnover intention* (Cho et al., 2009; Coomber & Barriball, 2007; McCarthy et al., 2007), *anticipated turnover* (Shader, Broome, Broome, West & Nash, 2001), and *intent to quit* (Lavoie-Tremblay et al., 2008). It is important to note that

intentions are an estimation of plans and not behavior (Cavanagh, 1989).

Systematic Review

A systematic review of the literature, based on guidelines from the Centre for Reviews and Dissemination, University of York in the UK, was conducted to examine the study designs and associated predictors of ITS and ITL of published nursing research studies.

Methods

Search Strategy

The search strategy involved a review of four electronic databases: CINAHL, Medline, SCOPUS, and PsychInfo. Key words used in the search were "intent to stay", "intent to leave", "nursing" and "nursing position". The key word "inten$" was also used after the initial searches to ensure a comprehensive search was conducted to capture all relevant papers. The addition of this search term did not result in any additional abstracts and titles. The terms "retention" and "turnover" were not used as the focus of the search was on the behavioral intention and not the action taken. Manual searches of the following nursing journals were also completed: Canadian Journal of Nursing Leadership, Journal of Nursing Administration, Nursing Economics, and Journal of Nursing Management. The search included English language, peer-reviewed, research articles published between 1985 and 2010.

Inclusion Criteria

Titles and abstracts were included if they met the inclusion criteria of peer-reviewed research, measured ITS or ITL one's current nursing position, were specific to a sample population of nurses, evaluated the relationship of predictors to either ITS or ITL and their determinants, and assessed correlational or causal relationships.

Screening

Each abstract was reviewed twice for the inclusion criteria. The primary author reviewed all abstracts for inclusion criteria. A second reviewer, blinded to the first review, also reviewed the articles resulting in a 100% inter-rater reliability. The inclusion screening tool (Appendix A) was adapted from a previously published systematic review (Cummings, Lee, MacGregor, Davey, Wong, Paul & Stafford, 2008). Studies from all health settings were included. Studies that focused

only on intent to leave or stay in the nursing profession were excluded. An assessment of a relationship between intention and identified predictors had to be measured and reported in the study outcomes.

Data Extraction

Data elements extracted for the review were: author, journal, country, design, setting, subjects, sampling method, measurement instruments, reliability and validity of measures, identified predictors of ITS or ITL and significant/insignificant results.

Quality Review

All articles that met the inclusion criteria were reviewed twice for methodological quality. A previously published quality assessment tool for correlational studies, used in many systematic reviews, was adapted to assess the methodological quality of the studies reviewed (Cummings et al., 2008). The modified tool (Appendix B) was used to assess the research design, sampling, measurement and statistical analysis of each study. Twelve criteria resulted in a max score of 12 points. Each criterion was scored as 0=not met or 1=met. Studies were divided into three categories based on total point values: weak (0-4), moderate (5-8), and strong (9-12). The first author completed the quality assessments and a nursing colleague performed a blinded second assessment of each article, resulting in 100% inter-rater agreement.

Results

Search Results

The search resulted in a total of 501 abstracts and titles, after removing 201 duplicates, 300 abstracts and titles were reviewed and 58 full articles relevant to predictors of nurses` ITS or ITL in their current nursing position were retrieved and screened for inclusion criteria. Forty-three quantitative studies were retained after inclusion screening. Fifteen studies were excluded and the primary reasons for exclusion were: failure to examine relationships among predictors of ITS or ITL (Betkus & MacLeod, 2004; Cox, Teasley, Zeller, Lacey, Parsons, Carroll & Ward-Smith, 2006; Lacey, Teasley & Cox, 2009; Mrayyan, 2007, 2008a, 2009; McIntosh, Rambur, Val Palumbo & Mongeon, 2003); four studies detailed differences in ITS between settings (Lacey et al., 2009; Mrayyan, 2007, 2008a, 2009); two studies focused on other outcomes, and not ITS or

ITL (Betkus & MacLeod, 2004; Coward, Hogan, Duncan, Horne, Hilker & Felsen, 1995); three studies did not meet population criteria as they were not specific only to clinical nurses (Cavanagh, 1990; Estryn-Behar, van der Heijden, Oginska, Camerino, Le Nezet, Conway, Fry, & Hasselhorn, 2007; Fitzpatrick, Campo, Graham & Lavandero, 2010), and four studies investigated intent to leave the profession and not the current position (Cortelyou-Ward, Unruh & Fottler, 2010; Estryn-Behar et al., 2007; Nogueras, 2006; Widerszal-Bazyl, Radkiewicz, Hasselhorn, Conway & van der Heijden, 2008). See Table 3-1 for a summary of the search strategy and Appendix C for excluded references and rationale.

Characteristics of Included Studies

Of the 43 included studies, 30 took place in hospital settings, one was conducted in a home health agency setting and 12 were conducted across a state(s) or province. Ten studies took place in single sites and the remainder in multiple sites. Studies were conducted across the globe. Twenty took place in the USA, seven in Canada, three in Jordan and Taiwan, two in Europe, and one in each of Australia, Ireland, Malta, Singapore, Sweden, Thailand and Turkey. Clinical nurses were participants in all of the studies. See Table 3-2 for characteristics of included studies.

Summary of Quality Review

The 43 studies were rated as low (3), moderate (29) or high (11) in quality. Study designs were predominantly correlational (32). Causal modeling techniques were used in five studies. Common weaknesses noted across studies were response rates of less than 60% and lack of attention to outliers. Response rates were less than 60% in 23 studies and only four studies addressed outliers. Twenty-five studies addressed protection of participant anonymity, two studies addressed participant confidentiality, 10 studies included both anonymity and confidentiality and 18 studies did not address anonymity or confidentiality. Regression techniques were used in 26 studies. See Table 3-3 – Summary of quality assessments.

Conceptual Frameworks

Conceptual frameworks were used to guide the research in 19 of the 43 studies. Eighteen different frameworks were used including: *Researcher Study Hypothesized Model* (Borda & Norman, 1997), *Conceptual Model of Intent to Stay* (Boyle, Bott, Hansen, Woods & Taunton,

1999), *Model of Nursing Turnover* (Chen, Chu, Wang & Lin, 2008), *Nurse Early Exit Study Research Model* (Hasselhorn, Tackenberg & Muller, 2003), *Conceptual Model of Behavioral Intentions* (Mueller & Price, 1990), *Nursing Systems Outcomes Research Model* (Mark, Sayler & Smith, 1996), *Rural RN Turnover/Retention Model* (Stewart, D'Arcy, Kosteniuk, Andrews, Morgan, Forbes, MacLeod, Kulig & Pitblado, 2010), *Social Identify Theory* (Taijfel & Turner 1986), *Stress Resiliency Model* (Larrabee, Wu, Persily, Simoni, Johnston, Marcischak, Mott & Gladden, 2010), *Karasek's Job Strain Model* (Lavoie-Tremblay et al., 2008), *Conceptual Framework of Turnover Behaviour* (McCarthy et al., 2007), *Kanter's Theory of Organizational Empowerment* (Nedd, 2006), *Conceptual Model of Organizational Climate and Nurses' Intent to Leave* (Stone, Mooney-Kane, Larson, Pastor, Zwanziger & Dick, 2006), *Model of Theoretical Relationships* (Tallman & Bruning, 2005), *Organizational Dynamic Paradigm of Nurse Retention* (Taunton, Boyle, Woods, Hansen & Bott, 1997), *Determinants of Nurse Intention to Remain Employed* (Tourangeau & Cranley, 2006), *Conceptual Model of Career Development Relationships* (Yoder, 1995), and *Kanter's Theory of Structural Empowerment* (Kanter, 1977). Sourdif (2004) also used the *Organizational Dynamic Paradigm of Nurse Retention* (Taunton et al., 1997).

Measures

Overall 87 tools were used across studies with 19 researcher-developed study-specific tools. Cronbach's alpha coefficients were reported for 63 of the tools used. Validity, reported only on 77 tools, was based on prior research, factor analysis, pilot tests and expert reviews.

A total of 20 intention-specific instruments were used across the included studies: seven were researcher-developed (Dimattio, Roe-Prior & Carpenter, 2010; Fisher, Hinson & Deets, 1994; Kovner et al., 2009; Kunaviktikul et al., 2000; Liou & Cheng, 2010; Stewart et al., 2011; Tallman & Bruning, 2005), ten were ITS-specific tools (Boyle et al., 1999; Gurney, 1990; Kim, Price, Mueller & Watson, 1996; McCloskey & McCain, 1987; Price & Mueller, 1981a,b,1986; Rambur, Val Palumbo, McIntosh & Mongeon, 2003; Robinson, 1996; Taunton et al., 1997; Turnley & Feldman, 1998) and 10 were ITL-specific tools (Dimattio et al., 2010; Fisher et al., 1994; Gagnon, Ritchie, Lynch, Drouin, Cass, Runfret, Rouleau & Lavois, 2004; Liou & Cheng,

2010; McCarthy et al., 2007; O'Reilly, Chatman & Caldwell, 1991; Price, 2001; Price & Mueller, 1981a,b; Stewart et al., 2010; Waltz, Strickland & Lenz, 1991). Thirty-two studies reported the survey questions used to determine staying or leaving intentions. The common question to elicit feedback on *intent to stay* was the intent to remain in one's current position with modifications for specified periods of time, generally timeframes of one to three years. The most common question related to *intent to leave* targeted the employee's plans to exit his/her current position within a specified period of time, usually a timeframe of one to three years. Generally, one to four questions were asked. The number of intention questions per study varied between one question (16 studies), two questions (five studies), three questions (two studies), four questions (five studies), and five questions or more (five studies). A Likert-type scale (a rating scale of one to five, with "strongly disagree=1" and "strongly agree=5") was generally used to establish the intensity of responses: included studies used either a five point Likert-type scale (14 studies); four point Likert-type scales (four studies); or a six point Likert-type scale (one study). One study used a visual analogue of a line 100mm long; the longer the line, the stronger the response (Longo & Lynn, 2009). Fourteen studies reported instrument reliability with Cronbach's alpha coefficients ranging from 0.73 to 0.89. The intention focus of included studies was divided with 20 addressing ITS, 19 investigating ITL and four assessing both ITS and ITL (Chan & Morrison, 2000; Hayhurst, Saylor & Stuenkel, 2005; Ingersoll et al., 2002; McCarthy et al., 2007). Of the ITS-focused studies, five studies reported on ITS but measured ITL (Borda & Norman, 1997; Ellenbecker, Samia, Cushman & Porell, 2007; Kosmoski & Calkin, 1986; Longo & Lynn, 2009; Ma, Lee, Yang & Chang, 2009). One ITL-focused study used a question that measured ITL to report on ITS (Chen et al., 2008). The studies that investigated both ITS and ITL reported measuring both concepts within the study; two of these studies did not state the exact questions used to measure the concepts (Chan & Morrison, 2000; McCarthy et al., 2007).

Predictors of Intent to Stay and Leave

Intent to stay and intent to leave shared a number of common predictors with opposite directional effects or relationships. *Organizational commitment* has been identified as one of the major positive predictors of intention to stay (Ingersoll et al., 2002; Tallman & Bruning, 2005;

Taunton et al., 1997; Tourangeau & Cranley, 2006) and a negative predictor of intent to leave (Apker, Propp & Ford, 2009; Ingersoll et al., 2002; Lynn & Redman, 2005; Stone et al., 2007). *Job satisfaction* was positively related to intent to stay (AbuAlRub, Omari & Al-Zaru, 2009; Borda & Norman, 1997; Boyle et al., 1999; Chen et al., 2008; Dimattio et al., 2010; Ellenbecker et al., 2007; Gregory et al., 2007; Ingersoll et al., 2002; Larrabee et al., 2010; Ma et al., 2009; McCarthy et al., 2007; Simon et al., 2010; Sourdif, 2004; Taunton et al., 1997; Tourangeau & Cranley, 2006) and negatively related to intent to leave (Larrabee et al., 2003; Ma et al., 2009; Rambur et al., 2003; Zurmehly et al., 2009). Other common predictors of ITS and ITL were *access to resources* (Chen et al., 2008; Nedd, 2006), *age* (El-Jardali, Merhi, Jamal, Dumit, & Mouro, 2009; Kovner et al., 2009; Larrabee et al., 2010; Letvak & Buck, 2008; Ma et al., 2009; Mrayyan, 2008b; Zurmehly et al., 2009), *autonomy* (Boyle et al., 1999; Estryn-Behar et al., 2010; Taunton et al., 1997; Yildiz, Ayhan & Erdogmus, 2009), *education* (Kosmoski & Calkin, 1986; Larrabee et al., 2010; Rambur et al., 2002; Stewart et al., 2010; Sourdif, 2004; Tourangeau & Cranley, 2006), *empowerment* (Larrabee et al., 2003; Nedd, 2006; Taunton et al., 1997; Zurmehly et al., 2009), *group cohesion* (AbuAlRub, 2010; AbuAlRub et al., 2009; Apker et al., 2009; Boyle et al., 1999; Lavoie-Tremblay et al., 2008; Longo & Lynn, 2009; Lynn & Redman, 2005; Taunton et al., 1997; Tourangeau & Cranley, 2006; Yildiz et al.,2009), *job stress* (Gardulf, Soderstrom, Orton, Eriksson, Arnetz & Nordstrom, 2005; Larrabee et al., 2010; Lavoie-Tremblay et al., 2008; Letvak & Buck, 2008; Stewart et al., 2010; Taunton et al., 1997), *kinship responsibility* (AbuAlRub, 2010; Chen et al., 2008; Estryn-Behar et al., 2010; McCarthy et al., 2007), *liking nursing work* (Kosmoski & Calkin, 1986; Kunviktikul et al., 2000; Taunton et al., 1997; Yildiz et al., 2009), *mentoring* (Apker et al., 2009; Yoder, 1995), *opportunity elsewhere* (Boyle et al., 1999; Gardulf et al., 2005; Stone et al., 2007; Taunton et al., 1997), *pay* (Estryn-Behar et al., 2010; Gardulf et al., 2005; Ingersoll et al., 2002; Kosmoski & Calkin, 1986; Kovner et al., 2009; Kunviktikul et al., 2000; Stone et al., 2007), *physical load* (Estryn-Behar et al., 2010; Ingersoll et al., 2003), *position status* (AbuAlRub, 2010; Kosmoski & Calkin, 1986; Rambur et al., 2003; Tourangeau & Cranley, 2006), *professional opportunities* (Boyle et al., 1999; Chen et al., 2008; Gardulf et al., 2005; Kunviktikul et al., 2000; Lynn & Redman, 2005; Nedd, 2006; Stone et al., 2009; Taunton et al.,

1997; Yildiz et al., 2009; Zurmehly et al., 2009), *quality of care* (Estryn-Behar et al., 2010; Letvak & Buck, 2008; Ma et al., 2009; Rheaume, Clement & LeBel, in press), *satisfaction with administration* (Lynn & Redman, 2005; Taunton et al., 1997; Sourdif, 2004), *supervisor support* (AbuAlRub, 2010; AbuAlRub et al., 2009; Chen et al., 2008; Gardulf et al., 2005; Kunviktikul et al., 2000; Lavoie-Tremblay et al., 2008; Longo & Lynn, 2009; Sourdif, 2004; Yildiz et al., 2009), and *workload* (Chen et al., 2008; Lynn & Redman, 2005).

Predictors specific to intent to stay were *culture* (Gregory et al., 2002), *distributive justice* (Boyle et al., 1999; Chen et al., 2008; Taunton et al., 1997), *managerial environment* (Fisher et al., 1994; Longo & Lynn, 2009; Mrayyan, 2008b; Simon et al., 2010; Taunton et al., 1997), *manager position influence and power* (Boyle et al., 1999), *praise and recognition* (Tourangeau & Cranley, 2006), *tenure* (Fisher et al., 1994; Gardulf et al., 2005; Kosmoski & Calkin, 1996; Larrabee et al., 2010; Letvak & Buck, 2008; Tourangeau & Cranley, 2006), *ties to the community* (Tallman & Bruning, 2005), and *trust* (Gregory et al., 2002).

Predictors strongly correlated with intent to leave included *satisfaction with scheduling* (El-Jardali et al., 2009; Estryn-Behar et al., 2010; Stewart et al., 2010; Yildiz et al., 2009), *perceived risk of assault or violence* (Roche, Diers, Duffield, & Catling-Paul, 2010; Tallman & Bruning, 2005), *time pressures* (Estryn-Behar et al., 2010), and *unacceptable work environment* (Estryn-Behar et al., 2010; Yildiz et al., 2009). See Table 5 - Studies and associated ITS and ITL predictors and Figure 1 – Predictors of ITS and ITL.

Chan and Morrison (2000) analyzed the ranking of reasons that nurses gave for their behavioral intentions. They noted liking or disliking nurses' work as an important determinant of intention. They also found that nurses' responses with different expressed intentions were very dissimilar. For example, views on staffing levels and pay, while ranked in the top 15 for both groups, were at opposite ends of the spectrum. *Leavers* rated staffing adequacy as the second priority and *stayers* as their fifteenth priority. They also reported that nurses who identified their intentions to stay and those who indicated they would be leaving did not exhibit scaled responses to predictors, nor did they perceive the quality of the work environment to be the same. Nurses who planned to stay identified very different priorities for their intentions than those who planned

to leave the organization. Hayhurst et al. (2005) found a difference in nurses' perceptions of the work environment among those who remained with the organization and those who left. The personal attributes of those who remained differed from those who departed. For example, stayers exhibited higher mental-energy scores than leavers (Gardulf et al., 2005). Nurses experiencing high levels of conflict were less satisfied. This dissatisfaction was evident in their perceptions of pay, career and educational opportunities, and management (Chan & Morrison, 2000; Kunaviktikul et al., 2000). Studies reviewed did not consistently identify converse responses to predictors. While highly satisfied nurses were associated with the intention to stay (Ellenbecker et al., 2007; Irvine & Evans, 1995), researchers also found that dissatisfied nurses did not always express intentions to leave the organization (Wilson, 2006) and satisfied nurses did not always stay (Borda & Norman, 1997). Additionally, satisfied nurses occasionally expressed intentions to leave the organization (Gardulf et al., 2005).

Several studies found equivocal outcomes. Increasing age was generally associated with ITS, yet two studies (Liou & Cheng, 2010; Simon et al., 2010) found the opposite direction of effect. *Kinship responsibilities*, having children at home (AbuAlRub, 2010) and family support (Chen et al., 2008), were positively associated with ITS, while family needs (Estryn-Behar et al., 2010) and not having children were associated with ITL. Chen et al. (2008) found *pay* to have a nonsignificant relationship with ITS when job satisfaction was entered into the multiple regression analysis, yet dissatisfaction with pay was reported as a primary reason for ITL (Estryn-Behar et al., 2010; Gardulf et al., 2005). Lynn and Redman (2005) found *satisfaction with administration* to be positively associated with ITL, while Taunton et al. (1997) and Sourdif (2004) found satisfaction with administration to be positively associated with ITS. Lynn and Redman (2005) also reported *supervisor support* to be positively associated with ITL while other researchers found opposite outcomes. *Professional opportunities* were generally reported as positively predictive of ITS, yet Gardulf et al. (2005) found that it was positively associated with ITL.

Discussion

Distinction between Concepts

Stated intentions to stay or leave are deliberate choices that lead to opposite premeditated

behaviors. Staying or leaving appear to be opposite ends of one continuum; that is, as the intent to stay goes up, the intent to leave goes down and vice versa. While this is true for a large number of predictors of ITS and ITL, there are predictors that have not been found to have this inverse relationship. The identification of concept-specific indicators implies that other causal forces lead to different intention outcomes. This may include such things as the context of the environment, perception of personal responses and cultural norms specific to the situation, environment or person. Researchers have generally viewed intention statements to be based on satisfiers in the work environment. When there are more satisfiers, staff stay and when satisfiers are minimal or absent, staff leave. Some inconsistencies in the literature suggest that the development of intentions is much more complex. Satisfiers are not the only determinants of intentions; other factors influence the development of behavioral intentions. Internal and external processes determine the intention decision that is made. The systematic review identified both common and specific predictors of both intentions. The identification of predictors specific to each concept does not prove that they are discrete concepts, but supports the view that they may be, and identifies the need for further examination. An increased understanding of the factors that influence the development of intentions is needed. Approaching ITS and ITL as separate yet correlated concepts will assist in increasing that understanding and has implications for measuring concepts, nursing research and nursing practice.

Measures of ITS and ITL

Measures that employ a scaled response appear to consistently measure both intent to stay and intent to leave. Six studies measured on either ITS or ITL, and reported on the other concept, implying that the concepts are the inverse of one another and could be measured by the same question. It is unclear if this approach is appropriate or not. Two of the four studies that measured both ITS and ITL in the same study used different questions to determine the intention, and arrived at different predictors of each concept, suggesting that the concepts were not opposite sides of one coin.

Implications for Nursing Research

The literature included many predictors of intent to stay and intent to leave. While the

concepts of ITS and ITL appear to be more or less of one dimension, the intentions that lead to staying or leaving may potentially be quite different. Borda and Norman (1997) reported that it is the behavioral intention that acts as a transitional link between staying and leaving. The development of the intention component of staying or leaving may be a concept that requires further investigation. Future research should also focus on factors that influence the development of attitudes towards staying or leaving. In order to compare and contrast the predictors of each concept, research is needed that examines ITS and ITL within the same study. Questions specific to ITS or ITL should be used to determine staying or leaving intentions. Examining and statistically testing the relationship between predictors of ITS and ITL with the development of intentions of staying or leaving will strengthen the understanding of both concepts. Further examination of the development of the intentions leading to each concept and the investigation of ITS and ITL as separate but correlated entities will illuminate the multi-dimensionality of each concept, and validate, disprove or build on previous nursing knowledge.

The development and testing of conceptual models of ITS and ITL that investigate the specific causal predictors of each concept is warranted. Studies have generally focused on why nurses leave versus why they stay. Systematic reviews of the literature that focus on factors that influence staying and subsequent retention are needed. Examining both ITS and ITL within the same study will add to the body of knowledge pertaining to intentions to stay or leave and will help to clarify and confirm the distinctness of the concepts. Enhancing quantitative research findings with qualitative methods will help to articulate what factors contribute to clinical nurses' intent to stay in their current positions. Nursing research that identifies modifiable factors of work environments that can be implemented and tested in the practice environment will strengthen the evidence for effectiveness of retention strategies for nurses.

Implications for Nursing Practice

External factors that are potentially within the control of organizations have been found to positively affect clinical nurses' intent to remain in their current positions. Structuring the work environment such that it is conducive to the formation of intentions to stay may reduce turnover and increase staff nurse retention. Healthcare organizations that have competitive pay structures,

employee recognition programs, effective staff orientation programs, strong educational opportunities, internal succession planning and promotion of employee career development should have clinical nurses with greater intentions to remain in their current positions. The integration of nursing research outcomes into the practice environment may also support intentions to stay. Relational leadership that is focused on the needs of individual nurses and cognizant of generational differences will positively affect clinical nurses' desire to stay (Cummings, MacGregor, Davey, Wong, Lo, Muise & Stafford, 2010). Endorsement and development of relational leadership practices within the organization will lead to the perception of supportive, quality work environments (Cummings et al., 2010).

Limitations of the Review

The literature has not identified many of the causal sequences of relationships among factors influencing ITS and ITL. Inconsistencies in study outcomes may be attributed to a number of methodological challenges between studies, including different study populations, cultures and settings, methods of analysis, operational definitions, theoretical frameworks and causal understanding. Very few studies have examined both ITS and ITL and none have explored the distinctions between the two concepts. Of note is that the predictors of ITS and ITL cited in this article were arrived at primarily through correlational studies and identified relationships between variables. Statements of causation could not be made by the majority of studies. As the studies do not share a causal homogeneity, claims of causation and synthesis of study results must be interpreted with great caution.

Conclusion

The purpose of this paper was to describe the theoretical and measurement distinctions and similarities between intent to stay and intent to leave. The systematic review confirmed the practice of viewing ITS and ITL as inverse to each other and potentially opposite ends of a continuum. It also brought into question the continued application of this view in research and highlighted the need to further explore how intentions to stay or leave are formed. Different factors appear to drive and affect nurses' intentions to remain with or exit from an organization. Valid and reliable instruments are available in the literature to measure both ITS and ITL.

Researchers should use instruments and questions specific to the intention of each investigation. Testing of the causal implications of identified predictors of ITS and ITL have not been routinely published in the literature. Intent to stay and intent to leave are potentially theoretically diverse and distinct concepts. They should not be used interchangeably and should be defined and studied as separate entities within retention and turnover studies. An appreciation of the distinctness of both concepts will increase the understanding of behavioral intentions and facilitate the management of intentions prior to an exit from the organization. Understanding the reasons nurses choose to stay, in contrast to why they leave, will help the nurse manager build upon and sustain those intentions. The global nursing shortage should be an impetus for increased research in this area.

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Table 3-1

Search Strategy ITS/ITS

Database 1985 – February 2011	Search Terms	Number
CINAHL	intent to stay OR intent to leave AND nursing position, nursing	151
Medline	intent to stay OR intent to leave AND nursing	103
SCOPUS	intent to stay OR intent to leave AND nursing position	129
PsychINFO	intent to stay OR intent to leave AND nursing position	118
Manual Search		17
Total abstract and titles reviewed		501
Total abstract and titles reviewed (duplicates removed)		300
Total articles retrieved and screened for inclusion		58
First Selection of Studies after quality assessment		43
Second Selection of Studies after quality assessment		43

Table 3-2 - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
AbuAlRub International Journal Review Jordan 2010	275 nurses in 3 hospitals	Researcher developed questionnaire	30 items	.75 - .81	Prior research	Stepwise regression
AbuAlRub et al. International Journal Review Jordan 2009	483 nurses in 8 hospitals	McCloskey/Mueller Satisfaction Scale (Mueller & McCloskey, 1990) Social Support Scale (Sargent & Terry, 2000) McCain's Intent to Stay Scale (McCloskey & McCain, 1987)	31 items 12 items 5 items	.88 .78 - .79 .73	Prior research	Pearson moment correlation t-tests
Apker & Propp Health Communications USA 2009	201 nurses in 1 hospital	Nurse-Team Communication Inventory (Propp et al., 2005) Intent to Leave Scale (O'Reilly, et al., 1991)	65 items 4 items	.88 - .97 .83	Focus interviews CFA Prior research	Regression
Borda & Norman International Journal of Nursing Studies Malta 1997	171 RNs in 1 hospital	Researcher developed questionnaire	Not reported	Not reported	Prior research	Spearman's correlation coefficients
Chan & Morrison Nursing & Health Sciences Singapore 2000	120 RNs in 1 hospital	Researcher adapted tool (Battersby et al., 1990)	Not reported	Not reported	Expert panel Pilot questionnaire	SPSS Descriptive statistics

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Chen et al. International Journal of Nursing Studies Taiwan 2008	308 RNs in 1 hospital	Researcher developed tool based on: Positive/Negative Affectivity (Watson et al., 1987) Distributive Justice Scale (Price, 2001)	 10 items 6 items	.60 - .88	Back translation Committee approach Factor loading Prior research	Exploratory factor analysis Multiple regression Hierarchical linear regression
Dimattio et al. Journal of Professional Nursing USA 2010	390 BSN grads from one university	Researcher developed intent to leave survey Practice Environment Scale – Nursing Work Index (Lake, 2002)	3 items 31 items	Not reported .80 - .87	Prior experience Prior research	Descriptive statistics Chi-square t-tests
El-Jardali et al. BMC Nursing Lebanon 2009	1793 nurses in 69 hospitals	Researcher developed questionnaire	Not reported	Not reported	Research panel review Back translation Survey Pilot	Pearson Chi-square t-test ANOVA Multinomial logistic regression
Ellenbecker et al. Home Health Care Services Quarterly USA 2007	2459 nurses in 123 certified home health agencies	Home Healthcare Nurse Job Satisfaction Scale (Ellenbecker & Byleckie, 2005)	30 items	Not reported	Previous research (Ellenbecker & Byleckie, 2005)	Multivariate regression
Estryn-Behar et al. Nursing Research Europe 2010	34587 nurses in 623 hospitals across 8 European countries	European Nurses' Early Exit Study (Hasselhorn et al., 2003)	63 items	Not reported	Not reported	Pearson's Chi-square test

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Fisher et al. JONA USA 1994	524 RNs in 8 adult acute care hospitals	Managerial Environment Scale (Tomey et al., 1990) Intent to Leave Scale - researcher developed	20 items 5 items	.90 .90	Prior research (Tomey et al., 1990; Graham, 1982)	ANOVA Factor analysis Logistic regression
Gardulf et al. Journal of Nursing Management Sweden 2005	449 nurses at 1 hospital	Huddinge University Model Questionnaire Quality Work Competence (Arnetz & Arnetz, 1996)	19 items 12 items	Not reported .70 - .94	Pilot questionnaire feedback	Mann-Whitney U-test Kruskal-Wallis test
Hayhurst et al. Journal of Nursing Care Quality USA 2005	272 RNs in 1 hospital	Moos' Work Environment Scales (Moos, 1994)	90 items	Not reported	Prior research	Descriptive correlational statistics t-tests
Ingersoll et al. Journal of Nursing Administration USA 2002	1257 nurses in 6 counties in 1 state	Organizational Commitment Questionnaire (Mowday et al., 1979) Index of Work Satisfaction (Stamps & Piedmonte, 1986)	9 items 44 items	.78 .74	Prior research CFA Prior research	ANOVA Chi-square Multiple regression
Kosmoski & Calkin Research in Nursing & Health USA 1986	214 RNs in 12 hospitals	Researcher developed questionnaire based on work of Collins (1974), Price & Mueller (1981a), Smith et al. (1969), Van de Ven & Ferry (1980)	186 items	.63 - .90	Prior research	Pearson product moment correlations Multiple regression

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Kovner et al. Nursing Economics USA 2009	3380 RNs who passed the National Council Licensure examination in one specific year (2004/05)	Researcher developed questionnaire based on work of Price (2001), Gurney, (1990), Frone et al. (1997), Lake (2002), Spector & Jex (1998), Watson & Tellegen (1985)	22 items	.63 - .94	Prior research	Ordered probit
Kunaviktikul et al. Nursing & Health Sciences Thailand 2000	354 nurses in 4 hospitals	Thomas-Kilman Conflict Management of Differences Exercise instrument (Thomas & Kilman, 1974), Job Descriptive Index (Smith et al., 1985), Job in General (Smith et al., 1985), Conflict questionnaire (Keawthonkam, 1996), Researcher developed demographic and intent to stay and turnover surveys	Not reported	.65 - .92	Prior research, expert panel	Pearson product moment correlation McNemar test

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Larrabee et al. JONA USA 2003	90 RNs on 5 units in 1 hospital	Work Quality Index (Whitley & Putzier, 1994) Intent to Leave (Price & Mueller,1981b) Multifactor Leadership Questionnaire (MLQ-5X-Short) (Bass & Avolio, 1995) Group Cohesion Scale (Good & Nelson, 1973)	38 items 1 item 9 items 6 items	.58 - .94 Not reported .74 - .94 .82	Factor Analysis	Descriptive Statistics ANOVA Multivariate regression Logistic regression Stepwise multiple Regression
Lavoie-Tremblay et al. Journal of Nursing Management Canada 2008	309 RNs in 1 province	Job Content Questionnaire (Karasek et al., 1998)	29 items	.68 - .85	Factor Analysis	Chi-square
Letvak & Buck Nursing Economics USA 2008	323 RNs in 3 hospitals	Researcher developed Questionnaire. Health Professional Stress Inventory (Wolfgang, 1988). Work Productivity & Activity Impairment Questionnaire: General health (Loeppke et al., 2003). Intent to Stay (Boyle et al., 1999)	Not reported 30 items Not reported 1 item	Not reported	Prior research	Regression

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Liou & Cheng Journal of Clinical Nursing Taiwan 2010	486 RNs in 8 hospitals	Organizational Climate Questionnaire (Litwin & Stringer, 1968)	50 item	.74	Principal component analysis	Descriptive analysis One-way ANOVA t-tests Mann Whitney Pearson correlation Multiple regression
		Organizational Commitment Questionnaire (Mowday et al., 1979)	15 item	.88	Prior research	
		Researcher developed Intent to Leave Scale	5 item	.73	Principal component analysis	
Longo & Lynn International Journal of Human Caring USA 2009	99 RNs in 1 hospital	McCloskey/ Mueller Satisfaction Survey	31 items	.90	Not reported	Correlation coefficients
		Intent to Leave (Waltz et al., 1991)	2 items	.87		
		Organizational Climate for Caring Scale (Hughes, 1998)	39 items	.98		
		Peer Group Caring Interaction Scale (Hughes, 1998)	Not reported	.95		
Lynn & Redman JONA USA 2005	787 nurses in 8 states	Intent to Leave (Price & Mueller,1981b)	6 items	.88	Prior research (Price & Mueller, 1981) Expert panel	Stepwise multiple regression
		Satisfaction in Nursing Scales (Lynn, 1986)	54 items	.87 - .92		
		Organizational Commitment Questionnaire (Mowday et al., 1979)	5 items	.76	Not reported	

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Ma et al. Nursing Economics Taiwan 2009	1016 RNs from 4 hospitals	Researcher developed questionnaire	14 items	Not reported	Not reported	Chi-square t-tests Logistic regression
McCarthy et al. Journal of Nursing Management Ireland 2006	352 RNs at 10 hospitals	Study specific questionnaire	Not reported	Not reported	Not reported	Logistic regression
Mrayyan Journal of Nursing Research Jordan 2008	None	Nursing Practice Environmental Scale (Farley & Nyberg 1990) McCain's Behaviour Commitment	60 items Not reported	.85 .75	Not reported	Descriptive statistics Regression analysis
Nedd Nursing Economics USA 2006	206 RNs in 1 state	Job Activities Scale (Laschinger et al., 1993) Organizational Relationship Scale (Laschinger et al., 1993) Conditions for Work Effectiveness Questionnaire (Chandler, 1987) Untitled Intent to Stay Kim, Price, Mueller & Watson, (1996)	9 items 18 items 31 items 4 items	.81 .92 .96 .86	Not reported	Pearson's product-moment correlation coefficients

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Rambur et al. Nursing Outlook USA 2003	4418 RNs in 1 state	Vermont State Board of Nursing Survey	29 items	Not reported	Not reported	Chi-square t-tests Stepwise logistical regression
Rheaume et al. International Journal of Nursing Studies Canada In press	348 nurses in one province	Empowerment Scale (Menon, 2001) Practice Environment Scale (PES-NWI) (Lake, 2002) Intent to Leave Question (Gagnon et al., 2004)	9 items 31 item 1 item	Not reported Not reported Not reported	Prior research Prior research	ANOVA t-tests Stepwise multiple regression
Roche et al. Journal of Nursing Scholarship Australia 2010	2487 nurses in 21 hospitals	Nursing Work Index-Revised, NWI-R (Aiken et al., 2001) Environmental Complexity Scale (ECS) O'Brien-Pallas et al., 2004)	49 items 2 items	.63 - .83 .56 - .82	Not reported	Poisson Regression
Simon et al. Journal of Advanced Nursing Germany 2010	2119 RNs in 16 hospitals	NEXT questionnaire (Kummerling et al., 2003)	52 items	.67 - .91	Not reported	Generalized Linear mixed model (GLMM)

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Stewart et al. Journal of Rural Health Canada 2010	3051 RNs In 12 provinces/ territories	Researcher developed Intent to Leave Questionnaire Perceived stress scale (Stewart et al., 2005) Index of Work Satisfaction (Stamps, 1997)	1 item 4 item 30 items	.83 .83 .82 - 91	Prior research	Multiple regression
Sourdif, Nursing and Health Sciences Canada 2004	221 RNs in 1 hospital	Nurses' Intent to Stay Questionnaire (Taunton et al., 1997)	74 items	.70 - .91	Prior research	t-tests ANOVA Pearson's correlations Linear regression
Tallman & Bruning Health Care Manager Canada 2005	122 nurses in 13 hospitals	Adapted Intent to Stay questions (Robinson, 1996) Allen & Meyer (1996) Job Diagnostic Survey (Hackman & Oldman, (1980) Researcher developed interview questions	2 items 6 items 3 items 10 items	.80 .70 .80 .82	Prior research Interrater reliability	Exploratory factor analysis Principal components with varimax rotation Regression

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Tourangeau & Cranley Nursing & Healthcare Management Policy Canada 2006	8456 RNs & RPNs in 1 province	Ontario Nurse Survey which included: Nursing Work Index - Revised (Lake, 2002) McCloskey Mueller Satisfaction Scale (Mueller & McCloskey, 1990) Maslach Burnout Inventory (Maslach et al., 1996)	 49 items 31 items 22 items	 91 .56 - .80 .91	Past research (Tourangeau & McGilton, 2004)	Stepwise multiple regression
Yildiz et al. Applied Nursing Research Turkey 2009	936 nurses in 39 hospitals	Researcher developed questionnaire	31 items	.90	Test-retest	Regression
Yoder Nursing Research USA 1995	390 nurses in 7 clinical specialities	Alleman Mentoring Questionnaire (Alleman et al., 1987) Intent to Stay (Gurney, 1990; Price & Mueller, 1981b) Nursing Work Index (Kramer & Hafner, 1989)	100 items 5 items 2 items 65 items	.90 - .99 .89 .84 - .95	Expert review, interrater reliability Prior research	ANOVA Pearson product moment correlations

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Zurmehly et al. Journal of Nursing Management USA 2009	1355 RNs in the 16 counties in 1 state	Conditions of Work Effectiveness Questionnaire – II (Laschinger et al., 2000) Intent to stay, adapted from the RN Vermont survey (Rambur et al., 2003) Intent to Leave (McCarthy et al., 2007)	Not reported	.65 - .89	Prior research Pilot tests	ANOVA Pearson's correlation coefficient Multiple regression
Causal Modeling Study						
Boyle et al. American Journal of Critical Care USA 1999	255 ICU staff nurses in 4 hospitals	Researcher developed tool based on prior work of Price & Mueller (1981ab,1986) and Hinshaw et al. (1987)	20 items	.61 - .94	Reported as prior evidence of sound validity	Causal modeling path analysis
Gregory et al. Health Care Manager Review Canada 2007	343 RNs in 1 province	Employee Attitude Survey (EAS) which included: Collaborative Relations (Way, 1995) Organizational Commitment Questionnaire (Mowday, et al., 1979) Intent to Stay Scale (Turnley & Feldman, 1998)	 5 items 9 items 3 items	 .86 .92 .72	Factor analysis	Structural equation modeling

Table 3-2 Continued - Characteristics of Included Studies

Correlational Studies

Author(s) Journal Country & Year	Sample	Measurement/ Instruments	Scoring	Reliability Cronbach's α	Validity	Analysis
Larrabee et al. Western Journal of Nursing Research USA 2010	464 RNs in 5 hospitals in 1 state	Intent to Stay (Price & Mueller, 1981b) Work Quality Index (Whitley & Putzier, 1994) Job Stress (Hinshaw & Atwood, 1985) Psychological Empowerment (Spreitzer, 1995) Stress Resiliency Profile (Thomas & Tymon, 1994)	2 items 38 items 26 items 12 items 18 items	Not reported .95 .82 - .85 .88 .76 - .86	Prior research Factor Analysis Factor Analysis Factor Analysis	Correlation ANOVA Causal modeling
Stone et al. Health Research & Educational Trust USA 2007	837 nurses in 23 hospitals	Perceived Nurse Work Environment Scale (Choi et al., 2004)	42 items	.95	Prior research	Ordinary least squares Reduced form regressions Structural model
Taunton et al. Western Journal of Nursing Research USA 1997	95 Nurse Managers, 1171 RNs in 4 hospitals	Intent to Stay (Price & Mueller 1986) Ohio State University Leadership Behaviour Description Questionnaire (Kruse & Stogdill, 1973)	Not reported	.61 - .94	Not reported	Pearson's correlations Multiple regression Discriminant function analysis Causal modeling

Table 3-3 Summary of Quality Assessment (N=43 quantitative studies)

Intent to Stay and Intent to Leave Current Nursing Position

Design:	**No**	**Yes**
Was the study prospective?	2	41
Was probability sampling used?	35	8
Sample:		
Was sample size justified?	18	25
Was sample drawn from more than one site?	10	33
Was anonymity protected?	18	25
Response rate was more than 60%?	23	20
Measurement: **Intent to Stay or Leave Current Nursing Position**		
Are intentions to stay or leave measured reliably?	2	41
Was intent to stay or leave measured using a valid instrument?	9	34
If a scale was used for measuring effects, is internal consistency >=.70?	12	31
Was a theoretical model/framework used for guidance?	23	20
Statistical Analysis:	2	41
If multiple effects are studied, are correlations analyzed?	39	4
Are outliers managed?		

Overall Study Validity Rating (circle one) weak 3 moderate 29 strong 11
(Key 0-4=weak; 5-8=moderate; (9-12=strong)

(Adapted from Cummings et al., 2008)

Table 3-4 - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Access to resources	Chen et al. (200)	+	
	Nedd (2006)		–
Age	Dimettio et al. (2010)		NS
	El-Jordali et al. (2009)	+	
	Hayhurst et al. (2005)		–
	Ingersoll et al. (2002)		–
	Kovner et al. (2009)	+	
	Larrabee et al. (2010)	+	
	Letvak & Buck (2008)	+	
	Liou & Cheng (2010)		+
	Ma et al. (2009)		–
	Mrayyan (2008)	+	
	Simon et al. (2010)		+
	Stone et al. (2007)	+	
	Tourangeau & Cranley (2006)	+	
	Zurmehly et al. (2009)		–
Autonomy	Boyle et al. (1999)	+	
	Estryn-Behar et al. (2010)		–
	Taunton et al. (1997)	+	
	Yildiz et al. (2009)	+	
Burnout	Simon et al. (2010)		+

*Positive or increasing values of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Control over practice	El-Jardali et al. (2009)		–
	Larrabee et al. (2003)		–
	Taunton et al. (1997)	+	
Culture	Gregory et al. (2002)	+	
Distributive justice	Boyle et al. (1999)	+	
	Chen et al. (2008)	+	
	Taunton et al. (1997)	+	
Education	Kosmoski & Calkin (1986)	–	
	Larrabee et al. (2010)	–	
	Rambur et al. (2003)		+
	Stewart et al. (2010)		+
	Tourangeau & Cranley (2006)	–	
	Sourdif (2004)	–	
Emotional abuse	Roche et al. (2009)		+
Empowerment	Larrabee et al. (2003)		–
	Nedd (2006)	+	
	Taunton et al. (1997)	+	
	Zurmehly et al. (2009)		–

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Group cohesion	AbuAlRub (2010)	+	
	AbuAlRub et al. (2009)	+	
	Apker et al. (2009)		–
	Boyle et al. (1999)	+	
	Lavoie-Tremblay et al. (2008)	+	
	Longo & Lynn (2009)	+	
	Lynn & Redman (2005)		–
	Taunton et al. (1997)	+	
	Tourangeau & Cranley (2006)	+	
	Yildiz et al. (2009)		–
Job satisfaction	AbuAlRub (2009)	+	
	Borda & Norman (1997)	+	
	Boyle et al. (1999)	+	
	Chen et al. (2008)	+	
	Dimettio et al. (2010)	+	–
	Ellenbecker et al. (2007)	+	
	Gregory et al. (2007)	+	
	Ingersoll et al. (2002)	+	
	Kosmoski & Calkin (1986)	+	
	Larrabee et al. (2003)		–
	Larrabee et al. (2010)	+	
	Letvak & Buck (2008)	+	

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Job satisfaction continued	Ma et al. (2009)	+	–
	McCarthy et al. (2007)	+	
	Rambur et al. (2003)		–
	Simon et al. (2010)	+	
	Sourdif (2004)	+	
	Taunton et al. (1997)	+	
	Tourangeau & Cranley (2006)	+	
	Zurmehly et al. (2009)		–
Job stress	Gardulf et al. (2005)		+
	Larrabee et al. (2010)	–	
	Lavoie-Tremblay et al. (2008)		+
	Letvak & Buck (2008)	–	
	Stewart et al. (2010)		+
	Taunton et al. (1997)	–	
Kinship responsibility	AbuAlRub (2010)	+	
	Chen et al. (2008)	+	
	Estryn-Behar et al. (2010)		+
	McCarthy et al. (2007)	+	–
Liking nursing work	Kosmoski & Calkin (1986)	+	
	Kunaviktikul et al. (2000)	+	
	Taunton et al. (1997)	+	
	Yildiz et al. (2009)		–

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Managerial environment	Fisher et al.(1994)	+	
	Longo & Lynn (2009)	+	
	Mrayyan (2008)	+	
	Simon et al. (2010)	+	
	Taunton et al. (1997)	+	
Manager's position, influence and power	Boyle et al. (1999)	+	
	Taunton et al. (1997)	+	
Mentoring	Apker & Propp (2009)		–
	Yoder (1995)	+	
On-call	Stewart et al. (2010)		+
Opportunity elsewhere	Boyle et al. (1999)	–	
	Gardulf et al. (2005)		+
	Stone et al. (2007)		+
	Taunton et al. (1997)	–	
Organizational commitment	Apker et al. (2009)		–
	Ingersoll et al. (2002)	+	–
	Lynn & Redman (2005)		–
	Stone et al. (2007)		–
	Tallman & Bruning (2005)	+	
	Taunton et al. (1997)	+	
	Tourangeau & Cranley (2006)	+	

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Satisfaction with pay	Estryn-Behar et al. (2010)		–
	Gardulf et al. (2005)		–
	Ingersoll et al. (2002)	+	
	Kosmoski & Calkin (1986)	+	
	Kovner et al. (2009)	+	
	Kunaviktikul et al. (2000)	+	
	Stone et al. (2007)	+	
Physical load	Estryn-Behar et al. (2010)		+
	Gardulf et al. (2005)		+
	Ingersoll et al. (2009)	–	+
Position (full-time)	AbuAlRub (2010)	+	
	Tourangeau & Cranley (2006)	+	
Position (part-time)	Kosmoski & Calkin (1996)	+	
	Rambur et al. (2003)		–
Praise and recognition	Tourangeau & Cranley (2006)	+	
Professional commitment	Simon et al. (2010)	+	
Psychological demands	Lavoie-Tremblay et al. (2008)		+

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Professional opportunities	Boyle et al. (1999)	+	
	Chen et al. (2008)	+	
	Gardulf et al. (2005)		+
	Kunaviktikul et al. (2000)	+	
	Lynn & Redman (2005)		–
	Nedd (2006)	+	
	Stone et al. (2009)		–
	Yildiz et al. (2009)		–
	Taunton et al. (1997)	+	
	Zurmehly et al. (2009)		–
Quality of care	Estryn-Behar et al. (2010)		–
	Gardulf et al. (2005)		–
	Letvak & Buck (2008)	+	
	Ma et al. (2009)	+	–
	Rheaume et al. (in press)		–
Risk of assault/violence	Roche et al. (2010)		+
Routinization	Taunton et al. (1997)	+	
Satisfaction with administration	Lynn & Redman (2005)		+
	Taunton et al. (1997)	+	
	Sourdif (2004)	+	

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Satisfaction with scheduling	El-Jardali et al. (2009)		–
	Estryn-Behar et al. (2010)		–
	Stewart et al. (2010)		–
	Yildiz et al. (2009)		–
Staffing (inadequacy)	Dimettio et al. (2010)		+
	Estryn-Behar et al. (2010)		+
Supervisor support	AbuAlRub (2010)	+	
	AbuAlRub et al. (2009)	+	
	Chen et al. (2008)	+	
	Gardulf et al. (2005)		–
	Kunviktikul et al. (2000)	+	
	Lavoie-Tremblay et al. (2008)	+	
	Longo & Lynn (2009)		–
	Sourdif (2004)	+	
	Yildiz et al. (2009)		–

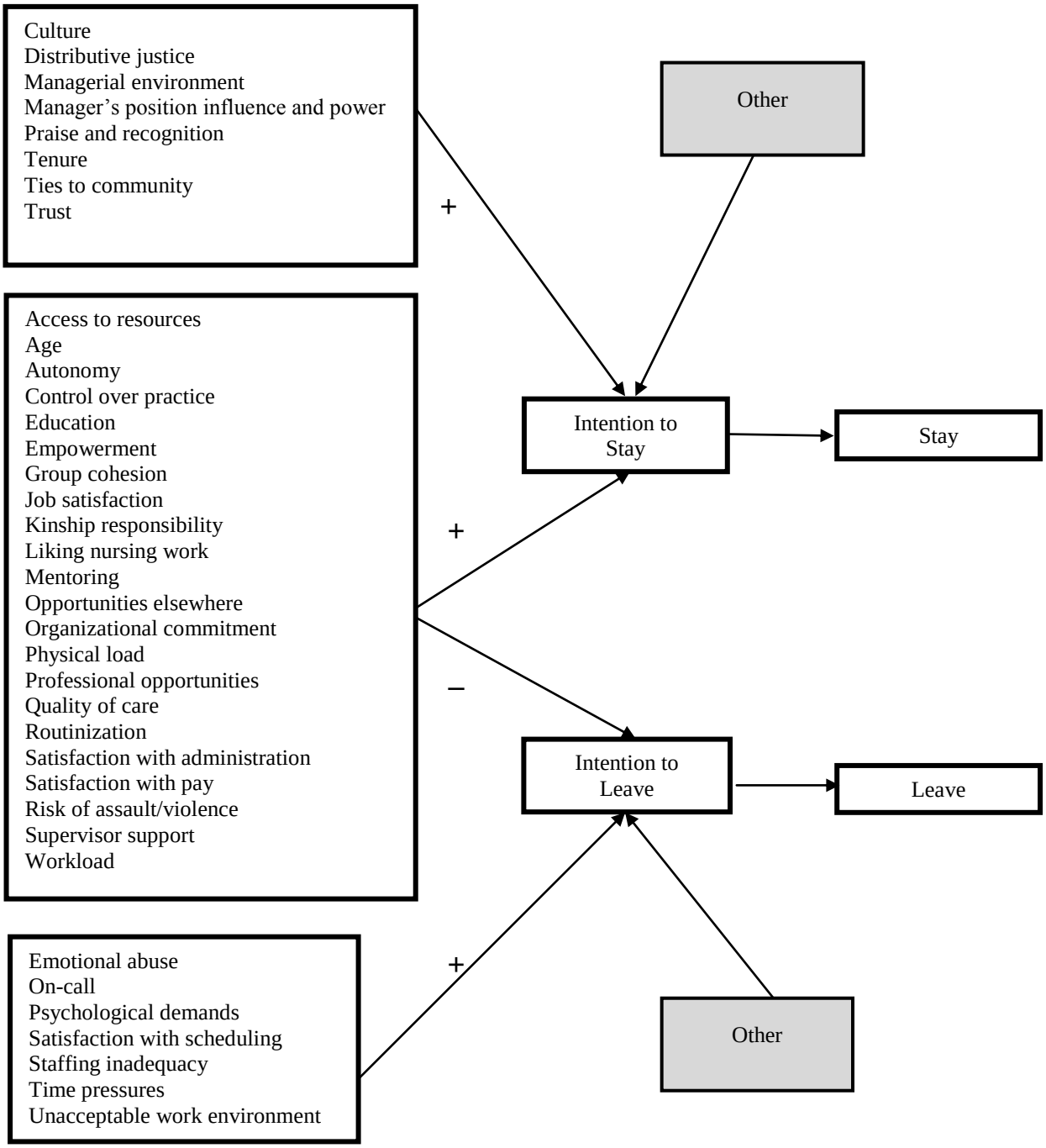
*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

Table 3-4 – Continued - Relationship of Identified Predictors with ITS and ITL by Category

Predictor	Sources	Significant Relationship with Intent to Stay	Significant Relationships with Intent to Leave
Tenure	Fisher et al. (1994)	+	
	Gardulf et al. (2005)	+	
	Kosmoski & Calkin (1996)	+	
	Larrabee et al. (2010)	+	
	Letvak & Buck (2008)	+	
	Liou & Cheng (2010)		+
	Tourangeau & Cranley (2006)	+	
Ties to community	Tallman & Bruning (2005)	+	
Time pressures	Estryn-Behar et al. (2010)		+
Trust	Gregory et al. (2002)	+	
Workload (fair)	Chen et al. (2008)	+	
	Lynn & Redman (2005)		–
Work environment (unacceptable)	Estryn-Behar et al. (2010)		+
	Yildiz et al. (2009)		+

*Positive or increasing levels of the predictor in the workplace results in the identified relationship with ITS/ITL

FIGURE 3-1
PREDICTORS OF INTENT TO STAY OR LEAVE



Appendix 3-A

Inclusion Screening Tool – Nurses' Intent to Stay or Intent to Leave Current Nursing Position

Study:
First Author:
Publication Date: Journal:

Instruction for completion:
Circle **Y**es or **N**o for each criterion

Study measures – Intent to stay or intent to leave current nursing position	**Y**	**N**
• Intent to stay		
• Intent to leave		
Study population is nurses	**Y**	**N**
Quantitative Study		
• Regression techniques	**Y**	**N**
• SEM		
The relationship between predictors and intent to stay or leave is evaluated	**Y**	**N**
Evidence of direction		
P values		
Statistics		
Study Design		

Include in Study
Comments

(Adapted from Cummings et al., 2008)

Appendix 3-B

Quality Assessment and Validity Tool for Correlational Studies
Intent to Stay and Intent to Leave Current Nursing Position

Study:_____
First Author:_____
Publication Date:_____
Journal:_____

Design:	**No**	**Yes**
Was the study prospective?	0	1
Was probability sampling used?	0	1
Sample:		
Was sample size justified?	0	1
Was sample drawn from more than one site?	0	1
Was anonymity protected?	0	1
Response rate was more than 60%?	0	1
Measurement: **Intent to Stay or Leave Current Nursing Position**		
Are intentions to stay or leave measured reliably?	0	1
Was intent to stay or leave measured using a valid instrument?	0	1
If a scale was used for measuring effects, is internal consistency >=.70?	0	1
Was a theoretical model/framework used for guidance?	0	1
Statistical Analysis:		
If multiple effects are studied, are correlations analyzed?	0	1
Are outliers managed?	0	1

Overall Study Validity Rating (circle one) low med high
(key 0-4=low; 5-9=med; (10-12=high)

(Adapted from Cummings et al., 2008)

Appendix 3-B Continued

Quality Assessment and Validity Tool for Correlational Studies
Intent to Stay and Intent to Leave Current Nursing Position

Definitions for Correlational Tool

Design:

(1) Was the design prospective?

Most studies are probably retrospective but prospective studies would be preferable.

(2) Was probability sampling used?

A random sample of some form or a systemic sample with a random start is acceptable. Most researchers probably used a convenience sample, i.e. studying all the patients available to them in one or more settings that agreed to participate, which is scored 0.

Sample:

(1) Was sample size justified?

Sample size is justified if it is based on appropriate power calculations (power=80), or follows other rules of thumb such as an N of at least 10 per IV studied. Even if researchers try to justify lower standards, a 0 is scored if these cut-offs are not met. This assessment is a judgment based on available information. Two rules of thumb will apply:

- If using a multivariate approach, 10 cases per IV are required; and
- If using several correlations or t-tests, a sample of 80 or more reflects adequate power.

Sample sizes that suggest very high power, e.g. because it is so large, will also be noted.

(2) Was sample size drawn from more than one site?

This refers to physical location – multiple groups belonging to the same system count as multisite. Several units within the same hospital do not count as multisite, but several hospitals within the same system or region do.

(3) Was anonymity protected?

If the researcher studied nurses in his/her own facility, the researcher may be able to determine the identity of the responders. Subjects who think their responses are identifiable tend to give more politically correct or socially desirable responses.

Appendix 3-B Continued

Response rate more than 60%?

Operationally defined as the number of people who participated divided by the number of people who were sampled (e.g. given or sent or offered a questionnaire). If not reported, information that allows calculation will be sought and the same rule applied.

Measurement:

Intent to Stay or Intent to Leave

(1) Are factors contributing to intent to stay measured reliably?
Are factors contributing to nurses' intent to stay or leave measured?

Statistical Analysis:

(2) If multiple factors contributing to intent to stay or leave were studied, study scored 0 if results reported using numerous bivariate statistics (e.g. reports multiple t's, r's, etc.).1 is scored if there was an attempt to explore relationships contributing to intent to stay, i.e. correlations are reported, multiple regression is used or interactions are reported (the discussion noted that specific predictors were or were not highly correlated with each other).

(3) Are outliers managed?

If not, relationship could be spurious. If one of the following was reported to decrease disproportionate effects of outliers, 1 is scored:

- Outliers removed:
- A technique used to moderate their effects (e.g. winsorizing, jackknifing):
- Non-parametric statistics used (Spearman's rho or MWU, etc)

Omitting any discussion of outliers or mentioning but not managing was scored as 0.

(Adapted from Cummings et al., 2008)

Appendix 3-C

Details of Excluded Studies

First author & year	Title	Main reason(s) for exclusion from review
Betkus &Macleod, 2004	Retaining public health nurses in rural British Columbia	Measured relationship between retention and ITS
Cavanagh, 1990	Predictors of nursing staff turnover	Sample not specific to clinical nurses, also included nurse managers
Cortelyou-Ward et al., 2010	The effect of work environment on intent to leave the nursing profession: a case study of bedside registered nurses in Florida	Measured intent to leave nursing profession not nursing position
Coward et al., 1995	Job satisfaction of nurses employed in rural and urban long-term care facilities	Focus on job satisfaction not intent to stay or leave
Cox et al., 2006	Know staff's "intent to stay"	Relationships not quantitatively measured
Estryn-Behar et al., 2007	The impact of social work environment, teamwork characteristics, burnout and personal factors upon intent to leave among European nurses	Measure intent to leave nursing profession, not nursing position Sample not specific to clinical nurses, also included head nurses, nursing aides, ancillary staff
Fitzpatrick et al., 2010	Certification, empowerment and intent to leave current position among critical care nurses	Sample not specific to only staff nurses
Lacey et al., 2009	Differences between pediatric registered nurses' perception of organizational support, intent to stay, workload, and overall satisfaction, and years employed as a nurse in magnet and non-magnet pediatric hospitals	Focus on differences between hospital type, not the predictors of ITS or ITL
Mrayyan, 2007	Jordanian nurses' job satisfaction and intent to stay	Focus on differences between hospital types and not predictors of ITS
Mrayyan, 2008	Hospital organizational climates and nurses' intent to stay; differences between units and wards	Focus on differences between units and wards and not predictors of ITS

Appendix 3-C - Continued

Details of Excluded Studies

First author & year	Title	Main reason(s) for exclusion from review
Mrayyan, 2009	Differences of hospital organizational climates and nurses' intent to stay: nurses' perspectives.	Focus on differences in organizational climates and not predictors of ITS
McIntosh et al., 2003	Older nurses: clues for retention	Measured self-reports of ITL but not predictors of ITL
Nogueras, 2006	Occupational commitment, education, and experience as a predictor of intent to leave the nursing profession	Measured intent to leave nursing profession not nursing position
Val Palumbo et al., 2009	Retaining an aging nurse workforce: perception of human resource practices	Measured perceptions of self – reported assessment of ITS, and HR practices in the workplace, but not relationships of predictors of ITS
Widerszal-Bazyl et al., 2008	The demand-control-support model and intent to leave across six European countries: The role of employment opportunities	Measured intent to leave nursing profession not nursing position

Chapter Four
Developing a Conceptual Model of Clinical Nurses' Intent to Stay (Paper #3)

Introduction

The global nursing shortage is resulting in the need to find multiple solutions to providing adequate numbers of nursing personnel. A variety of factors are identified as contributing to the nursing shortage. These include an aging labour force (Reineck & Furino, 2005; Storey, Cheater, Ford & Leese, 2009), fewer entrants into nursing programs, the quality of work environments and the perceived image of nursing (Goodin, 2003).

Nurses are leaving the profession. The Canadian Nurses Association (2009) reports an annual national exit rate from the profession of three percent, ranging from two to 11% across age groups. The highest exit rates occur in nurses between the ages of 25 to 34, at six percent and in nurses over 60 years of age, at 11% (Tomblin Murphy, Birch, Alder, MacKenzie, Lethbridge, Little & Cook, 2009).

Nurses are also leaving their current positions. Lavoie-Tremblay, O'Brien-Pallas, Gelinas, Desforges and Marchionni (2008) found that 61.5% of new nurses expressed their intent to leave their current position. Globally, nursing turnover rates range from 10 to 21% per year (El-Jardali, Merhi, Jamal, & Dumit, 2009), with countries such as the United States and Australia reporting turnover rates of over 20% per year (Hayhurst, Saylor & Stuenkel, 2005; Hegney, McCarthy, Rogers-Clark & Gorman, 2002). In Canada, the Canadian Nurses Association estimates a shortage of 60 000 RNs by 2022 (CNA, 2009). A reduction in the turnover rate to 2% per year would reduce that estimated shortage to 30 000 nurses (Tomblin Murphy et al., 2009). High turnover rates have negative consequences, including decreased staff morale and productivity (Hayes, O'Brien-Pallas, Duffield, Shamian, Buchan, Hughes, Laschinger, North & Stone, 2006), higher patient-to-nurse ratios (El-Jardali et al., 2009), lower quality of patient care (Aiken, Clarke & Sloane, 2002) and increased incidence of adverse patient outcomes (Needleman, Buerhaus, Mattke, Stewart & Zelevinsky, 2002). Retaining nurses in their current positions will reduce the magnitude of consequences associated with the nursing shortage.

A large research effort has been directed towards understanding nursing recruitment and turnover and, to a much lesser extent, nursing retention (Storey et al., 2009). Stated intentions to leave an organization or position are identified as a strong predictor of turnover (Kovner, Brewer,

Greene & Fairchild, 2009). Knowledge regarding the determinants of clinical nurses' intentions to remain in their position is still limited, although research has explained 12 to 52% of the variance in intent to stay (Boyle, Bott, Hansen, Woods & Taunton, 1999; Mrayyan, 2008; Taunton, Boyle, Woods, Hansen & Bott, 1997). Understanding why nurses choose to stay in their positions will enable nurse managers to identify factors in the work environment that influence their intentions and develop strategies to increase nurse retention rates.

The purpose of this paper is to describe a theoretical model of clinical nurses' intentions to stay. The model has been derived from empirical evidence and built on previous models reported in the literature. A review of the literature findings related to concepts associated with nurses' intent to stay is presented to illustrate their theoretical underpinnings in the proposed conceptual model.

Background

Intent to stay (ITS) is defined as the stated probability of an individual staying with the current organization (Boyle et al., 1999; Gregory, Way, LeFort, Barrett & Parfrey, 2007; Price & Mueller, 1981). ITS reflects a conscious and purposeful behavioral intention (Cho, Johanson & Guchait, 2009). Behavioral intention statements such as intentions to stay or leave have consistently been the strongest indicators of retention and turnover and account for more variance than any other predictor (Ellenbecker, 2004; Lum, Kervin, Clark, Reid & Sirola, 1998; Tai, Bame & Robinson, 1998). ITS is a good indicator of turnover (Hayes et al., 2006; Irvine & Evans, 1995; Parasuraman, 1989). ITS is an estimation of intent and not an observed behavior (Cavanagh, 1989).

Intent to stay and intent to leave (ITL) have not been studied as distinct concepts in the literature. Rather they have been used as interchangeable concepts in turnover and retention research (Kovner et al., 2009; Tallman & Bruning, 2005). Researchers have generally viewed ITS and ITL as opposite ends of one continuum; as the intent to leave increases, the intent to stay decreases and vice versa. The continued application of this outlook in research is questioned, based on the findings of two recent systematic reviews of the literature (Cowden, Cumming & Profetto-McGrath, in press; Cowden, Cummings & Profetto-McGrath, in review). Studies have

not consistently identified inverse relationships between predictors of intentions, suggesting that other causal forces influence the development of intentions, which merits the investigation of ITS and ITL as separate entities (Cowden, Cummings & Profetto-McGrath, in review).

Terms used in the literature to infer the same concept as intent to stay are *intent to leave* (Kovner et al, 2009; Lynn & Redman, 2005; Tallman & Bruning, 2005), *turnover intention* (McCarthy, Tyrrell & Lehane, 2007), *anticipated turnover* (Shader, Broome, Broome, West & Nash, 2001), *intent to work, desire to quit* (Brewer, Kovner, Greene & Cheng, 2009), *intention to remain, intention to quit* (Tallman & Bruning, 2005), and *behavioral intention* (Gregory et al., 2007).

ITS and ITL share some common predictors and both have a number of concept-specific predictors. A focus on how intentions to stay or leave are formed is paramount to understanding ITS and ITL. For the purposes of developing a new conceptual model of nurses' intentions to stay, the concept *intent to stay* is viewed as a separate concept from *intent to leave*.

The Development of the Model

The model incorporates concepts identified in the literature that contribute to the development of the behavioral intentions of clinical nurses to stay in their current positions. It expands on the model work of Boyle et al. (1999) and Tourangeau and Cranley (2006).

Predictors of Intent to Stay

A systematic review of the literature identified many predictors that influence clinical nurses' intention to remain in their current positions (Cowden, Cummings & Profetto-McGrath, in review). Predictors of nurses' intent to stay include: *organizational commitment* (Irvine & Evans, 1995; Lum et al., 1998; Tourangeau & Cranley, 2006); *job satisfaction* (Borda & Norman, 1997; Gregory et al., 2007; Tourangeau & Cranley 2006); *professional opportunity, pay* and *management style* (Stone, Mooney-Kane, Larson, Pastor, Zwanziger & Dick, 2009); *group cohesion* (Boyle et al., 1999; Hayhurst et al., 2005; Yildiz, Ayhan & Erdogmus, 2009); *trust* (Gregory et al., 2002; Wilson, 2005); *perceived supervisor support* (Cho et al., 2009; Hayhurst et al., 2005); *praise* and *recognition* (Storey et al., 2009; Tourangeau & Cranley, 2006); *perceived organizational support* (Cho et al., 2009); *resources*, *access to supports*, and *information needed*

to succeed in role (Wilson, 2006); *autonomy* (Chan & Morrison, 2000; Hayhurst et al., 2005; Storey et al., 2009); and *perceived manager position influence and power* (Boyle et al., 1999).

Organizational Commitment

Organizational commitment is identified as one of the major predictors of a nurse's intention to stay or leave (Irvine & Evans, 1995; Lum et al., 1998; Tourangeau & Cranley, 2006). It is defined as the strength of an individual's connection to the employer (Mowday, Steers & Porter, 1979; Tourangeau & Cranley, 2006), where strength is observed in the degree of acceptance and support of organizational goals and values, the employee's effort on behalf of the organization and the strength of the desire to remain as part of the organization (Wagner, 2007). Employees who put more effort into organizational goal achievement generally receive more rewards and, in turn, are more satisfied and have greater intentions of remaining with the organization (Chen, Chu, Wang & Lin, 2008). Commitment can be subdivided into three distinct themes of affective, normative and continued commitment (Allen & Meyer, 1990). Individuals remain with the organization either because they want to, they feel obligated to, or perceive they would lose too much if they left. Organizational commitment is a stabilizer that serves to reinforce behavioral intentions (Wagner, 2007). It is a better indicator of personal fit with the organization than job satisfaction (Ingersoll, Olsan, Drew-Cates, Devinney & Davies, 2002).

Other factors that influence organizational commitment are age (Ingersoll et al., 2002) and job satisfaction (Lum et al., 1998). Younger nurses exhibit lower levels of organizational commitment (McNeese-Smith & van Servellen, 2000), whereas nurses 50 years of age or older tend to be significantly committed to their organization (Ingersoll et al., 2002). *Job satisfaction* is defined as an affective orientation or overall positive feeling towards one's work (Coomber & Barriball, 2007; Mueller & McCloskey, 1990; Price, 2001).

Job Satisfaction

Job satisfaction is a consistent predictor of intent to stay (Borda & Norman, 1997; Lacey, Cox, Lorfing, Teasley, Caroll & Sexton, 2007; McCarthy et al., 2007) and is an important factor in nursing retention. Some researchers have reported job satisfaction to be a better predictor of ITS than organizational commitment (Boyle et al., 1999; Holtom & O'Neil, 2004; Tourangeau &

Cranley, 2006) and a mediator of turnover (Borda & Norman, 1997; Irvine & Evans, 1995). Generally, low job satisfaction or dissatisfaction results in an increased intention to leave (Coomber & Barriball, 2007; Ma, Yang, Lee & Chang, 2009; Taunton et al., 1997). Nurses experiencing high levels of job satisfaction are less likely to leave, express higher intentions of staying (Chan & Morrison, 2000; Ingersoll et al., 2002; Lynn & Redman, 2005), and more committed to organizational goals (Ingersoll et al., 2002). Shields and Ward (2001) reported that dissatisfied nurses are 65% more likely to leave the organization than satisfied nurses. Age is related to job satisfaction; younger nurses express more job dissatisfaction while mature nurses express higher levels of job satisfaction (Ingersoll et al., 2002; Shader et al., 2001; Tourangeau & Cranley, 2006). Quality of care is reported to be positively related to job satisfaction and negatively related to position turnover (Shader et al., 2001). Empowerment and supportive work environments are linked to higher levels of job satisfaction (Ning, Zhong, Libo & Qiujie, 2009).

Leadership Practices

Leadership practices are defined as the processes by which formal nurse leaders influence clinical nurses to attain a common goal. Leadership practices influencing ITS are shared decision-making, supervisor support, autonomy, staffing, and praise and recognition (Cowden, Cummings & Profetto-McGrath, in press). Clinical nurses identify managers as effective leaders when work places are empowering, shared decision-making is the norm, and staffing levels are adequate (Laschinger, 2008). Shared decision making has been identified as a significant predictor of intention (Ellenbecker, Samia, Cushman & Porell, 2007; Mrayyan 2008). A shared governance environment that actively engages clinical nurses' participation in decision making results in greater staff nurse control over nursing practice and the work environment (Hibberd & Smith, 2006). Clinical nurses' behavioral intentions to remain in the job are influenced by their relationships with their supervisors (Cowden, Cummings & Profetto-McGrath, in press). A significant positive relationship is generally reported between perceived supervisor support and ITS (Chen et al., 2008; Lacey et al., 2007; Nedd, 2006). Supervisor support is defined as the extent of support and caring demonstrated by nurse managers/supervisors towards their employees (Cohen & Stuenkel, 2009). Supervisor support is indirectly related to ITS through job satisfaction

(Lu, While & Barriball, 2005; Price & Mueller, 1981; Tourangeau & Cranley, 2006) and organizational commitment (Kovner et al, 2009; Yin & Yang, 2002).

Autonomy refers to the degree to which employees can make independent decisions and self-manage their delivery of nursing care (Cohen & Stuenkel, 2009). Autonomy consistently predicts job satisfaction (Kovner et al., 2009) and is directly related to ITS (Boyle et al., 1999; Tai et al., 1998).

Praise and *recognition* are specific leadership practices associated with behavioral intention. Praise and recognition refer to the extent to which nurses are acknowledged for their efforts, contribution to patient care and the achievement of organizational goals (Ellenbecker et al., 2007). Supervisor praise and recognition of clinical nurses increases job satisfaction (Lu et al., 2004) and is directly related to intent to stay (Tourangeau & Cranley, 2006; Wilson, 2006). Conversely, its absence is considered a contributing factor for intent to leave (Storey et al., 2009). Recognition has been found to be a primary source of joy in the workplace (Manion, 2003).

Work Environment

The work environment directly affects nurses' job satisfaction (Ellenbecker, 2004) and indirectly affects ITS (Buchan, 1999). Favourable perceptions of the work environment positively influence intent to stay (Ingersoll et al., 2002; Shader et al., 2001; Tourangeau, Cummings, Cranley, Ferron & Harvey, 2010). A supportive environment is an important contributor to intent to stay (Boyle et al., 1999: Tai et al., 1998; Taunton et al., 1997). It is related to ITS through job satisfaction and organizational commitment. Two frequently occurring environmental predictors of job satisfaction and intent to stay are work group cohesion and empowerment.

Work group cohesion refers to the extent to which employees are supportive of one another and work together to achieve goals (Cohen & Stuenkel, 2009). It includes the collegiality and support received from peers, supervisors and other team members (Boyle et al., 1999; Tourangeau & Cranley, 2006). Work group cohesion has a positive relationship with job satisfaction (Lynn & Redman, 2005). When work group cohesion is perceived as positive, it is reflected in high levels of job satisfaction (Hayes et al., 2006; Sourdif, 2004; Tourangeau & Cranley, 2006). As group cohesion increases, so does ITS (AbuAlRub, 2010; Boyle et al., 1999) and retention (Price &

Mueller, 1981; Strachota, Normandin, O'Brien & Krakow, 2003). A negative perception of group cohesion results in higher turnover and lower job satisfaction (Shader et al., 2001). Work group cohesion is also related to organizational commitment (Chan & Morrison, 2000; Ingersoll et al., 2002) and joy at work (Manion, 2003).

Empowerment is a process that facilitates and supports a person's involvement in the decision-making process and actions taken to achieve organizational goals (Marquis & Huston, 2009). For the purposes of this study, the concept of empowerment combines Spreitzer's (1995) conceptualization of psychological empowerment and Laschingers's work on the application of Kanter's (1993) theory of structural empowerment. A recent systematic review of the literature identified a positive relationship between psychological and structural empowerment with psychological empowerment functioning as a mediator for structural empowerment (Wagner, Cummings, Smith, Olson, Anderson & Warren, 2010). Spreitzer's (1995) theory of psychological empowerment suggests that the attainment of a structurally empowered work environment is a result of individuals' intrinsic responses to characteristics in the workplace. The level of an individual's psychological empowerment and degree of intrinsic motivation to achieve goals is based on the individual's perception of the presence of the cognitive dimensions of autonomy, competence, meaning and perceived impact of their work (Knol & van Linge, 2009). Structural empowerment refers to characteristics in the workplace that facilitate the completion of goals. These include access to adequate information, support, resources and opportunities for professional growth. Structural empowerment is dependent on the formal and informal power of the individual within the organization (Laschinger, 2008; Laschinger, Finegan, Shamian & Wilk, 2004; Laschinger, Gilbert, Smith & Leslie, 2010). Empowerment in defined as the clinical nurses' perception of being empowered in their workplace (Laschinger, 2008), which arises from both psychological empowerment (Spreitzer, 1995) and structural characteristics present in the workplace that support optimal performance (Laschinger et al., 2010). It results in meaningfulness of work (Greco, Laschinger & Wong, 2006; Laschinger 2008) and increased job satisfaction (Hayes et al., 2006; Larrabee, Janney, Ostrow, Withrow, Hobbs & Burant, 2003; Laschinger et al., 2004). An empowered environment is present when workplace conditions support optimal

performance. The level of empowerment present in the workplace determines the degree of freedom nurses have to practice autonomously (Keys, 2009). Empowerment is correlated with organizational commitment (Storey et al., 2009) and ITS (Ellenbecker et al., 2007; Mrayyan, 2008; Nedd, 2006).

Job stress is a result of factors in the workplace that interfere with nurses' ability to provide quality care (Boswell, 1992) and is reported to have a negative relationship with ITS (Ellenbecker, 2004; Larrabee, Wu, Persily, Simoni, Johnston, Marcischak, Mott & Gladden, 2010). Abuse and moral distress are identified as job stressors (Sofield & Salmond, 2003; Pauley, Varcoe, Storch & Newton, 2009).

Abuse is defined as the presence of physical and/or verbal mistreatment in the work setting (Sofield & Salmond, 2003). The literature reports that 65% to 95% of nurses have experienced verbal abuse (Oztunc, 2006; Roche, Diers, Duffield, & Catling-Paul, 2010). A recent study in Australia found that physical violence was reported by 14.4% of nurses, threat of violence by 20.8% of nurses and emotional abuse by 38.2% of nurses (Roche et. al., 2010). A significant positive relationship exists between the amount of verbal abuse nurses are subjected to and ITL (Sofield & Salmond, 2003).

Moral distress occurs when one knows the right course of action, but is unable to take that course of action due to institutional restraints, such as lack of time, lack of supervisor support, physician orders and/or organizational policies (Pauley et al., 2009; Rice, Rady, Hamrick, Verheijde & Pendergast, 2008). Hospital ethical climates are reported to be a significant factor in the development of nurses' leaving intention, explaining 25% of the variance in turnover intentions (Hart, 2005).

Individual Nurse Characteristics

Individual nurse characteristics predictive of retention include age, tenure, educational level (Tourangeau et al., 2010), and personal joy (Manion, 2003). In my model, joy at work is defined as the frequency of which a nurse experiences pleasure in the course of his or her work. Age is positively related to intent to stay (Tai et al., 1998; Tourangeau & Cranley, 2006; Shader et al., 2001). Younger nurses are less likely to remain in their current position and older nurses are more

likely to stay (Flinkman, Laine, Leino-Kilpi, Hasselhorn & Salentera, 2008; Hayes et al., 2006; Zurmehly, Martin & Fitzpatrick, 2009). Tenure has a positive relationship with ITS. Generally, the more years worked as a nurse, the higher the intent to remain employed as a nurse (Chan & Morrison, 2000; Larrabee et al., 2003; Taunton et al., 1997). The educational level attained by nurses affects ITS. Generally the more educated the nurse, the lower the likelihood of remaining in one's current position (Brewer et al., 2009; Hayes et al., 2006; Tourangeau & Cranley, 2006). The primary contributors to nurses' personal joy at work are liking nursing work, praise and recognition received, level of work group cohesion and the achievement of goals. Joy at work is influenced by both intrinsic and extrinsic factors and may have a direct link to ITS (Manion, 2003).

Career Development and Opportunity Elsewhere

Promotional growth and advancement opportunities are predictive of turnover (Kovner et al., 2009; Yin & Yang, 2002). Career development, training and promotional opportunities within the organization promote job satisfaction (Hayes et al., 2006; Lu et al., 2005) and have a significant relationship with ITS (Borda & Norman, 1997; Lacey et al., 2007; McCarthy et al., 2007). Dissatisfaction with the lack of promotional or training opportunities is a significant factor in turnover (Shields & Ward, 2001). The perception of a superior career opportunity elsewhere decreases intent to stay and retention (Tai et al., 1998). Working conditions, more so than the desire to increase income, drive the search for opportunities elsewhere (Ellenbecker, 2004). Promotional opportunities are related to ITS through job satisfaction and organizational commitment (Kovner et al., 2009) and are directly related to intent to stay (Price, 2001; Price & Mueller, 1981).

Desire to Stay

The literature is relatively silent on any distinction between *desire* and *intention* to stay. I hypothesize that how a nurse *feels* about his/her current position is reflected in his/her desire to stay in that position. In my model, the concept of *desire to stay* is defined as the positive feelings one has towards remaining in one's current position. Desire may contribute to the development of attitudes towards intentions of remaining in a position. Workplace characteristics thought to affect

desire to stay include the degree of personal empowerment, quality of patient care provided, work group cohesion, the experience of joy at work, the praise and recognition received, overall job satisfaction, organizational commitment, perception of immediate supervisor, moral distress and abuse in the workplace, attainment of position preference, age and opportunities elsewhere. Gaining an increased understanding of both desire and intent may help to explain the variance in intent and aid in the development of new retention strategies.

Conceptual Models in the Literature

The *Conceptual Model of Intent to Stay* was developed by Boyle et al. (1999). It postulates that four sets of predictor variables explain clinical nurses' intent to stay. The four sets of variables are *manager characteristics*, which include power, influence and leadership style; *organizational characteristics*, which include distributive justice, promotional opportunity, and control over practice, as well as the unit characteristics of staffing and workload; *nurse characteristics* of age, education, tenure expectations, years in position, hospital and profession, and marital status; and *work characteristics*, which include autonomy, instrumental communication, work group cohesion and routinization. Intervening variables between the manager, organizational, nurse and work characteristics are job satisfaction, job stress and organizational commitment. Study outcomes of Boyle et al.'s model explained 52% of the variance in intent to stay among ICU nurses. The study variables that contributed directly to ITS were manager power and influence over work coordination, opportunity elsewhere, promotional opportunity and staff nurse satisfaction. Manager characteristics alone accounted for 12% of the variance in intent to stay. Boyle et al. used causal modeling and multiple regression techniques to analyze their conceptual model. They reported model variance, but not model fit.

Tourangeau and Cranley (2006) developed the *Determinants of Nurse Intention to Remain Employed* theoretical model, building on Boyle et al.'s (1999) *Conceptual Model of Intent to Stay* and relevant findings from the literature. Tourangeau and Cranley's model proposed that *job satisfaction, manager ability and support, organizational commitment, burnout, work group cohesion and collaboration,* and *personal characteristics of nurses* were predictors of nurses' intent to remain employed. Study outcomes did not support all of the previous outcomes of Boyle

et al. (1999), nor all of the model-hypothesized relationships. Manager ability and support and burnout did not have a direct relationship with ITS. Organizational commitment, job satisfaction, work group cohesion and collaboration, and age were found to influence a nurse's intention to remain employed and explained 34% of the variance in intent to stay. Tourangeau and Cranley (2006) used multiple regression to "test" their model. Multiple regression techniques, while predictive in nature, cannot truly test relationships or make statements of influence or directionality of that influence (Hayduk, 1987).

Gaps in the Literature

ITS research has focused primarily on cognitive (knowing) determinants of behavioral intentions and not the affective (feeling) determinants. Knowledge is limited in regard to the relationship between clinical nurses' emotional responses to their work and factors in the work environment that assist them to positively internalize their reactions. Knowledge about the causal sequence of the development of nurses' behavioral intentions is also limited. The influence of leadership practices on clinical nurses' behavioral intentions is not consistently reported in the literature. Further research on variables that lead to emotional responses to clinical nurses' work, and the testing of causal models of ITS, should result in greater understanding of the development of nurses' behavioral intentions and the influence leadership has on the development of those intentions.

Overall Theoretical Model

Based on the literature, my personal experience and assessment of previous models of intent to stay, I developed a theoretical model of the relationships among concepts that influence nurses' desire to stay and their intent to stay in their current position. The conceptual model is reflective of two systematic reviews and the literature-identified relationships among select predictors of clinical nurses' intentions to remain in their current positions (Cowden, Cummings & Profetto-McGrath, in press; Cowden, Cummings & Profetto-McGrath, in review). The concept of intent to stay is viewed as a separate but correlated concept from intent to leave. The conceptual model is based on the supposition that intent to stay is the direct antecedent to clinical nurse's retention in their current positions. See Figure 4-1 for the proposed theoretical model.

Model Concepts

Concepts in the model are labeled as exogenous or endogenous, depending on whether the variables are influenced by other variables in the model. Endogenous variables are influenced by other variables in the model and exogenous (background) variables are not (Streiner, 2006). The exogenous variables hypothesized to affect ITS include staff nurse assessments of *leadership practices,* staff nurse *work status* and *position preference*, perceptions of *opportunity elsewhere* and internal *career development opportunities,* perception of the presence of *abuse,* as well as the personal characteristics of *age, tenure* at the facility and *education* level achieved. The endogenous concepts explaining clinical nurses' *intent to stay* include nurses' perceptions of *shared decision making* practices, level of *supervisor support,* ability to practice with *autonomy*, degree of personal *empowerment,* adequate *time to nurse,* the level of *quality of care* provided, the adequacy of *staffing* levels, the degree of *work group cohesion,* the experience of *joy* at work, the amount of *praise and recognition* received, and the level *of moral distress, job satisfaction, organizational commitment,* and *desire to stay* in their current position.

Clinical nurses' ITS is influenced by many variables. The proposed model reflects the complexity of ITS, with a large number of hypothesized relationships among exogenous and endogenous concepts. Relationships between variables are postulated to be positive unless otherwise stated. The effects from exogenous to endogenous concepts postulated in the model are: *Leadership practice* to shared decision making, supervisor support, autonomy, empowerment, staffing, work group cohesion, joy, praise and recognition, job satisfaction, desire to stay and intent to stay; *Work status* to job satisfaction and organizational commitment; *Position preference* to job satisfaction, organizational commitment, desire to stay and intent to stay; *Opportunity elsewhere* (negative relationships) to desire to stay and intent to stay; *Career development* to job satisfaction, organizational commitment and intent to stay; *Abuse* (negative relationships) to job satisfaction and desire to stay; *Age* to job satisfaction, organizational commitment, desire to stay and intent to stay; *Tenure* to job satisfaction, organizational commitment and intent to stay; and *Education* (negative relationships) to job satisfaction and intent to stay. Relationships identified among endogenous concepts in the model are: *Shared decision making* to quality of care;

Supervisor support to job satisfaction and organizational commitment; *Autonomy* to quality of care, joy, moral distress, job satisfaction and intent to stay; *Empowerment* to quality of care, work group cohesion, joy, job satisfaction, organizational commitment, desire to stay and intent to stay; *Time to nurse* to quality of care, joy and moral distress; *Quality of care* to joy, job satisfaction and desire to stay; *Staffing* to time to nurse, quality of care and job satisfaction; *Work group cohesion* to time to nurse, quality of care, joy, moral distress, job satisfaction, organizational commitment and desire to stay; *Joy* to job satisfaction and desire to stay; *Praise and recognition* to joy, job satisfaction, desire to stay and intent to stay; *Moral distress* (negative relationships) to quality of care, joy, job satisfaction and desire to stay; *Job satisfaction* to organizational commitment, desire to stay and intent to stay; *Organizational commitment* to desire to stay and intent to stay; and finally *Desire to stay* to intent to stay.

Discussion

Enhancements over Other Models

The proposed theoretical model is built on the works of both Boyle et al. (1999) and Tourangeau and Cranley (2006) for a number of reasons. Most importantly, the theoretical premise behind both of their models fits with my causal thinking in relation to the factors that influence staff nurses' intent to stay and the hypothesized influence of the role of the manager. My model differs from these models in its complexity and detail. Variables common to all three models are: age, autonomy, career opportunities, education, job satisfaction, job stress, leadership/management practices, opportunity elsewhere, organizational commitment, work group cohesion and work status. The concepts of job stress and managerial practices were replaced with multiple indicators in the new model. The indicators used to measure job stress were abuse and moral distress. Managerial practices were expanded to include praise and recognition, shared decision making, and supervisor support. The work of Boyle et al. and Tourangeau and Cranley did not address the emotional response of individual clinical nurses' to their work environment. My new model proposes to capture the emotional response through the variables of adequate time to nurse, desire to stay, joy at work, moral distress and quality of care. Concepts added to the model, which were not in Boyle et al.'s and Tourangeau and Cranley's models, to assess the

perception of the work environment were adequate staffing, empowerment, and position preference. I postulated that the concept of *desire to stay* is antecedent to *intent to stay*, as emotions have been reported as integral to individuals' assessment of and response to their work environments (Rosen, Harris & Kacmar, 2009). The concept of *desire to stay* has not been previously explored in the literature. Intent to stay is the outcome variable in all three models.

Boyle et al. (1999) used causal modeling to arrive at their conclusions, enabling them to make statements about the direct and indirect effects of variables; however, model fit was not reported. Tourangeau and Cranley (2006) used multiple regression techniques to analyze their data and were able to make statements of prediction, but not confident assertions about causal consequences. The causal statements arrived at were not statistically tested within the study. Testing these assertions would bring increased clarity to the relationships and identify the directionality of relationships among concepts. Building on the outcomes of Boyle et al.'s and Tourangeau and Cranley's models and testing the theoretical assertions will confirm or clarify relationships previously examined. My enhanced model is testable and it will be tested as a structural equation model using data obtained from a survey of nurses.

Limitations of the Model

My model containing the theoretical assertions about the development of intentions to stay in a current position is based on reported outcomes from the literature and relationships among model variables, personal experience and my theory about the causal world. The majority of empirical findings used in the development of the model are based on non-experimental correlation study designs which present statements about relationships and do not permit confident cause and effect claims about those relationships. The studies may have identified relationships that were not necessarily causal in nature, but arose from a common cause. The literature has not reported on the difference or the potential difference in causal structures of ITS and ITL. Studies have assumed that ITS and ITL are opposite ends of a continuum, have used the same instruments to measure both concepts and at times have reported on one concept, while measuring the other. While it appears that the concepts of staying or leaving are inverse to one another, the development of the specific intentions may be influenced by other causal factors. The studies that

examined ITS and ITL did not use the same variables; outcomes may not have included indirect effects in their analyses, which could have biased study results. Only a few studies have investigated both ITS and ITL within the same study. Findings may not be generalizable across populations. The lack of causal homogeneity among studies may contribute to a failing model and not guarantee the development of a model that fits the data when tested.

Implications for Nursing Research

Retaining clinical nurses is a global need. Studying the proposed conceptual model in both international and specific specialty work environments may identify cultural differences among settings. Further investigation of the influence of emotional response to one's work will broaden understanding of the development of clinical nurses' intentions to remain in their current positions. The proposed model can be used to guide research that explores gaps in nursing knowledge about intention to stay. Advancing intent to stay research may ultimately lead to increased numbers of nurses willing to work in the health care sector.

Conclusion

The nursing shortage has heightened the need to understand why nurses choose to remain employed in their current positions. Current knowledge of clinical nurses' intent to stay is limited. A new conceptual model of clinical nurses' intent to stay is presented, based on integration of the empirical literature. The proposed model, if proven plausible through model testing, can be used as a guide to promote leadership practices supportive of intention to stay and the development of effective retention strategies. It can also be used as the foundation for future ITS research. The inclusion of affective variables such as the concepts of desire to stay, joy at work and moral distress into the model may illuminate the development of nurses' intention to stay. An increased understanding of the predictors of intention will facilitate the identification of essential components of nursing work environments and modifiable factors in those environments that influence clinical nurses' intent to stay. This should lead to increased retention rates and the number of nurses willing to work in the healthcare sector.

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Table 4-1 - Definitions of Conceptual Model Terms

Abuse	The presence of physical or verbal mistreatment in the work setting (Solfield & Salmond, 2003).
Age	Nurse's age in years in 5 year groupings.
Autonomy	The degree to which employees can make independent decisions and self-manage their delivery of nursing care (Cohen & Stuenkel, 2009).
Career Development	Extent that opportunities for professional development and education are present within the organization.
Desire to Stay	The positive feelings one has towards remaining in one's current position.
Education	The highest level of nursing education attained.
Empowerment	Empowerment is defined as the clinical nurses' perception of being empowered in their workplace (Laschinger, 2008) which arises from both psychological empowerment (Spreitzer, 1995) and structural characteristics present in the workplace that support optimal performance (Laschinger, 2008).
Intent to Stay	The stated probability of an individual staying in their current position (Boyle et al., 1999; Gregory et al., 2008).
Job Satisfaction	The overall positive feelings towards one's work (Price, 2001).
Joy	The frequency of which a nurse experiences pleasure in the course of his/her work.
Leadership Practices	Processes by which formal nurse leaders influence clinical nurses to attain common goals.
Moral Distress	The state that occurs when knowing the right thing to do, nurses are unable to take the right course of action due to institutional restraints (Rice et al., 2008; Pauley et al., 2009).
Opportunity Elsewhere	Staff nurse perceptions of job opportunities available outside of the organization.

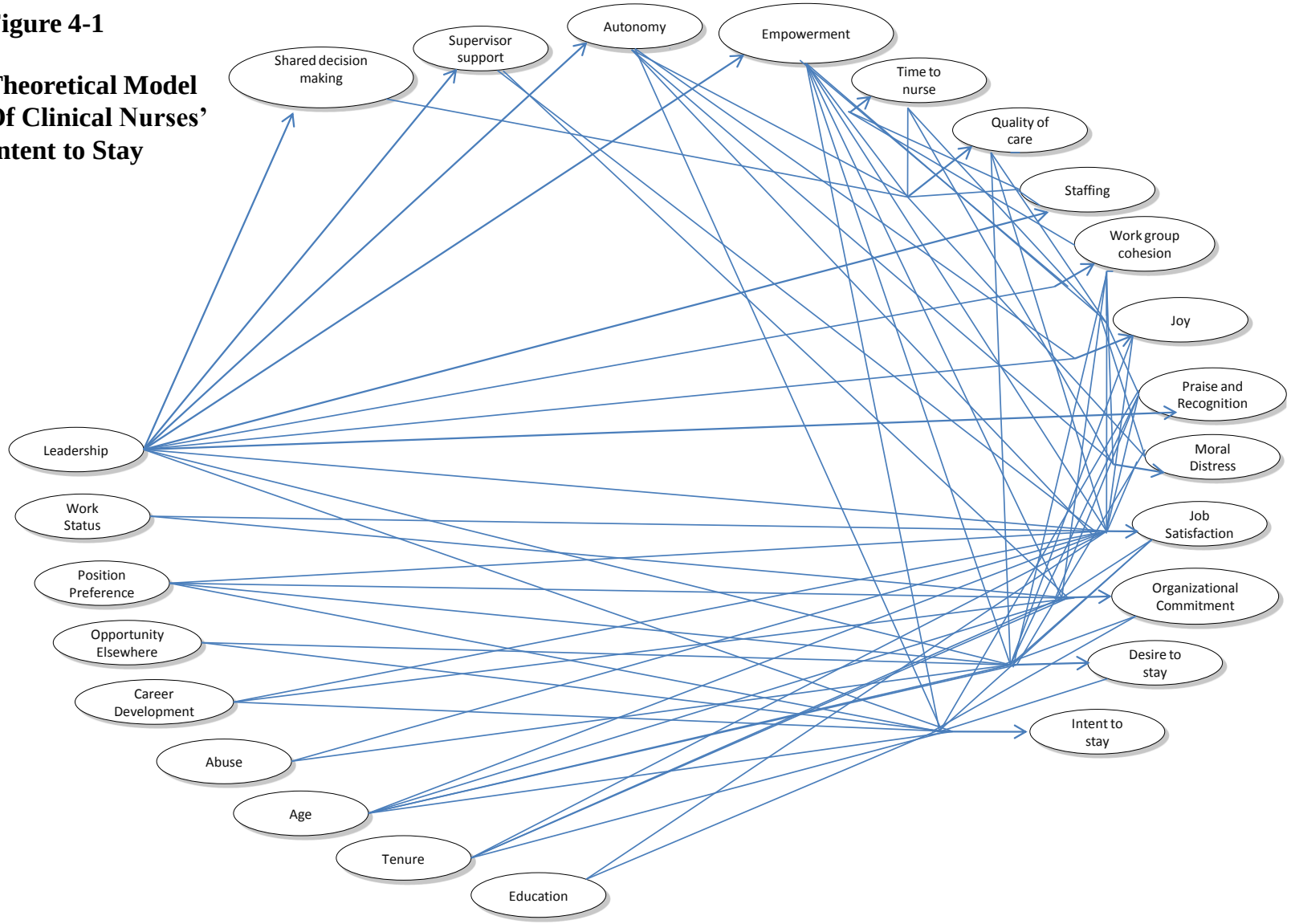
Table 4-1 Continues on next page

Table 4-1 Continued - Definitions of Conceptual Model Terms

Organizational Commitment	The strength of an individual's connection to the employer (Mowday et al., 1979).
Position Preference	Whether or not the nurse is employed in his/her full-time or part-time position preference.
Praise & Recognition	The extent to which a nurse is acknowledged for his/her efforts and contribution to patient care and organizational goals (Ellenbecker, 2007).
Quality of Care	Clinical nurses' perceptions of the level of quality of care they provide to patients.
Shared Decision Making	A shared governance environment that actively engages staff nurse participation in decision making (Hibberd & Smith, 2006).
Staffing	Clinical nurses perceptions of adequate staff to meet patient care needs.
Supervisor Support	The extent of support and caring demonstrated by management towards employees (Cohen & Stuenkel, 2009).
Tenure	The number of years of employment in the facility.
Time to Nurse	The extent to which nurses complete necessary patient care tasks.
Work Group Cohesion	The extent to which employees are supportive of one another and work together to achieve goals (Cohen & Stuenkel, 2009).
Work Status	Distinction between full-time or part-time employment.

Figure 4-1

Theoretical Model Of Clinical Nurses' Intent to Stay



Chapter Five
Testing a Conceptual Model of Nurses' Intent to Stay: Results and Implications (Paper #4)

Introduction

Globally, most countries and professional nursing organizations report a shortage of qualified nurses willing to work in the healthcare sector (Buchan & Aiken, 2008; Fox & Abrahamson, 2009; Lynn & Redman, 2005). Retaining nurses in their current positions is one way to minimize the effects of the nursing shortage. Clinical nurses' stated intentions to stay have consistently been reported as a predictor of retention (Ellenbecker, 2004; Lum, Kervin, Clark, Reid & Sirola, 1998; Tai, Bame & Robinson, 1998). Relational leadership and supportive work environments have been found to have a positive influence on intent to stay (Cowden, Cummings & Profetto-McGrath, in press; Cummings, MacGregor, Davey, Lee, Wong, Lo, Muise & Stafford, 2010). Conceptual models of intent to stay have been successful in identifying up to 52% of the variance in intent to stay (Boyle, Bott, Hansen, Woods & Taunton, 1999); however, inconsistent outcomes have been reported across studies. As well, not all hypothesized models have been adequately tested.

The aim of this paper is to build on the current knowledge of the development of clinical nurses' behavioral intentions and identify an intent to stay causal structure that will assist nurse managers in developing effective nurse retention strategies.

Literature Review

A systematic review of the literature that investigated the relationships between predictors of clinical nurses' intent to stay (ITS) and intent to leave (ITL) identified 18 different theoretical models used to guide research on intent to stay and intent to leave (Cowden, Cummings & Profetto-McGrath, in review). These models were the *Researcher Study Hypothesized Model* (Borda & Norman, 1997), *Conceptual Model of Intent to Stay* (Boyle et al., 1999), *Model of Nursing Turnover* (Chen, Chu, Wang & Lin, 2008), *Nurse Early Exit Study Research Model* (Hasselhorn, Tackenberg & Muller, 2003), *Conceptual Model of Behavioral Intentions* (Gregory, Way, LeFort, Barrett & Parfrey, 2007), *Nursing Systems Outcomes Research Model* (Larrabee, Janney, Ostrow, Withrow, Hobbs & Burant, 2003), *Rural RN Turnover/Retention Model* (Stewart, D'Arcy, Kosteniuk, Andrews, Morgan, Forbes, MacLeod, Kulig & Pitblado, 2010), *Social Identify Theory* (Taijfel & Turner, 1986), *Stress Resiliency Model* (Larrabee, Wu, Persily, Simoni,

Johnston, Marcischak, Mott & Gladden, 2010), *Karasek's Job Strain Model* (Lavoie-Tremblay, O'Brien-Pallas, Gelinas, Desforges & Marchionni, 2008), *Conceptual Framework of Turnover Behaviour* (McCarthy, Tyrrell & Lehane, 2007), *Kanter's Theory of Organizational Empowerment* (Nedd, 2006), *Conceptual Model of Organizational Climate and Nurses' Intent to Leave* (Stone, Mooney-Kane, Larson, Pastor, Zwanziger & Dick, 2006), *Model of Theoretical Relationships* (Tallman & Bruning, 2005), *Organizational Dynamic Paradigm of Nurse Retention* (Taunton, Boyle, Woods, Hansen & Bott, 1997), *Determinants of Nurse Intention to Remain Employed* (Tourangeau & Cranley, 2006), *Conceptual Model of Career Development Relationships* (Yoder, 1995), and *Kanter's Theory of Structural Empowerment* (Zurmehly, Martin & Fitzpatrick, 2009). The reported explained variance in intent to stay within the 43 studies included in the systematic review, which were used to develop my theoretical model, ranged from 12% (Mrayyan, 2008), to 34% (Tourangeau & Cranley, 2006), to 52% (Boyle et al., 1999). The models of Boyle et al. (1999) and Tourangeau and Cranley (2006) not only explained the highest amount of explained variance in intent to stay, but were both comparable to my causal thinking about factors that influence the development of clinical nurses' behavioral intentions to remain in their positions. I explain these two models further, as they formed the basis for the development of this study model.

The *Determinants of Nurse Intention to Remain Employed* Model by Tourangeau and Cranley (2006) was based on the work of Boyle et al. (1999). Concepts common to both of these models were the personal nurse characteristics of age, years in facility and education; managers' abilities; work environment factors of control over practice, professional opportunities and work group cohesion; and the intervening variables of job satisfaction, organizational commitment and job stress. Both studies tested their model assertions. Boyle et al. employed causal modeling and multiple regression techniques to test their model. They reported model variance but did not state model fit. Tourangeau and Cranley used multiple regression analysis to examine relationships among variables. Multiple regression techniques are used to find associations between variables and do not provide evidence of cause and effect relationships (Hoyt, Leierer & Millington, 2006). Their studies resulted in several different outcomes and did not support all of the *a priori*

hypothesized study relationships. Boyle et al. reported that manager power and influence, opportunity elsewhere, promotional opportunity, and job satisfaction directly influenced intent to stay. Control over nursing practice and situational stress demonstrated the greatest indirect effects. Tourangeau and Cranley stated that organizational commitment, job satisfaction, work group cohesion and collaboration, and personal characteristics influence nurses' intentions to remain employed. Manager ability and support did not directly influence intent to stay and were reported to be most likely mediated through job satisfaction. They reported causal assertions despite using multiple regression techniques. The conflicting study outcomes in the literature contribute to the uncertainly regarding the causal structure of clinical nurses behavior intentions to remain in their current positions.

Purpose

The purpose of this study was to increase an understanding of clinical nurses' intent to stay in their current positions by developing and testing a complex conceptual model of nurses' intent to stay and to assess the influence of leadership practices on those intentions.

Methods

This study is a primary analysis of the QWEST: Quality Work Environment Study (Cummings, Spiers, Yurtseven, Goad, Muise & Lynch, 2010) data using a subsample that included all Registered Nurses (RNs) and Licensed Practical Nurses (LPNs) working in two acute care teaching hospitals and seven community general hospitals in the former Capital Health Region (Edmonton, AB) of Alberta Health Services (*n*=415 RNs and LPNs; 25.2 % response rate). The QWEST study received ethics approval from the University of Alberta Health Research Ethics Board, which included the development and testing of a variety of conceptual models. I independently led this study, including the development and testing of my conceptual model under the supervision of my committee. Therefore my study was a primary analysis of the QWEST data. A description of the QWEST study and the work of the QWEST research team, which was done prior to my analysis, are presented.

QWEST Research Design

The QWEST study was a correlational study based on a mixed-method, non-experimental study which investigated relationships between nurse managers' leadership practices, features of the nursing work environment, and outcomes for the organization and nurses across the contextual setting of acute care teaching hospitals, community hospitals and long term care facilities.

QWEST Sample and Setting

The QWEST study sample included first-line patient care managers and RNs, LPNs and HCAs in three contextual health care settings of teaching hospitals, community general hospitals and long- term seniors care centers. The clinical nursing staff sample n=502 included RNs and LPNs in 13 facilities across the former Capital Health Region of Alberta Health Services located in Edmonton Alberta, Canada.

QWEST Data Collection Procedures

In the QWEST study, the research team conducted qualitative inquiry via focus groups and individual interview to confirm the theory of the overall QWEST study and to ensure that as many relevant concepts as possible were captured in the quantitative surveys. Manager data were collected via electronic web-based surveys. Staff nurse data were collected via distributed paper-based surveys due to the lack of computer access for staff.

All full-time and part-time RNs and LPNs working on units in acute care, community general hospitals and long-term care facilities where nurse managers had participated in the first phase of the study were invited to participate in the study. The unit-based recruitment of RNs and LPNs involved three separate visits to nursing units. Initially, members of the QWEST research team presented the study information to all participating managers' units. These presentations were supplemented by information posters, a basket of treats for staff, and placement of study surveys, to be completed at staff's discretion, on each unit. The number of surveys completed per unit was monitored by the study project manager. A second visit to each participating unit took place and research team members had conversations with unit clerks and individual staff regarding the study and the need for further survey completion. Specific units with lower than expected

participation rates were visited a third time. This visit included conversations with staff to encourage survey completion.

Study participants mailed completed surveys to the project manager who organized the data for entry into an on-line application developed by a third party. Data were entered by two research assistants. Random data entry checks were completed by the project manager who identified no errors in data entry by research assistants. Manager data were de-identified by the third party and were then exported from the on-line application into Excel through a secure internet site. Confidentiality and anonymity of data were maintained.

QWEST Measures

The QWEST survey for RNs and LPNs was developed by the research team and was based on a number of established valid and reliable instruments used in prior research. These included the Resonant Leadership Scale – 10 items (Estabrooks, Squires, Cummings, Birdsell & Norton, 2009), Global Empowerment -2 items (Laschinger & Finegan, 2005), Areas of Work Life Questionnaire - 29 items (Leiter & Maslach, 1999), Maslach Burnout Inventory - 9 items (Maslach, Jackson & Leiter, 1996), Global Job Satisfaction - 3 items (Quinn & Shephard, 1974), Stanford Safety Culture Instrument – 16 items (Ginsberg, Norton, Casebeer & Lewis, 2005), and the Revised Nursing Work Index Questionnaire – 29 items (Aiken & Patrician, 2000). Demographic information on age, gender, educational level attained, job title, tenure and employment status was also collected from the sample**.**

Data Analysis

Analysis

In an independent analysis, separate from the overall QWEST team efforts, I employed structural equation modeling (SEM), using LISREL 8.8 software (Joreskog & Sorbom, 1996) to test my model theory, using the subsample of RNs and LPNs working in the acute care and general community hospitals. SEM is a statistical technique used to investigate causal consequences postulated in theories and to test the plausibility of the hypothesized theory (Hayduk, Cummings, Boadu, Pazderka-Robinson & Boulianne, 2007). A large sample size, greater than 200 participants (Tabachnick & Fidell, 2007), and an adequate number of cases per

indicator in the model, 10:1 (Violato & Hecker, 2007), is preferred for the analysis of structural equation models. Within structural equation models, the theory-implied, causal associations among latent variables and between latent variables and concept-specific indicators are identified and estimated. Estimates of the specified model result in an implied indicator variance/covariance matrix. This model-implied covariance matrix is then compared to the data-derived matrix of the study population. If the difference between the model-implied and data matrices χ^2 is nonsignificant (p >0.05), the model-implied causal model is deemed to be a potential representation of the causal world (Hayduk, Cummings et al., 2007) and random sampling fluctuations alone could account for any inconsistencies between the model and observed covariances (Cummings, Hayduk & Estabrooks, 2005). A significant χ^2 is reflective of poor fit between the model and the data (Cummings et al., 2005). An examination of individual parameter estimates, residuals and modification indices reveal sources of potential model misspecification and identify areas of potential improvement to model fit (Lei & Wu, 2007).

Potential signs of improper model specifications are parameter estimates that are out of scale with respect to other estimates, have magnitude of correlation >1 or are in a direction contrary to model theory. The statistical significance of parameter estimates is based on *Z*-values larger than 1.96 at the 0.05 level. *Z*-values are the ratio of the estimate to its standard error estimate (Lei & Wu, 2007). Standardized residuals report the difference between the observed and predicted scores (Munroe, 2001). Values greater than +/-2 reflect substantial residuals and are reflective of poor model fit (Hayduk, 1987).

Modification indices reflect potential effects within the model that would reduce the χ^2 and increase model fit if the coefficient was allowed to be freely estimated. The larger the modification index, the larger the expected reduction in χ^2 value (Lei & Wu, 2007). As the aim of model testing is to test the theoretical assertions of the model, the researcher needs to ensure that all model modifications are based on theory versus data fit. Relying on statistical testing to improve fit does not speak to the potential weaknesses in the theory or model misspecification. Caution must be exercised in terms of the number of improvements made to the model, as modifications made to

improve fit risk changing the meaning of latent concepts and the underlying model theory (Hayduk, Cummings et al., 2007).

Structural equation models also identify the squared multiple correlations (SMC) or R^2 of variables. R^2 is the proportion of variance, the scattering of scores around the mean (Munroe, 2001) in the dependent variable that comes from all sources other than error (Hayduk, 2006). R^2 is a conventionally accepted way to determine the strength associated with predictor and error variables to make statements of potential causal consequences (Hayduk, 2006). The LISREL program used in this study does not calculate the significance of specific *single* indicators; rather, it identifies the chain of indirect effects (i.e. coefficient linking x_1, to $x_{4)}$ and it is their combined value of indirect effects that is measured. Total effects are the combination of values of direct and indirect effects (Hayduk, 1987).

Prior to model testing, the sample data were reviewed to ensure that normality of distribution and adequate sample size, both statistical assumptions of structural equation modeling (Tabachnick & Fidell, 2007), were met. The sample data met the criteria for sample size and indicator requirements and were appropriate for model estimation. Missing data values were managed using pairwise deletion, resulting in an n=401 cases from the sample.

Throughout model testing, model modifications congruent with the model theory were completed and described. A conscious effort was made to ensure that model modifications were driven by the model theory and empirical findings in the literature and not the SEM data output.

The analysis of the final model focused on the variables that had direct effects on the concept of intent to stay and most strongly explained the variance in intent to stay. These were the variables of organizational commitment, empowerment and desire to stay. This was followed by an assessment of the indirect effects leading to each of these concepts. The pathways of the indirect effects are important to the model as they articulate the causal mechanisms leading to the development of clinical nurses' behavioral intention to remain in their positions. Finally, an examination of the influence that the concept of leadership had on other variables within the model was conducted.

The Development of the Model

The hypothesized conceptual model of intent to stay was developed, independent of the QWEST team, based on the literature, previous models of intent to stay (Boyle et al., 1999; Tourangeau & Cranley, 2006), and the primary author's theory of factors influencing clinical nurses' intentions to remain in their current positions. The full development and details of the model are explained in chapter four. To transform a theory into a structural equation model, concepts and their inter-relationships need to be specified. The relationships between and among concepts in structural equation models' is postulated to be both causal and linear.

Transforming the Theoretical Model into a Structural Equation Model

To assist the reader in understanding structural equation models, a synopsis of the key steps taken to transform a theoretical model into a structural equation model is provided. This is followed by a description of the actions taken to convert the conceptual model of clinical nurses' intent to stay into a SEM.

SEM includes a theoretical latent concepts component and the measurement structural component which are the indicators and the variables. The latent concepts in a SEM are identified as endogenous or exogenous, depending on the relationship of the concept within the model. Endogenous concepts are internal concepts to the model, influenced by and receiving effects from other concepts within the model. Exogenous concepts are background variables that influence endogenous concepts but do not receive effects from other concepts within the model (Streiner, 2006). The researcher does not attempt to identify the causes of the exogenous variables. Generally, all exogenous variables are allowed to co-vary with one another.

The latent concepts in a structural equation model are not measured directly; they are measured through one or more observed indicator variables (Ullman, 2006). Choosing one single or "best" indicator of a concept challenges the researcher to clearly define the latent variable. This is integral to testing the theory, as that one indicator is the link between the model theory and the model measurement (Hayduk & Littvay, in review). Two best indicators may be chosen to act as redundant measures and a test of the adequacy of the indicators. If they are redundant indicators

they should be highly correlated. Highly correlated indicators share values close to 1.0 (Hayduk, 1987).

Each concept in the model is measured by a single or multiple indicator, with an assigned error term for each indicator. The specified measurement error variances assigned to each indicator provide a clear researcher-asserted meaning of the latent concept (Hayduk & Pazderka Robinson, 2007) which is the model theory. The error variance is the cumulative effect of all the non-latent-concept causal impacts associated with the indicator. The greater the interference from other causes, the higher the proportion of measurement error (Hayduk & Littvay, in review). The adjustments for measurement error within the model may result in the identification of stronger effects than other statistical techniques. When two or more indicators are used to measure a concept, the "best" indicator is given a factor loading of 1.0 to establish a scale for the parameter estimate of the other indicator.

The conceptual model was a complex model incorporating 24 concepts. The endogenous latent concepts postulated to directly cause clinical nurses' *intent to stay* were nurses' perception of *shared decision making* practices, level of *supervisor support*, ability to practice with *autonomy*, degree of personal *empowerment*, adequate *time to nurse*, the level of *quality of care* provided, the adequacy of *staffing* levels, the degree of *work group cohesion*, the experience of *joy* at work, the amount of *praise and recognition* received, the level of *moral distress*, *job satisfaction* and *organizational commitment*, and the *desire to stay* working in their current position. The exogenous concepts hypothesized to affect intent to stay directly, included staff nurse assessment of *leadership* practices, staff nurse *work status* and *position preference*, perceptions of *opportunity elsewhere* and internal *career development* opportunities, perception of workplace *abuse*, as well as the personal characteristics of *age*, *tenure* at the facility and *education* level achieved.

The QWEST survey questions were reviewed in detail and the best indicators of each concept were chosen to measure the concept. Table 5-1 presents detail on the survey questions, timeframes of questions, scales employed, coding of questions and error variances assigned to model indicators. A total of 25 specific items were employed from the overall QWEST survey.

Within this survey, participants were asked to report their level of agreement with statements pertaining to their work environment or to identify the number of times a certain task or situation occurred during their workday. Time frames for questions ranged from plans for the next three years to questions referencing the past year, month, week, or last shift worked. Likert scales employing a 4-point or 5-point scale which ranged from 1=”strongly disagree” to 4 or 5=“strongly agree” were used. Several survey items were re-coded to ensure consistency of meaning across values. The concepts of quality of care, moral distress, and opportunity elsewhere were reverse coded to change the direction of the meaning of the statement; increasing values of these concepts would mean a higher occurrence of this concept. The concepts of time to nurse and abuse were determined by a count of yes/no items.

Error variances assigned to indicators in the model ranged from 2% to 20%. The percentage of assessed measurement error of concepts was determined based on how closely the model theory was tied to the latent variable, the theoretical understanding of the underlying causal world, and the researchers’ assessment of how well the survey question measured the concept. Survey questions were assessed for clarity, potential for confusion or misinterpretation, context and response options.

For example, the question on time to nurse used the term “resident” which may be assigned a different meaning, depending on the setting nurses are employed in. In a long-term care setting, this term refers to a client residing in the facility, whereas in an acute care setting, it refers to a physician in training. The potential dual meaning of the term was reflected in the assigned indicator error of 10%.

The indicator for the *leadership* concept was assigned a measurement error of 20%. The measurement error was determined based on the supposition that different nurses would answer the survey question based on their ideology of what a good leader was and this would be different for individual nurses depending on their experience and current workplace needs.

The assigned 10% measurement error for the concept *time to nurse* was based on the number of times during a specific shift that nurses did not complete a task that they thought was necessary, due to perceived time restraints. The answer to this question was thought to potentially

vary across nurses based on their experience, education, level of expertise in the specialty area, as well as perspective of the quality of their working environment.

The indicator for *age* was given a measurement error of 5%, as subjects may under or over report their age or makes an error in reporting. Other nursing SEM research (Cummings, Estabrooks, Midodzi, Wallin & Hayduk, 2007) that utilized different data, but some of the same latent variables and some of the same questions, was also reviewed to see if the assigned error variance was similar. The first run of the model testing output was analyzed to determine if the assigned measurement error was close to the assigned error.

The factor loadings for all model concepts and their best indicators were set at 1.0. For the latent concept work group cohesion, which was assigned two indicators, the best indicator, work group cohesion 1 was assigned a loading of 1.0 and work group cohesion 2 had its loading and error variance set to be freely estimated. All latent exogenous concepts were allowed to co-vary with one another. The model concepts, their assigned indicators, and percentage of assigned measurement error are presented in Table 5-1, Figure 5-1 and Figure 5-2. The data covariance matrix is presented in Table 5-2.

Model Estimation and Testing Results

The conceptual model was estimated using LISREL 8.8 software, and maximum likelihood estimation (Joreskog & Sorbom, 1996). Enhancements to the model were initially done based solely on theoretical assertions of the model. Modification indices were reviewed to prompt changes to the model and were used only when they aligned with reasonable theoretical assertions of the model theory. All model modifications were reported as recommended (Hayduk, 1987). A summary of model estimation and rationale for modification is provided.

Run 1

The initial estimated model, which had the measurement structure described in Figure 5-3, resulted in χ^2=482.2, *df*=183 and *p*=0.00. The model was not a fitting model. A review of the LISREL output revealed that the two indicators of work group cohesion were not redundant indicators as theorized. Redundant indicators would have similar estimated values and low standardized residuals**.** The *y* variables squared multiple correlation value for work group cohesion

1 indicator was .798 and the value for the work group cohesion 2 indicator was .482. The standardized residual between the two indicators was -7.522, which indicated model misspecification and that the two indicators were not measuring the same concept. The model theory asserted that work group cohesion was the extent to which employees were supportive of each other and worked together to achieve goals. The survey question used to measure work group cohesion 1 was "The different levels of nursing staff on my team work well together". Work group cohesion 1 was selected as the best indicator to represent the meaning of the concept. The survey question for work group cohesion 2 was "There is a strong sense of supportive community on my unit". Work group cohesion 2 was chosen as a redundant indicator of work group cohesion. The use of the term "community" in the survey question for the work group cohesion 2 concept may have been viewed as the whole multidisciplinary team and not just the nursing team. The supportive community measured in work group cohesion 2 was assessed as not measuring the intended meaning of the latent concept. The two indicators were therefore not redundant. The work group cohesion 2 indicator was removed from the model as it was not relevant to the overall model theory.

Run 2

The second estimation, now with all single indicators, resulted in χ^2=392.9, *df*=160 and *p*=0.00. The initial model attempted to identify the simplest causal process explaining ITS; however, the complexity of the real causal world demanded a more detailed specification of that world.

Five more effects, based exclusively on theoretical reassessments, were added to the model: from autonomy to empowerment, from autonomy to praise and recognition, from abuse to time to nurse, from leadership to moral distress and from age to moral distress. The addition of the coefficients raised a greater awareness and appreciation of the detail required in structural equation modeling. It should be noted that an incomplete model is not an entirely wrong model (Hayduk, Pazderka-Robinson, Cummings, Boadu, Verbeek & Perks, 2007), but one that requires more theoretical precision**.**

Run 3

Run 3 resulted in. χ^2=294.7, *df*=155 and *p*=0.00. A review of the model output suggested a problem with the assigned error variance for the indicator for leadership. The placement of the leadership practices concept as a common cause of a number of endogenous variables statistically identified the measurement error variance for leadership and this, in turn, permitted the data to speak against the meaning and identity that had originally been assigned to leadership. A review of the standardized residuals identified a number of areas of poor model fit. The standardized residuals >2 in the model were between leadership and each of shared decision making, autonomy, empowerment, staffing, work group cohesion, praise, job satisfaction and intent to stay. A relatively high error variance (20%) had been assigned to the leadership indicator originally, as it was theorized that nurses would have different assessments of their manager's effectiveness, based on their own experience and expectations. As the model could not alter the measurement error which had been fixed at 20%, it indicated that the meaning given to the leadership indicator through the assigned variance was potentially wrong and that this aspect of the theory was in question. This illustrates that even one indicator occasionally has the ability to identify problems with the assigned meaning of the latent variable (Hayduk & Littvay, in review). The concept of leadership was assessed by the nurses' response to a statement that their nurse manager or immediate supervisor was a good manager or leader. It was theorized that the measurement error assigned to leadership did not capture all of the extraneous causal interference on the indicator; the theory behind the concept was inadequate. Freeing the error variance would allow the data to identify the error variance and recognize the multiple potential causes of the error.

Run 4

Run 4 resulted in χ^2=253.7, *df*=154 and *p*=0.00. When the leadership error variance was freed it resulted in an error variance of 46.8 %, much higher than the initial 20% estimated error variance**.** The standardized residuals showed an improved model fit. Only the standardized residuals between leadership and supervisor support, and leadership and autonomy continued to demonstrate an inconsistency between the theory and observed data**.** The extreme change in the error variance changed the initial meaning assigned to the latent variable, confirmed that the initial

theory was incorrect, and likely other causal forces, not accounted for in the theory, were influencing the indicator. Unfortunately, there was no other question in the survey that was thought to better capture the overall assessment of the manager's ability. Additionally the difference in contextual settings may have influenced the assessment of leadership.

A review of the model diagnostics identified a number of high residuals, which at first appeared scattered, but on closer inspection were commonly tied to autonomy, time to nurse**,** quality of care, supervisor support and moral distress. Of note was the large standardized residual between leadership and supervisor support (5.68) and a modification index of 31.40 between leadership and supervisor support TD(1,2), which reflected the inability of the model to satisfactorily estimate the relationship between the two variables (Tabachnick & Fidell, 2007), a potential model misspecification and strong effects between the two concepts. Due to these findings, a decision was made to diagnostically check to ensure that concepts were assigned correctly in the model construction as either endogenous or exogenous and that the model was free of reciprocal effects. To do this, the model was converted to an all Eta or all endogenous model. All of the exogenous concepts and their indicators were converted to endogenous concepts. The gamma effects were changed to beta effects and x indicators were converted to y indicators. This conversion potentially permitted all concepts to influence each other. The initial conventional model set up had prohibited endogenous variables from influencing exogenous variables and hence this style of possible effects was not checked by the modification indices. The modification indices were checked to ensure no new potential effects were noted. Modification indices did not identify any potential new relationship leading to the original exogenous variables. The all Eta model did not identify the presence of reciprocal effects between concepts. No model modifications were done within the Eta model. The model was returned to the standard notation/representation of LISREL models.

Run 5 - Final Estimated Model

For the final run, several more theory-driven model modifications and one diagnostically-based modification were done. Two separate diagnostic assessments were completed by two researchers, the primary author and by someone with both substantive and SEM expertise.

Assessments at this stage were focused on changes associated with the modification indices that still held true to the now revised/modified model theory; as a result of these amendments, the model risked biasing the χ^2 test. Sequential single parameters were freed to be estimated. The sequence of suggested changes by the primary researcher included effects from staffing to autonomy BE(3,7), from age to staffing GA(7,7), from shared decision-making to time to nurse BE(5,1), from tenure to praise and recognition GA(10,8), from time to nurse to autonomy BE(3,5) and from education to autonomy GA(3,9). This resulted in a model estimation of χ^2=179.0, *df*=148, *p*=.042. The expert in SEM made modifications in the following sequence from staffing to autonomy BE(3,7), from education to autonomy GA(3,9), from age to staffing GA(7,7), freeing of the parameter between the measurement errors of supervisor support and leadership TDE(1,2), from shared decision-making to time to nurse BE(5,1), and from time to nurse to autonomy BE(3,5). The second researcher's assessment identified a better fitting model with estimation results of χ^2=169.9, *df*=148 and *p*=0.105 and was the final model used. The model is a complex model, and the number of modifications to the model reflects the under-theorizing in the development of the model.

Results

Descriptive Statistics

The initial data analysis included the descriptive statistics of the sample that provided nurses' perspectives on the influence of leadership and work environment on the development of nurses' intentions to remain in their current positions. The average age of the respondents was 42 years of age (SD=12.3 years), which is reflective of the average age of Canadian RNs (Tomblin Murphy, Birch, Alder, MacKenzie, Lethbridge, Little & Cook, 2009). Ninety percent (90%) of the nurses in the sample were working in permanent positions while 10% were in temporary positions. Additionally 92% of nurses indicated they were employed in their preferred position. The nursing education level attained varied within the sample: 59.7% were prepared at the diploma level, 38% at the baccalaureate level and 0.8% at the masters level. The high percentage of diploma-prepared nurses may be reflective of the inclusion of LPNs in the sample, as LPNs are educated at the

diploma level. The average number of years nurses were employed at the facility was 11.68 year (SD=10.41 years), with 40% of the sample working 11 to 32 years in the same facility.

SEM Results

The final model estimation results indicated a nearly fitting model via traditional *p* value, but this was not a clean or comfortable fit. Figure 5-4 depicts the final estimated model. The χ^2 result may be considered borderline, due to the number of post-hoc model adjustments following the data-suggested model modifications. SEM is a technique used to test a postulated theory of the causal world. It can be argued that the final model only approximates the original theory that was to be tested. Despite the care that was taken throughout model modifications to remain true to the theory and not to uncritically use the modification indices only to improve model fit, the alterations to the model specifications were likely influenced by the output. Squared multiple correlations were examined to assess the overall ability of the hypothesized relationships to explain the outcome variables. The R^2 values of the structural model were high across the model, ranging from 0.15 (joy) to 0.63 (intent to stay). The high proportions of explained variance do not determine model plausibility or fit. The number of modifications may have biased the R^2 values (Hayduk, Cummings et al., 2007). The direction and significance of effects tested within the model and the squared multiple correlations are reported in Table 5-3.

Key Concepts in the Model

The model explained 63% of the variance in intent to stay. The nonstandardized effects in the model were used to report the strength of effects within the model. Three concepts were found to have the strongest effects on intent to stay within the model. Intent to stay was positively and directly influenced by organizational commitment (0.30), empowerment (0.34) and desire to stay (0.36). No other exogenous or endogenous concepts directly influenced intent to stay. Understanding the influence of other variables in relation to these three variables will in turn enhance the understanding of the development of nurses' intentions to remain in their current position. Two variables, job satisfaction and leadership, had indirect effects on ITS and are also useful in understanding the causal sequence of influence these variables had on ITS.

Organizational Commitment

Organizational commitment has been found to be a consistent predictor of ITS. The model estimation explained 31% of the variance in organizational commitment. Organizational commitment had a total effect of 0.50 on ITS. The variables with significant direct effects on organizational commitment were age (0.02), empowerment (0.21), work group cohesion (0.26) and job satisfaction (0.27).

Empowerment

Empowerment had many direct significant consequences within the model. These included effects on work group cohesion (0.17), desire to stay (0.18), job satisfaction (0.21), organizational commitment (0.21), and intent to stay (0.34). Three concepts, autonomy (0.18), education (0.16) and leadership (0.89), had a direct influence on empowerment. The total effects of empowerment on intent to stay were significant at 0.63. The model explained 48% of the variance in empowerment.

Desire to Stay

The concept of desire to stay has not been examined in the intent to stay research. Many variables within the model were postulated to directly influence desire to stay. These were empowerment, quality of care, work group cohesion, joy at work, praise and recognition, overall job satisfaction, leadership, moral distress, abuse, position preference and opportunities elsewhere. Approximately half the hypothesized direct predictors of desire to stay were supported through model estimation. The concepts of empowerment (0.18), job satisfaction (0.41), organizational commitment (0.55), opportunity elsewhere (0.09) and age (0.05) all had a direct, positive and significant effect on desire to stay. Quality of Care (0.06), joy (0.05), work group cohesion (0.26) and leadership were all found to have significant indirect effects on desire to stay. Leadership and autonomy had indirect effects on desire to stay through the intervening variable of empowerment. Quality of care, work group cohesion and joy all had an indirect effect on desire to stay through job satisfaction. Work group cohesion and age had an indirect effect on desire to stay through the intervening variable of organizational commitment. The concepts of position preference, praise and recognition, abuse and moral distress were not found to have a significant effect on desire to

stay. Desire to stay had a total effect of 0.36 on ITS. The model accounted for 54% of the variance of desire to stay. The concept of desire to stay is important to understanding how behavioral intentions are developed.

Job Satisfaction

Job satisfaction had an indirect effect on intent stay through the concepts of organizational commitment and desire to stay. This concept had a total effect of 0.40 on ITS. Variables that had a direct effect on job satisfaction were empowerment (0.21), quality of care (0.10), work group cohesion (0.21) and joy (0.09). The model explained 46% of the variance in job satisfaction.

Leadership

The concept of leadership was postulated to have many causal effects within my model. While not all of them were supported by the study outcomes, the influence of leadership within the model is noteworthy. Leadership was not found to have significant direct effects on ITS or desire to stay; however, it was found to have a significant total effect on ITS (0.97) and a significant total indirect effect on ITS (0.67). Leadership also had a significant total effect (0.68) and a significant overall indirect effect (0.85) on desire to stay.

Leadership had several strong, direct, positive and significant causal effects within the model. A good manager and leader resulted in higher clinical nurses' perceptions of shared decision making (0.72), supervisor support (0.93), ability to practice with autonomy (0.48), personal empowerment (0.89), adequate staffing levels (0.57), work group cohesion (0.37) and praise and recognition received (0.79). Having a good leader resulted in a lower incidence of moral distress (-0.33).

The indirect influence of leadership within the model was evident in the causal mechanisms leading from leadership to intent to stay. The identification of this influence is important in understanding the causal sequence of how intentions are developed. Leadership crossed the model via several different significant indirect pathways. The most direct path was from leadership through empowerment to intent to stay. Three other indirect pathways were present: from leadership through the concept of shared decision making, to time to nurse, to autonomy, to empowerment and then to intent to stay; from leadership through autonomy, to empowerment, to

work group cohesion, to job satisfaction, to organizational commitment to desire to stay, and finally to intent to stay; and from leadership through work group cohesion, to organizational commitment, to intent to stay. Many of the intervening concepts involved with the indirect pathway from leadership to intent to stay were variables found within empowering work environments.

Leadership did not have a significant direct effect on job satisfaction, organizational commitment, desire to stay or intent to stay; rather the influence on these variables was also indirect and mediated through empowerment. These findings support many of the causal mechanisms theorized within the model. The significant indirect influences of leadership on ITS are vital to understanding the causal sequence of how behavioral intentions are developed.

Discussion

The model testing outcomes supported previous research on ITS, identified some inconsistencies between study outcomes and resulted in new findings. The results demonstrate potential issues in the synthesis of published research findings, the importance of the work environment and the influence of empowerment and leadership on the development of practice environments. They also identify several causal pathways for the development of clinical nurses' behavioral intentions.

Critically Reading Published Research Results

The model structure was based on the researcher's assessment of the empirical literature. The discrepancy in findings may be attributed, in part, to the use of different statistical analytical techniques, control variables, causal model structures and the sophistication of the researcher to critically assess published studies. As the majority of studies in the literature used regression techniques, they did not adjust for measurement error and indirect effects were not identified or accounted for in their models. Regression techniques control for the effect of other variables and do not consider the influence of indirect effects on the variables within the model. As variables are omitted from the regression equation, the correlation and the causal effect of that variable are also removed from the equation, which leads only to the ability to make statements of prediction and not causation (Hayduk, 1987). Readers of published studies, not fully understanding the technique

used, may misinterpret results which in turn can misinform their thinking on the causal structure of their own models. Researchers do not usually report how the statistical technique controlled the model variables or make comments related to the inclusion of indirect pathways. Readers of published studies may not be well versed in all analytical techniques and may not be able to critically read the literature to ensure that reported study outcomes are or are not possible with the statistical technique used. For example, a study that uses regression techniques can report on direct effects but not indirect effects. An unsophisticated researcher may not pick up on or question a reported indirect outcome.

Support for Previous Research Outcomes

The model testing supported several outcomes of Tourangeau and Cranley's (2006) work on the *Determinants of Nurse Intention to Remain Employed* model. They examined their model through multiple regression, a statistical technique that presumes effect directions but is unable to test direction of influence (Hayduk, 1987). Model testing confirmed their findings of organizational commitment as directly influencing intentions to stay. Organizational commitment has consistently been identified as a predictor of behavioral intentions in several other studies (Irvine & Evans, 1995; Lum et al., 1998). The current model findings were also in agreement with the conclusions of other research. That is, organizational commitment was a better predictor of ITS than job satisfaction (Wagner, 2007) and that a direct effect exists between organizational commitment and ITS (Gregory et al., 2007; Irvine & Evans, 1995). Tourangeau and Cranley hypothesized work group cohesion to be mediated through job satisfaction to ITS, which was also supported by my model.

Empowerment is an important variable in understanding and predicting intent to stay. It is one of the three strongest influences on clinical nurses' intent to stay, and it has significant positive effects on the other two concepts— organizational commitment and desire to stay. Empowerment was also the key mediating variable between leadership and intent to stay. The model results supported empowering environments as essential to clinical nurses' intent to stay (Cummings et al., 2010; Ellenbecker, Samia, Cushman & Porell, 2007; Mrayyan, 2008; Nedd, 2006) and confirmed the direct effect empowerment has on job satisfaction (Hayes, O'Brien-

Pallas, Duffield, Shamian, Buchan, Hughes, Laschinger, North & Stone, 2006; Larrabee et al., 2003; Ning, Zhong, Libo, Wang & Qiujie, 2009) and organizational commitment (Storey, Cheater, Ford & Leese, 2009).

Inconsistencies between Studies

The final tested model is a more precise model than those of Boyle et al.'s (1999) and Tourangeau and Cranley's (2006). In my model, the introduction of additional concepts resulted in a clearer understanding of causal pathways. The additional concepts, through their indirect effects within the model, highlighted the causal sequence of the development of behavioral intentions. The concept *desire to stay* was not part of either Boyle et al.'s or Tourangeau and Cranley's models. The addition of this concept to my model resulted in the identification of indirect effects on intent to stay that in previous studies were found to be direct effects. Two of the predictors of Boyle et al.'s model, opportunity elsewhere and job satisfaction, were found to have a direct effect on desire to stay and not intent to stay in my model and only indirectly influenced intent to stay because desire, in my model, had a moderate effect on ITS (0.36). Similarly, Tourangeau and Cranley reported that age and job satisfaction were direct predictors of intent to stay, while my model concluded that they had a direct effect on desire to stay and hence, an indirect influence on intent to stay. Job satisfaction was also identified as a direct predictor of ITS in other studies (Borda & Norman, 1997; Taunton et al., 1997), but in my model it was mediated through organizational commitment and desire to stay. Desire to stay was likely an unforeseen influence on ITS in other models, which resulted in variables in those models appearing as direct predictors of ITS. The introduction of empowerment into my model also identified indirect effects which were reported in other studies to be direct effects. Autonomy has been found to be a direct predictor of ITS (Chan & Morrison, 2000; Hayhurst, Saylor & Stuenkel, 2005; Storey et al., 2009) and a consistent predictor of job satisfaction (Kovner, Brewer, Greene & Fairchild, 2009). In this study, autonomy had an indirect effect on ITS and was mediated through empowerment to job satisfaction and then to ITS. Other study outcomes of supervisor support (Cho, Johanson & Guchait, 2009; Hayhurst et al., 2005) and recognition (Storey et al., 2009), previously reported to have a direct influence on ITS, were not found to have significant effects within my model.

New Knowledge

The tested model enhanced the work of Boyle et al. (1999) and Tourangeau and Cranley (2006) by confirming statistically some of their findings and helping to explain other findings through the introduction of two concepts, empowerment and desire to stay, into the theoretical model. The complexity of the model and the sophistication of the statistical analysis used resulted in the detection of clear causal pathways for the development of clinical nurses' behavioral intentions and the detection of the influence that leadership has on those intentions. The identification of the causal pathways is essential to understanding the development of clinical nurses' behavioral intentions and is an important contribution to nursing knowledge.

Implications for Nursing Research

This model effectively builds on prior nursing knowledge and based on its outcomes, has identified new areas for consideration for future nursing research efforts in this area. The nursing literature to date has been unclear as to the causal order of the development of clinical nurses' intentions to remain in their current positions. My model outcomes identify potential causal sequences for the development of those intentions. Future research that confirms these findings and seeks to identify specific retention strategies in regards to the causal pathways identified should serve to enhance nurse retention.

The introduction of the concept of desire to stay added a new dimension to the understanding of the development of behavioral intentions and staff nurse retention. Desire to stay should be investigated further via qualitative inquiry to enhance the quantitative findings. This concept should be strongly considered for inclusion in future studies on clinical nurses' intentions to remain in their current positions.

Within this study, empowerment was found to effect all the factors that influenced desire and ITS with the exception of age and opportunity elsewhere, and played an important role in all of the effects of these variables. An examination of the distinction of the concepts of empowerment, desire to stay and ITS will bring clarity to each construct and identify areas of further research that are meaningful to nursing practice and the development of effective retention strategies.

While my model was very complex, adding the concept of intent to leave to the model would serve to clarify the similarity and differences in the development of nurses' intentions to stay or to leave. The model asserted that the concept of intent to stay was distinct from the concept of intent to leave. Due to the research practice of viewing ITS and ITL as opposite ends of one continuum (Cowden, Cummings & Profetto-McGrath, in review), the research practice of using one concept to examine the other and the use of analytical techniques that did not measure indirect effects, ITS and ITL study outcomes may have been misinterpreted in some prior research. The introduction of the concept of intent to leave into my model may have resulted in a clearer understanding of the causal pathways of both concepts.

The inclusion of the concept desire to stay into model identified direct and indirect causal consequences of nurses' emotional responses to their work. Future research that addresses both the cognitive and affective response to work may add to the understanding of the causal structure of the development of clinical nurses' behavioral intentions.

Implications for Nursing Practice

While it is beyond the scope of this study to review the literature on effective retention strategies, the study outcomes suggest several approaches that should be considered. My findings are consistent with the work of O'Brien-Pallas, Griffin, Shamian, Duffield, Hughes, Laschinger, North and Stone (2006) in their *Impact of Nurse Turnover on Patient, Nurse and Systems Outcomes Study*. Advocacy for empowering work environments is the responsibility of all levels of nursing practice. Staff nurses would benefit from advocating for the structural empowerment factors they are missing on their units and in their organizations. Nurse managers need to be strong voices for the necessary tools, resources, information and professional development required by their staff. Nurse educators can work in partnership with staff and nurse managers to deliver appropriate and timely educational programs geared to the needs of individual nurses and the specific patient populations and technology on their units. An essential component of every retention strategy should be the focus on the individual nurse. The implementation of comprehensive new employee orientation and preceptor programs can provide the opportunity for more experienced nurses to mentor their peers and to grow as valued team members. Ongoing

opportunities for nurses to participate on organization committees, provide input into unit and program based decisions, attend educational workshops and conferences to increase knowledge and skills and recognition of the individual needs and goals of each nurse is fundamental to retention efforts. Acknowledging the contribution, skills and personal strengths of each staff member and providing opportunities for professional growth will facilitate the development of intentions to stay. The establishment of safe, supportive and inclusive teams will increase nurses' sense of belonging to the institution and promote the retention of clinical nurses in their current positions.

Implications for Nursing Leaders

Nursing leaders are in a pivotal position to effect clinical nurses intention to stay in their current positions. While leadership practices were not found to influence behavioral intentions directly, they were mediated through empowering work environments. The key to effective retentions strategies is the creation of work places that support the development of clinical nurses' intentions to remain in their current positions. Empowering work environments are reflective of much more than autonomous nursing practice and participative decision making. They should include relational leadership practices and the creation of conditions that optimize employee engagement with the organization and support processes that result in job satisfaction. The identification of the causal sequence of how clinical nurses' behavioral intentions are formed highlights areas that nurse leaders should include in their retention strategies - each link along the chain presents an opportunity for positively influencing the development of intentions to stay. The model-implied causes of desire to stay and ITS can potentially be influenced - *empowerment* via work environmental factors and leadership practices, *job satisfaction* and *organizational commitment* via the establishment of a sense of community at work, active quality management practices that facilitate the delivery of quality patient care, sensitivity to the emotional responses of nurse's to their work, and *age* by attention to generational differences in work expectations and values.

Relational leadership positively influences staff ITS. Nurse leader education is essential to build relational leadership skills. Similarly, hospital administrative structures that support and

educate managers as relational leaders will facilitate the creation and maintenance of empowering work environments that positively influence intention to stay. The development and implementation of leadership education programs is the basis for the development of effective nursing strategies.

Implications for Health Workforce Policy

To reduce nurse turnover rates and increase clinical nurse retention, health decision makers need to be educated on the modifiable factors in the workplace that causally influence nurses' decisions to stay in their current positions. An understanding of the effects of structural and psychological empowerment on the development of nurses' behavioral intentions and the necessity for adequate funding to support relational leadership practices and empowered work environments is necessary to manage nursing turnover and the nursing shortage. Accrediting and governing bodies need to incorporate quality of life work measures into accountability and reporting frameworks. If supportive, empowering work environments are seen as a priority, and that expectation is incorporated into accountability reporting, there is a greater likelihood of achieving this reality and retaining nurses in their positions.

Limitations

This study is not without limitations. While the model resulted in a fitting model, caution should be exercised in stating the correctness of the final model. The number of adjustments to the model is greater than desired and may have merely followed the data covariance. The final model is not the initial model, and though a reasonable fit was attained, it does not prove the model to be true (Hayduk, 1987). The number of model modifications may have biased the R^2 values and the large proportion of explained variance can potentially be a result of an incorrectly specified model or the proper adjustment for measurement error (Hayduk, Cummings et al., 2007). The initial model was built on published studies in the literature, the authors' experience and understanding of the causal world. The empirical findings used to build the overall model identified both common and concept-specific indicators of both intent to stay and intent to leave (Cowden, Cummings & Profetto-McGrath, in review) that were primarily arrived at via regression techniques, which control for indirect effects and do not adjust for measurement error.

Consequently, researchers may have arrived at conclusions that were biased. The failure of other studies to connect all of the current model-identified influences of leadership on behavioral intentions is an illustration of this. In addition, the research practice of viewing ITS and ITL as inverse to each other may have resulted in study findings based on spurious cause versus direct effects. A synthesis of the literature, which was used to determine causal assumptions about model concepts, may not have been appropriate due to the use of different operational definitions, concepts, theoretical frameworks, statistical techniques, the different study populations, cultures and settings across studies and the statistical sophistication of the researcher. The lack of causal homogeneity among studies in the empirical literature used to build the model may have contributed to the potentially failing model. Most of the model-asserted measurement error assessments are not tested to determine their validity; rather the model fit estimates and fit are forced to be consistent with these specifications (Hayduk, 1987). The freeing of the error variance for leadership may be challenged due to the lack of other study findings to support such a high error estimate; however, the majority of other studies used techniques which do not account for measurement error, and can potentially lead to greater opportunities for misinterpretation.

Conclusion

My model is a more sophisticated model than many others reported in the literature due in part to its strongly asserted causal structure and the assertion of the distinction between intent to stay and intent to leave. These model testing results are vital to understanding clinical nurses' intentions to remain in their current positions. The identified causal sequence of behavioral intention development and the influence that leadership has on the development of those intentions is an important contributor to nursing knowledge. The introduction of the concept of desire to stay and combining the cognitive and emotional influences on intent to stay in the model was critical to identifying the causal mechanisms of clinical nurses' intent to stay and should be strongly considered in future intent to stay research. The use of statistical sophisticated techniques such as SEM is important in identifying both the direct and indirect effects of concepts across models to identify potential causal structures of phenomena of interest. This study supports relational

leadership practices as essential to establishing empowered work environments which are vital to effective nurse retention strategies.

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Epilogue

The journey towards a PhD is lengthy and arduous and requires dedication to the essence of learning. As I finish the requirements for my degree I am conscious that the journey is not over, but truly beginning. As I review my research and papers written over the period of time it has taken me to arrive at this current stage, I realize that my work is a roadmap of my scholarly growth. It is with this lens that I review my thesis work and ways in which I could make it more meaningful to the body of nursing knowledge. This new sense of consciousness allows me to think into the future and share some of the future paths that my research may take me.

Paper One – Systematic Review of Leadership and Staff Nurses' ITS

This paper was difficult for me to write as I had to learn how a systematic review was actually done. My direction was clear, the process was robust, and the outcomes were illuminating. But as I read the introduction I am struck by the presence of my own bias. I stressed that the focus of the study was on why nurses stay in their positions and not why they leave. Without evidence, I made the leap that the concepts are not the same. Had I been conscious of my assumptions at the time, I may have read the literature more critically. The examination of the literature that was focused only on intent to stay may have eliminated some key evidence that could have guided the direction of my research. In reflecting now, the awkwardness of my search is evident. As I progressed in my second systematic literature, the search strategy and methods were much more refined. My analysis of the studies is critical and the outcomes well thought out. The stated implications of the systematic review set the stage for the next steps in my research, but were very limited in depth.

Paper Two – Systematic Review of Leadership and Staff Nurses' ITS

The completion of the second systematic review was much easier and took much less time from a process point of view. However, I had difficulty articulating a compelling need for the review of these two concepts. My argument was based on findings primarily in the nursing literature. Exploring the neuroscience and other behavioral sciences literature on how behavioral decisions are made could have enhanced the argument. This foundation may also have helped to explain the concept of desire to stay in greater depth for the conceptual model paper as well, and

should be examined in future research. The implications for nursing research were better developed and linked to the next two steps in the overall dissertation work. The implications for nursing practice, while focused, did not identify complex multilevel strategies, such as implications for nurses, nurse managers, policy, healthcare decision-makers and the health care system. The importance of these complex multilevel strategies was clearer to me after completing the full testing of my theoretical model.

Paper Three – Developing a Conceptual Model of Clinical Nurses Intent to Stay

This paper demonstrated a greater attention to the larger picture and was broader in scope than the previous two papers. Here is where I started to think beyond the information in front of me and explored and formed my perspective on the causal structure of clinical nurses' intentions to stay in their current positions. This may have been due to the move away from a prescribed manner of conducting a systematic review or the beginning of a change in the way I was starting to look at the world around me. My novice research skills were evident in that while I extensively review the theoretical and empirical literature on nurses' intentions to stay and the factors influencing such intentions, I initially adopted a framework to guide my thinking on my conceptual model, albeit somewhat uncritically. In retrospect, this framework does not add credibility or strength to this paper, and therefore I have removed it.

Each concept in my theoretical model was defined, but I should have focused greater attention on the each conceptual definition. I also found that my definitions evolved in depth over time and did not report this evolution. When I developed the model, I had not anticipated the strength of the impact of empowerment. Greater dedication of time to thinking through the causal impact of each concept may have ensured that I was sufficiently conversant about the theoretical underpinnings of each concept. The model was a complex model which reflected a complex causal structure of clinical nurses' intentions. The identification of the best concepts for the model was hampered by inconsistencies in the literature, which made it difficult to determine the best concepts and indicators. The model could have been a simpler model, had I been a more sophisticated reader of the literature. However, the complexity of the model has ultimately added more new knowledge than even I anticipated. I developed a plausible model to explain the

relationships between the factors that influence nurses' intentions to stay. This model development and testing is key to the overall body of research on nurses' intentions.

Paper Four – Testing a Conceptual Model of Nurses' Intentions to Stay: Results and Implications

This paper most clearly demonstrated my academic growth and personal insight regarding the importance of researchers to define their understanding of how the world may be causally structured. I view this paper as evidence of my scholarly development. Grasping the nuances of structural equation modeling was quite difficult for me and it was only in the final weeks of preparing this dissertation that I truly understood the importance of using statistically tested models to advance nursing knowledge. The ability to identify both direct and indirect effects and to know that those effects are as precise as the theory that went into them gives the researcher more accurate information on the influence of concepts and a clearer understanding of how the real world may be causally structured. This was my first structural equation model; as a novice I feel I did an excellent job of creating, transforming and fine-tuning the model. I am now much more appreciative of the theoretical precision that is required in structural equation modeling and the need to think through the model theory clearly.

A few of the model outcomes surprised me. I had not thought through the implications of the concept of empowerment within the model. My specifications went into the hypothesized relationships, but it did not occur to me that empowerment would have such a key influence within the model. My main focus was on the concepts of leadership, desire to stay and intent to stay. For my next SEM I will need to ensure that I do step back, survey the whole model and ensure that I give greater attention to thinking through the causal sequence of all model concepts. I had conceptualized the concept of moral distress to have much greater effects within the model. It was only during my preparation for the defense that I realized how my own experiences had influenced my conceptualization of the causal world and that my recent experience was based in rural healthcare settings, not urban, as was the sample for the study.

The implications for nursing research, nursing practice and health workforce policy were somewhat limited and not as detailed as they might be. I was so focused on the testing of the

model and excited about the model that I did not spend enough time thinking in detail about what the outcomes meant. This emphasizes that my research journey has only just begun and I have a great opportunity to conduct more research in this field in the future.

Future Steps in Nursing Research

The research that I started for the purposes of my dissertation is not complete. I need to do further work on the concepts of intent to stay and intent to leave. My argument for the distinction between the concepts needs to be expanded. While I recognize that the outcomes of the systematic reviews did not confirm the independence of these concepts, it did raise the possibility that they may be both separate and correlated concepts. I will explore this further and work to identify the casual foundation of this proposed correlation. To that end, a mixed method study that has focused qualitative nurse interviews and a quantitative survey component could be used to build and test a new structural equation model to examine clinical nurses' intentions to stay or leave their current positions. The testing of the new model would serve to confirm or reject the hypothesis that ITS and ITL are separate, but correlated concepts and also identify the causal structure of both concepts. If the model testing identifies a theoretical distinction and difference in causal structure, more specific retention strategies can be put into place to influence the intention to stay or leave. The current study model explained 63% of the variance in ITS for nurses within this sample. I propose to validate this finding in other samples including: urban community care hospitals, rural community hospitals, within specialty areas (ICU, ER) and within different populations (nurse educators, nursing faculty, nurse managers and nurse practitioners).

The concept of desire to stay was one of three direct influences on clinical nurses' intent to stay. This concept also needs to be investigated in greater detail. I will write a paper dedicated to the concept of desire to stay, pulling in the neuroscience and behavioral literature and putting together a convincing argument to include this in future ITS and retention research.

Conclusion

The traveler who completed this journey is not the same individual who first set foot on the path. I have grown as an academic, as a researcher and as an individual. I will never be able to look at the world through the same lens as prior to undertaking doctoral study. I know that there is more to be discovered and the only way I can do that is to be open to what might be and then work to confirm whatever causal structure the evidence, my personal experience and curiosity leads me to postulate, might explain that piece of the world.

Table 5-1 – Indicators and the measurement error specifications for the latent concepts in the SEM

Concept	Survey item(s)	Indicator Label	N	Mean (SD)	% assessed as measurement error	Variance	Measurement error variance
Endogenous Variables							
Shared Decision Making	Nurse Managers or clinical supervisors consult with staff on daily problems and procedures 4 point scale (1) strongly disagree to strongly agree (4) (adapted from the Nursing Work Index-Revised (NWI-R), Aiken & Patrician, 2000)	Staff Consultation	402	2.5 (.75)	20	0.5553	0.1111
Supervisor Support	A supervisory staff that is supportive of the nurses 4 point scale (1) strongly disagree to strongly agree (4) (NWI-R, Aiken & Patrician)	Nurse Support	402	2.7 (.80)	10	0.6306	0.0631
Autonomy	Freedom to make important patient care and work decisions 5 point scale (1) strongly disagree to strongly agree (5) (NWI-R, Aiken & Patrician)	Freedom	408	2.7 (.72)	5	0.5240	0.0262
Empowerment	Overall, I consider my workplace to be an empowering environment 5 point scale (1 or 5) strongly disagree to strongly agree (5) (Global Empowerment, Laschinger & Finegan, 2005)	Empowerment	405	3.2 (1.0)	10	1.0020	0.1002

Table 5-1 Continued – Indicators and the measurement error specifications for the latent concepts in the SEM

Concept	Survey item(s)	Indicator Label	N	Mean (SD)	% assessed as measurement error	Variance	Measurement error variance
Time to Nurse Continued	Sum of the positive responses to eight questions In thinking about your last shift worked, were any of the following tasks necessary but left undone because you lacked the time to complete them? Check all that apply Routine teaching for patients and family Prepare patients and families for discharge Comforting talking with patients Adequately documenting nursing care Back rubs and skin care Oral hygiene Developing or updating nursing care plans Yes/No count of items (Estabrooks et al., 2005)	Tasks left undone	415	5 (2.2)	10	4.7654	0.4765
Quality of Care	I often leave work feeling that I have not been able to provide the amount and level of quality of care that I would like to provide 5-point scale (1) strongly agree to strongly disagree (5) (Reverse coded) (item developed by QWEST team following qualitative interviews)	Level	413	3 (1.2)	10	1.3330	0.1333
Staffing	Enough staff to get work done 4-point scale (1) strongly disagree to strongly agree (4) (NWI-R, Aiken & Patrician)	Enough Staff	404	2.4 (.76)	5	0.5783	0.0289

Table 5-1 Continued – Indicators and the measurement error specifications for the latent concepts in the SEM

Concept	Survey item(s)	Indicator Label	N	Mean (SD)	% assessed as measurement error	Variance	Measurement error variance
Work Group Cohesion	The different levels of nursing staff on my team work well together 5-point scale (1) strongly disagree to strongly agree (5)	Teamwork	398	3.7 (.9)	20	0.7320	0.1464
	There is a strong sense of supportive community on my unit 5-point scale (1) strongly disagree to strongly agree (5) (item developed by QWEST team following qualitative interviews)	Supportive Community	404	3.7 (.9)	20	0.8952	0.1790
Joy	I feel joyful when I accomplish something at work 7-point scale (1) never to daily (7) (MBI, Maslach et al., 1996)	At work	405	5.6 (1.5)	5	2.1961	0.1098
Praise and Recognition	Praise and recognition for a job well done 4-point scale (1) strongly disagree to strongly agree (4) (NWI-R, Aiken & Patrician)	Praise & Recognition	403	2.3 (.8)	10	0.6887	0.0689
Moral Distress	Not being placed in a position of having to do things that are against my nursing judgment 4-point scale (1) strongly disagree to strongly agree (4) (reverse coded) (NWI-R, Aiken & Patrician)	Judgment	400	2.2 (.66)	20	0.4317	0.0863
Job Satisfaction	All things considered, how satisfied are you with your current job? 5-point scale not at all satisfied to completely satisfied (5) (Quinn & Shephard, 1974)	Overall satisfaction	396	3.7 (.96)	5	0.9171	0.0459

Table 5-1 Continued – Indicators and the measurement error specifications for the latent concepts in the SEM

Concept	Survey item(s)	Indicator Label	N	Mean (SD)	% assessed as measurement error	Variance	Measurement error variance
Organizational Commitment	I feel a strong sense of "belonging" to this Unit 5-point scale (1) strongly disagree to strongly agree (5) (adapted from Meyer & Allen, 1993; Meyer, Allen & Smith, 1997)	Belonging	395	3.8 (1.1)	10	1.2187	0.1219
Desire to Stay	If it is up to me, I will be working in this Unit one year from now 5-point scale (1) strongly disagree to strongly agree (5) (adapted from Meyer & Allen; Meyer, Allen & Smith)	Desire	394	3.9 (1.2)	7	1.5586	0.1091
Intent to Stay	I rarely think of leaving this Unit 5-point scale (1) strongly disagree to strongly agree (5) (adapted from Meyer & Allen; Meyer, Allen & Smith)	Stay	385	3.5 (1.3)	10	1.6986	0.1699
Exogenous Variables							
Leadership	A nurse manager or immediate supervisor who is a good manager and leader 4-point scale (1) strongly disagree to strongly agree (4) (NWI-R, Aiken & Patrician)	Good	401	2.7 (.9)	20	0.7850	0.1570
Work Status	(1) Permanent or (2)Temporary	Position	401	1.1 (.3)	2	0.0920	0.0018
Position Preference	(1) Yes or No (2)	Preferred	385	1.1 (.3)	7	0.0742	0.0052

Table 5-1 Continued – Indicators and the measurement error specifications for the latent concepts in the SEM

Concept	Survey item(s)	Indicator Label	N	Mean (SD)	% assessed as measurement error	Variance	Measurement error variance
Opportunity Elsewhere	I feel that I have too few options to consider leaving this Unit 5-point scale (1) strongly agree to disagree (5) (reverse coded) (adapted from Meyer & Allen; Meyer, Allen & Smith)	Options	391	3.1 (1.4)	5	1.9104	0.0955
Career Development	Career Development opportunities 4-point scale (1) strongly disagree to strongly agree (4) (NWI-R, Aiken & Patrician)	Internal	398	2.3 (.7)	10	0.5127	0.0513
Abuse	Sum of positive responses to six questions. Working with residents is sometime challenging and you may run into difficult behaviors in your work. In the last 5 shifts you worked, did you experience the following from a resident? Yelling or screaming Verbal threats Hurtful remarks or behaviors Being spit on, bitten, hit, pushed or pinched Repeated and unwanted questions or remarks of a sexual nature Sexual touching Yes/no (count of items) (Estabrooks et al., 2005)	Residents	415	1.1 (1.5)	20	2.3711	0.4742
Age	Years 5 year blocks (10) from 20-24 to 65-70	Years	403	4.2 (12.3)	5	6.0970	0.3049

Table 5-1 Continued – Indicators and the measurement error specifications for the latent concepts in the SEM

Concept	Survey item(s)	Indicator Label	N	Mean (SD)	% assessed as measurement error	Variance	Measurement error variance
Tenure	Number of years worked in facility	Years in facility	406	11.8 (10.5)	5	109.5945	5.4797
Education	Level of nursing education 5 options of level Diploma (1) Bachelor's Degree (2) Master's Degree (3) Other Degree (4) PhD (5)	Nursing	406	1.5 (.6)	5	0.3596	0.0180

Table 5-2 - The Covariance and Correlation Matrix

Casual Variable	Shared Decision Making	Supervisor Support	Autonomy	Empowerment	Time to Nurse	Quality of Care	Staffing	Work Group Cohesion (1)	Work Group Cohesion (2)	Joy	Praise & Recognition	Moral Distress	Job Satisfaction
Shared Decision Making	**0.5553**	.490*	.344**	.370**	.290**	.235**	.314**	.266**	.322**	.241**	.419**	-.259**	.321**
Supervisor Support	0.2988	**0.6306**	.407**	.515**	.223**	.215**	.333**	.295**	.358**	.231**	.529**	-.343**	.450**
Autonomy	0.1856	0.2342	**0.524**	.442**	.349**	.354**	.445**	.285**	.388**	.214**	.477**	-.420**	.368**
Empowerment	0.2756	0.409	0.3203	**1.002**	.269**	.306**	.324**	.357**	.475**	.300**	.444**	-.359**	.508**
Time to Nurse	-0.4719	-0.3871	-0.5508	-0.5881	**4.7654**	.522**	.493**	.115**	.191**	.152**	.293**	-.243**	.282**
Quality of Care	0.2025	0.197	0.2956	0.354	-1.3151	**1.333**	.500**	.145**	.197**	.179**	.240**	-.282**	.337**
Staffing	0.1779	0.2012	0.2451	0.2467	-0.8176	0.4394	**0.5783**	.245**	.263**	.174**	.364**	-.336**	.386**
Work Group Cohesion (1)	0.1699	0.2001	0.1764	0.306	-0.2155	0.143	0.1592	**0.732**	.570**	.206**	.306**	-.235**	.381**
Work Group Cohesion (2)	0.2272	0.2687	0.2657	0.4503	-0.3948	0.2157	0.1893	0.4615	**0.8952**	.213**	.344**	-.381**	.377**
Joy	0.2657	0.2717	0.2299	0.4447	-0.4931	0.3064	0.1957	0.2613	0.2988	**2.1961**	.284**	-.196**	.330**
Praise & Recognition	0.2589	0.3489	0.2864	0.3689	-0.5301	0.2299	0.2299	0.2171	0.2703	0.3487	**0.6887**	-.328**	.344**
Moral Distress	-0.1268	-0.1791	-0.1996	-0.2363	0.3486	-0.214	-0.1678	-0.1321	-0.2368	-0.1912	-0.1787	**0.4317**	-.334**
Job Satisfaction	0.2291	0.342	0.255	0.4871	-0.5891	0.3728	0.2813	0.3124	0.3418	0.4679	0.2733	-0.21	**0.9171**
Organizational Commitment	0.1899	0.2368	0.2189	0.4225	-0.2869	0.1141	0.1403	0.3067	0.4555	0.451	0.2555	-0.2126	0.4448
Desire to Stay	0.134	0.263	0.2527	0.4977	-0.5405	0.2916	0.2358	0.2439	0.2779	0.377	0.2373	-0.246	0.6162
Leadership	0.2671	0.386	0.2884	0.6987	-0.5957	0.3744	0.2542	0.33	0.4883	0.4356	0.2971	-0.261	0.6531
Work Status	0.3053	0.4885	0.2492	0.4244	-0.421	0.2301	0.2267	0.2029	0.2651	0.3047	0.3822	-0.2225	0.3434
Position	0.0297	0.0239	0.0157	0.0229	-0.0061	0.0046	0.0184	0.0027	0.0152	0.0524	0.0236	-0.0051	-0.0049
Preference	0.0256	0.0269	0.0248	0.0279	-0.0163	-0.0088	0.0088	0.0192	0.022	0.0526	0.0192	-0.0055	0.0022
Opportunity Elsewhere	0.1011	0.035	0.1383	0.0999	0.0507	0.01458	0.0627	0.0698	0.1778	0.182	0.0533	-0.1312	0.14
Career Development	0.2115	0.2513	0.1965	0.3062	-0.3208	0.1605	0.1596	0.1458	0.172	0.2341	0.2669	-0.1574	0.2306
Abuse	-0.0963	-0.1294	-0.1045	-0.1233	1.0605	-0.4161	-0.1332	-0.0134	0.04	-0.2018	-0.0991	0.0656	-0.1063
Age	-0.0102	-0.0792	-0.1026	-0.1026	-0.9043	0.2023	0.2189	-0.0385	0.0187	-0.0882	0.076	-0.1802	0.1363
Tenure	-0.2753	-0.5178	0.0257	0.0257	-3.2158	0.1944	0.4319	0.1481	0.0033	-0.6408	0.5914	-0.559	0.3654
Education	-0.0358	-0.0521	0.0211	0.0211	0.1443	0.0194	-0.0429	0.0037	0.008	-0.0019	-0.0384	-0.009	-0.0192

†Covariances in lower left half of matrix; variances on diagonal; correlation is in upper right half of matrix

*Correlation is significant at the 0.05 level (two-tailed)

**Correlation is significant at the 0.01 level (two-tailed)

Table 5-2 –The Covariance and Correlation Matrix

Casual Variable	Organizational Commitment	Desire to Stay	Leadership	Work Status	Position	Preference	Opportunity Elsewhere	Career Development	Abuse	Age	Tenure	Education
Shared Decision Making	.231**	.144**	.275**	.462**	.132**	.126*	0.098	.396**	-0.079	-0.008	-0.035	-0.08
Supervisor Support	.270**	.265**	.373**	.694**	.099*	.124*	0.032	.442**	-.110*	-0.04	-0.062	-.109
Autonomy	.274**	.280**	.306**	.389**	0.071	.126*	.138**	.379**	-.102	-0.079	-0.043	0.058
Empowerment	.382**	.398**	.536**	.479**	0.075	.102*	0.072	.427**	-0.077	-0.042	0.002	0.035
Time to Nurse	.119**	.198**	.209**	.218**	0.009	0.027	-0.017	.205**	-.313	.168**	-.141**	-.110*
Quality of Care	0.09	.202**	.249**	.225**	0.013	-0.028	0.091	.194**	-.236**	0.071	0.016	0.028
Staffing	.167**	.248**	.256**	.336**	0.08	0.043	0.06	.293**	-.118	.117*	0.054	-0.094
Work Group Cohesion (1)	.325**	.228**	.296**	.268**	0.01	0.082	0.059	.238**	-0.006	-0.018	0.017	0.007
Work Group Cohesion (2)	.436**	.235**	.396**	.316**	0.053	0.085	.136**	.254**	0.032	0.08	0.00	0.014
Joy	.276**	.204**	.226**	.232**	.117*	.130*	0.089	.221**	-0.096	-0.024	-0.041	-0.002
Praise & Recognition	.279**	.229**	.275**	.520**	0.094	0.085	0.046	.449**	-0.078	0.037	0.068	-0.077
Moral Distress	-.293**	-.300**	-.305**	-.0382**	-0.025	-0.031	-.144**	-.335**	0.063	-.111*	-0.081	-0.023
Job Satisfaction	.421**	.515**	.523**	.405**	-0.017	0.009	.106*	.336**	-0.072	0.058	0.036	-0.033
Organizational Commitment	**1.2187**	.583**	.573**	.243**	-0.04	-0.039	0.009	.250**	-0.015	0.09	-.151**	-0.059
Desire to Stay	0.8039	**1.5586**	.621**	.262**	-0.092	-0.042	-0.045	.221**	-0.043	.170**	.202**	-0.081
Leadership	0.8243	1.01	**1.6986**	.336**	-0.003	0.038	0.041	.293**	-0.055	0.062	0.087	-0.068
Work Status	0.2375	0.2899	0.388	**0.785**	0.095	0.096	0.066	.434**	-0.064	-0.07	-0.073	-0.048
Position	-0.0134	-0.0347	-0.001	0.0254	**0.092**	.775**	-0.009	0.054	-0.004	-.229**	-.204**	.139**
Preference	-0.0117	-0.0144	0.0134	0.0232	0.0641	**0.0742**	-0.043	0.075	0.025	-.219**	-.183**	.119**
Opportunity Elsewhere	0.0143	-0.077	0.073	0.0811	-0.0036	-0.0163	**1.9104**	.131*	0.025	-0.028	-.116*	0.029
Career Development	0.1977	0.1976	0.273	0.2753	0.0117	0.0146	.1298	**0.5127**	-.105*	-0.041	-0.045	-0.095
Abuse	-0.0125	-0.079	-0.1118	-0.0835	-0.0086	0.0025	0.047	-0.1111	**2.341**	-.200**	-.165**	.116
Age	0.244	0.5231	0.198	-0.1528	-0.1712	-0.1477	-0.0961	-0.0731	-0.7586	**6.097**	.704**	-.377**
Tenure	1.7467	2.6362	1.182	-0.6793	-0.6485	-0.5209	-1.6741	-0.3408	-2.6532	18.2038	**109.5945**	-.301**
Education	-0.0393	-0.0604	-0.053	-0.0255	0.0253	0.0194	0.0237	-0.0407	0.1096	-0.5577	-1.8867	**0.3596**

†Covariances in lower left half of matrix; variances on diagonal; correlation is in upper right half of matrix

*Correlation is significant at the 0.05 level (two-tailed)

**Correlation is significant at the 0.01 level (two-tailed)

Table 5-3 – Estimated Effects and Standard Errors in the Final Model

†Causal Variable Endogenous	Shared Decision Making	Supervisor Support	Autonomy	Empowerment	Time to Nurse	Quality of Care	Staffing	Work Group Cohesion	Joy	Praise & Recognition	Moral Distress	Job Satisfaction	Organizational Commitment	Desire to Stay
Shared Decision Making														
Supervisor Support														
Autonomy					**0.04*** (.02)		**0.18*** (.05)							
Empowerment			**0.18*** (.08)											
Time to Nurse	**0.52*** (.17)						**1.2*** (.13)	-0.13 (.14)						
Quality of Care	-0.07 (.10)		0.08 (.09)	0.13 (.07)	**0.20*** (.03)		**0.4*** (.08)	-0.05 (.08)			-0.12 (.11)			
Staffing														
Work Group Cohesion				**0.17*** (.07)										
Joy			-0.06 (.14)	0.21 (.12)	0.00 (.05)	0.08 (.09)		0.16 (.12)		0.21 (.16)	-0.07 (.17)			
Praise & Recognition			**0.16*** (.06)											
Moral Distress			**-0.22*** (.05)		-0.01 (.02)			-0.04 (.05)						
Job Satisfaction		0.15 (.10)	0.02 (.08)	**0.21*** (.07)		**0.10*** (.04)	0.12 (.07)	**0.21*** (.06)	**0.09*** (.03)	-0.16 (.09)	-0.03 (.10)			
Organizational Commitment		0.01 (.09)		**0.21*** (.07)				**0.26*** (.08)				**0.27*** (.07)		
Desire to Stay				**0.18*** (.08)		0.05 (.05)		-0.13 (.08)	-0.2 (.04)	-0.03 (.11)	-0.18 (.11)	**0.41*** (.07)	**0.55*** (.06)	
Intent to Stay			0.06 (.09)	**0.34*** (.08)						-0.17 (.11)		0.12 (.07)	**0.30*** (.06)	**0.36*** (.06)

†Effects run from the variable heading the column to the variable in the row
*Significant coefficient as it exceeds more than two standard errors.

Table 5-3 continues on next page

Table 5-3 – Estimated Effects and Standard Errors in the Final Model

†Causal Variable Exogenous	Leadership	Work Status	Positions Preference	Opportunity Elsewhere	Career Development	Abuse	Age	Tenure	Education	R^2
Shared Decision Making	**0.72*** (.06)									0.48
Supervisor Support	**0.93*** (.06)									0.63
Autonomy	**0.48*** (.07)								**0.16*** (.05)	0.40
Empowerment	**0.89*** (.10)									0.48
Time to Nurse						**-0.45*** (.07)				0.40
Quality of Care										0.43
Staffing	**0.57*** (.06)						**0.04*** (.01)			0.26
Work Group Cohesion	**0.37*** (.10)									0.23
Joy	0.24 (.30)									0.16
Praise & Recognition	**0.79*** (.08)									0.55
Moral Distress	**-0.33*** (.07)						**-0.04*** (.01)			0.36
Job Satisfaction	0.30 (.30)	-0.18 (.23)	-0.12 (.27)		-0.01 (.09)	0.03 (.03)	0.03 (.10)	0.00 (.01)	0.00 (.07)	0.46
Organizational Commitment		0.12 (.30)	-0.37 (.35)		0.09 (.09)		-0.03 (.03)	**0.02*** (.01)		0.30
Desire to Stay	-0.17 (.21)		-0.02 (.19)	**-0.09*** (.03)		0.03 (.04)	**0.05*** (.02)			0.54
Intent to stay	0.29 (.24)		0.14 (.19)	0.0 (.03)	-0.05 (.11)		-0.00 (.03)	-0.00 (.01)	-0.08 (.09)	0.63

†Effects run from the variable heading the column to the variable in the row.
*Significant coefficient as it exceeds more than two standard errors.

Table 5-4 – Standardized Effects in the Final Model

†Causal Variable Endogenous	Shared Decision Making	Supervisor Support	Autonomy	Empowerment	Time to Nurse	Quality of Care	Staffing	Work Group Cohesion	Joy	Praise & Recognition	Moral Distress	Job Satisfaction	Organizational Commitment	Desire to Stay
Shared Decision Making														
Supervisor Support														
Autonomy					.13		.19							
Empowerment			.13											
Time to Nurse	.17						.45	-.05						
Quality of Care	-.05		.05	.11	.39		.27	-.03			-.07			
Staffing														
Work Group Cohesion				.21										
Joy			-.03	.14	.01	.06		.08		.12	-.03			
Praise & Recognition			.14											
Moral Distress			-.26		-.03			-.05						
Job Satisfaction		.12	.01	.21		.11	.10	.17	.15	-.13	-.02			
Organizational Commitment		.00		.19				.19				.24		
Desire to Stay				.14		.04		-.08	-.03	-.02	-.09	.32	.47	
Intent to Stay			-.03	.26						-.11		.09	.25)	.35

†Effects run from the variable heading the column to the variable in the row.

Table 5-4 continues on next page

Table 5-4 – Standardized Effects in the Final Model

†Causal Variable Exogenous	Leadership	Work Status	Positions Preference	Opportunity Elsewhere	Career Development	Abuse	Age	Tenure	Education
Shared Decision Making	.67								
Supervisor Support	.80								
Autonomy	.45								.13
Empowerment	.61								
Time to Nurse						-.31			
Quality of Care									
Staffing	.49						.14		
Work Group Cohesion	.31								
Joy	.10								
Praise & Recognition	.65								
Moral Distress	-.36						-.16		
Job Satisfaction	.21	-.06	-.03		-.01	-.01	.07	.00	.02
Organizational Commitment		.03	-.09		.06		-.06	.19	
Desire to Stay	-.09		-.01	-.10		.03	.11		
Intent to stay	.15		.03	.02	-.03		-.01	-.01	-.04

†Effects run from the variable heading the column to variable in the row.

Figure 5-1 - Exogenous Latent Variables, Indicators and Assigned Percentages of Measurement Error

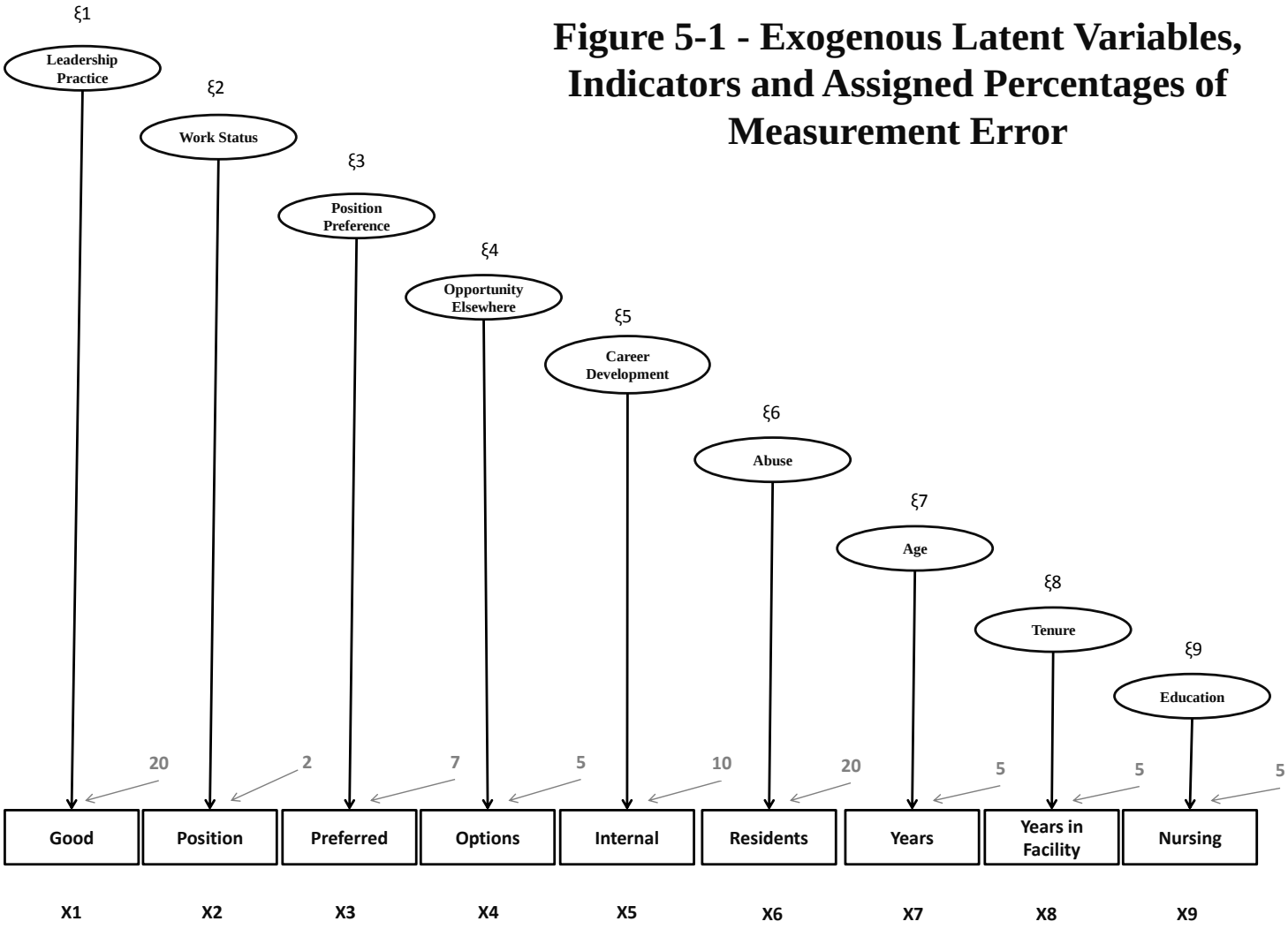


Figure 5-2 - Endogenous Latent Variables, Indicators and Assigned Percentages of Measurement Error

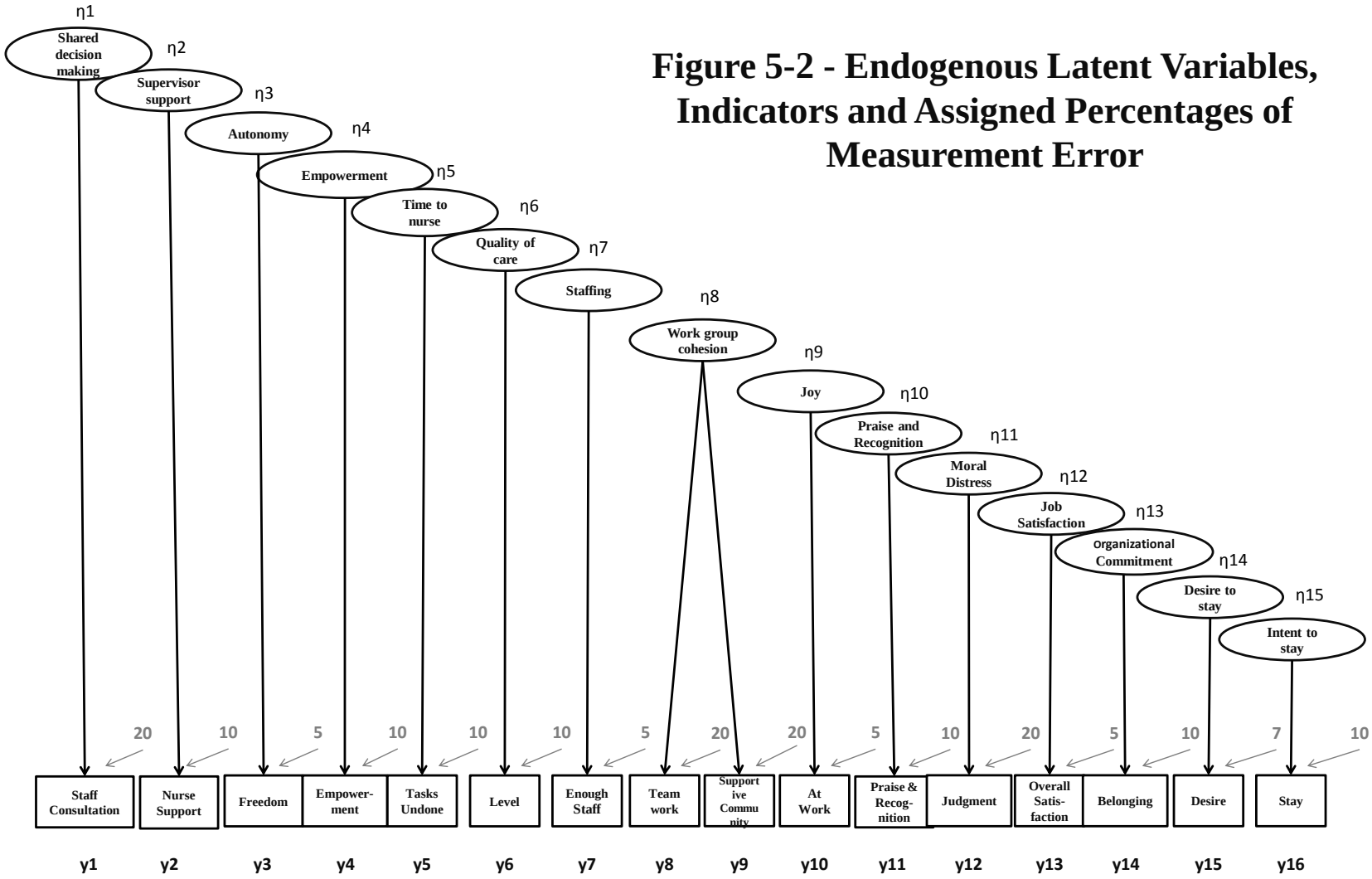
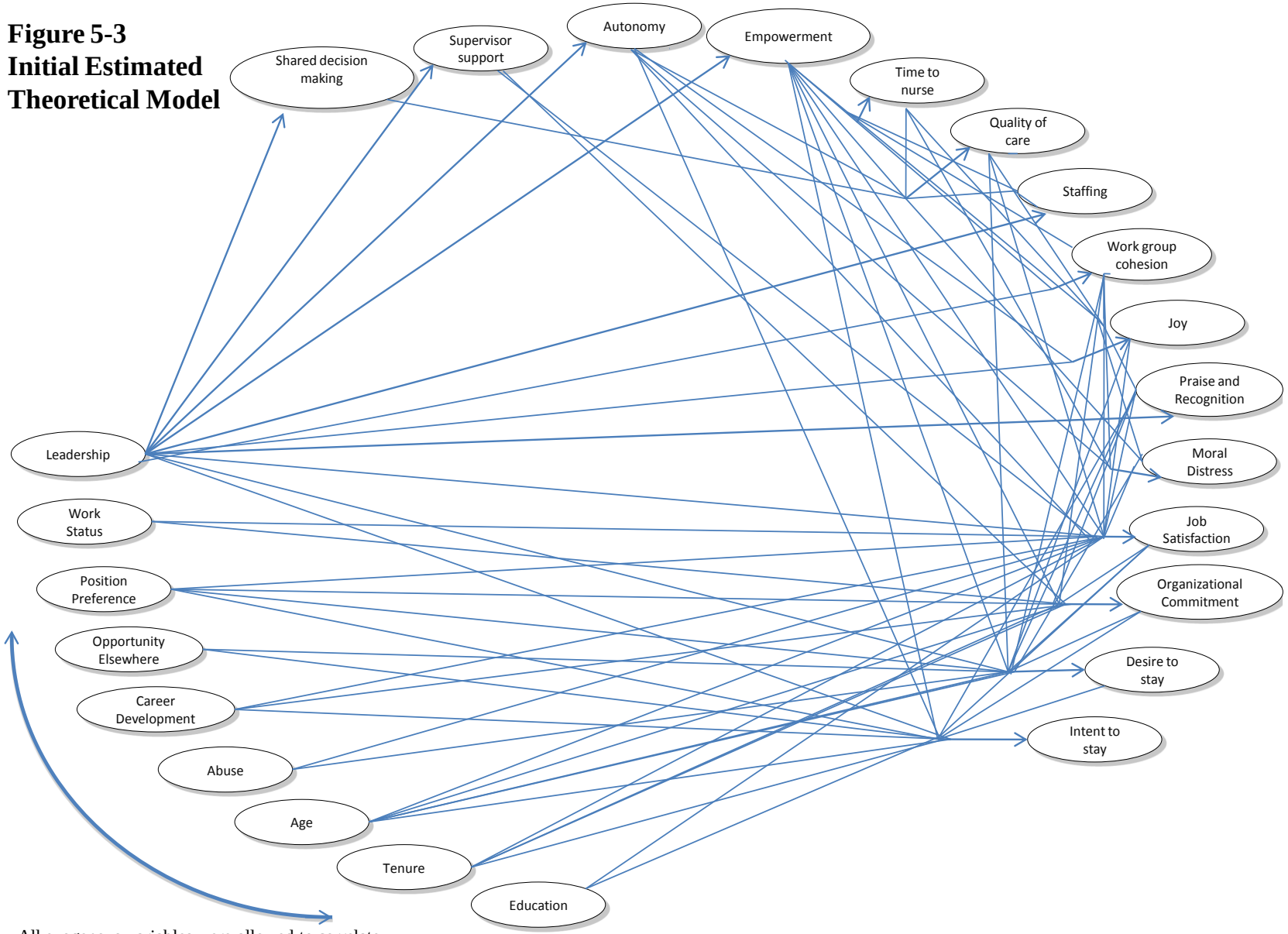
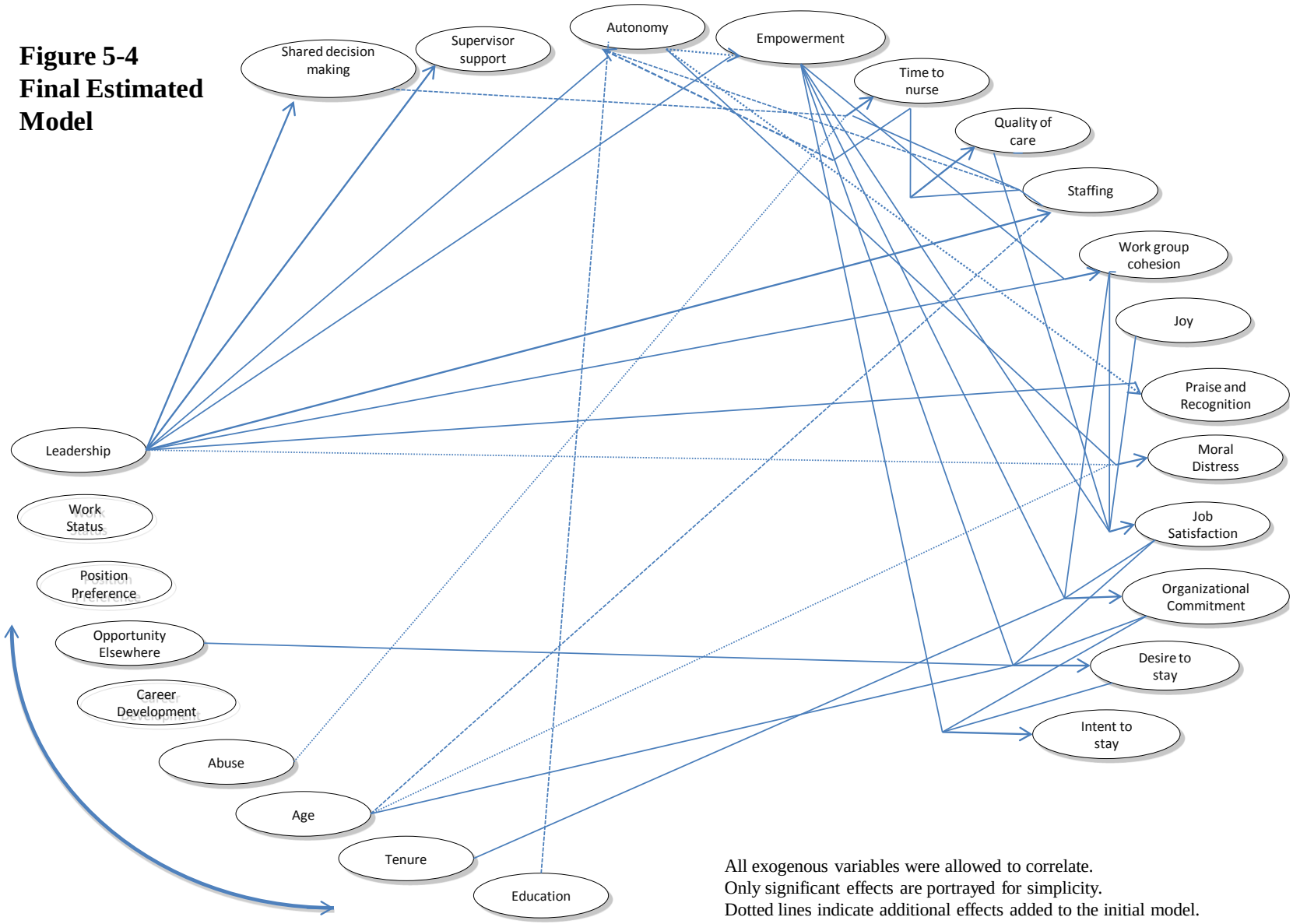


Figure 5-3
Initial Estimated Theoretical Model



All exogenous variables were allowed to correlate.

Figure 5-4
Final Estimated Model



All exogenous variables were allowed to correlate.
Only significant effects are portrayed for simplicity.
Dotted lines indicate additional effects added to the initial model.