JOB STRESS, JOB SATISFACTION AND INTENTION TO LEAVE AMONG NEW NURSES

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ABSTRACT

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The difficulties new nurses experience when first entering acute care work environments have been recognized since Kramer's seminal work in the 1970s. Despite the implementation of interventions designed to help ease the transition, the literature continues to report that new graduates undergo stress when beginning their careers as nurses. The purpose of this study was to examine the effects of perceived demands, control, social support and self-efficacy on the job stress, job satisfaction and intention to leave of new nurses.

The conceptual framework used in the study was Karasek's (1979) Job Demands-Control-Support (JDC-S) model. This model posits that job demands increase employee stress, but that increasing control can alleviate the negative effects of high demands. Social support and self-efficacy were included in this study as potential moderators of the relationships between demands and control and the outcome variables. This was an exploratory study that utilized a cross-sectional survey was used to gather data. Surveys were mailed to the homes of new nurses working in acute care hospitals across Ontario, Canada.

Data were received from 232 new nurses, a response rate of 23.8%. Nurses in the sample had an average of 18.2 months of experience. Data were analyzed using separate hierarchical regression models for each dependent variable. The results showed that the main effects of job demands, social support and self-efficacy provided partial support for the JDC-S model when examining job stress, job satisfaction and intention to leave the job. Only self-efficacy was significantly related to intention to leave the profession. There was no evidence of moderating effects of social support or self-efficacy. An understanding of factors in the work environment that influence new nurses may assist in supporting them during the transition. By exploring the effects of demands, control, social support and self-efficacy on new graduates' job stress, job satisfaction and intention to leave, this study may provide direction to nursing leaders who are working new nurses in acute care.

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Table of Contents

Tables

Figures

Appendices

Chapter One: Introduction

New graduates are often excited about beginning work as a registered nurse (RN) (Greenwood, 2000). However several studies have documented high levels of stress among new nurses upon entering the work environment (Boychuk Duchscher, 2001; Carroll, 2005; Gerrish, 2000; Godinez, Schweiger, Gruver & Ryan, 1999). One of the first researchers to examine the stress experienced by new nurses was Marlene Kramer (1974). Her work on the socialization of new nurses brought attention to the gap between the theory that students were taught in schools and reality of nursing practice within organizations. Traditionally nursing schools were linked with hospitals and students provided the majority of the staffing for hospitals in an apprenticeship model (Dick & Cragg, 2003; Greenwood, 2000). Thus students learned nursing through practicing (Tiffany, 1990). To improve the quality of nursing education and to include theoretical preparation along with the practical preparation of nurses, training gradually moved into institutions of higher education (Dick & Cragg, 2003). However, the move out of the hospital and into colleges or universities has created a gap in the transition from student to practicing nurse. Prior to this move, the new graduate knew the expectations of the nursing role within the organization and the organization knew the skills and knowledge that nurses possessed (Tiffany). The organization expected that new nurses would be fully prepared to practice upon graduation. With the change in the education of nurses the transition to the work environment also changed. New nurses were not prepared to practice independently immediately upon graduation. They were not familiar with the work environment and began to need an orientation to it (Dick & Cragg).

Kramer (1974) conceptualized the gap between the school and work settings as a clash of values. She recognized the need to support students and new nurses when they confronted this clash in values noting that, if unresolved, the confrontation could lead to turnover. Specifically, she advocated for interventions to assist new nurses to make the transition to practice. However despite widespread implementation of such interventions newly graduated nurses have still expressed difficulty making the transition into work settings. It was found that in one state in the United States, 30% of new nurses left their job within their first year of employment (Bowles & Candela, 2005). Institutions have reported turnover among new nurses to be between 5 and 44% after implementation of an externship program (Cantrell & Browne, 2006) and as high as 50% prior to implementing a residency program (Pine & Tart, 2007). This suggests the need to look beyond Kramer's theory of new nurse socialization for other factors impacting the transition to the work environment. While the literature describing the transition of new nurses to the work environment reflects the gap between school and work found by new nurses (Maben, Latter & Macleod Clark, 2006), this gap doesn't appear to be the only factor influencing the stress they experience.

One theory that helps explain stress occurring in work settings is Karasek's (1979) Job-Demands-Control-Support model. This theory recognizes the importance of daily environmental stressors on the long-term experiences of stress (Karasek & Theorell, 1990). Job demands, such as high workload and time pressures, can lead to negative outcomes such as stress. However having control and social support in one's job are posited to counteract the negative effects of high demands. Certainly job demands are a dominant theme in the literature describing the experiences of new nurses. Meeting workload requirements and feeling rushed were commonly expressed as stressors for new nurses (Casey, Fink, Krugman & Propst, 2004; Maben et al., 2006). Themes reflecting the responsibility, or control, given to new RNs were also noted (Amos, 2001). In addition, support from coworkers and fitting into the health care team were integral parts of the transition to the work setting (Tiffany, 1990).

Research on new nurses also suggests self-efficacy is an important concept among this population as they have expressed a lack of confidence in their skills and abilities to function as nurses when first entering the work environment (Casey et al., 2004). Self-efficacy is a person's belief in their ability to achieve a certain level of performance to obtain a required outcome (Bandura, 1997). Efficacy perceptions increase with successfully achieving the performance and obtaining the outcome (Bandura). Because new nurses haven't had the opportunity to perform the role of an RN, their efficacy perceptions will not be developed when they enter the work setting and their confidence would understandably be low. However the impact of self-efficacy on their stress has not been explored in the new graduate literature.

Problem Statement

There is currently little research that explores stress during the transition experience of newly graduated nurses to the workplace from a theoretical perspective other than the socialization theory introduced by Kramer (1974). The impacts of job demands, job control and social support have not been theoretically addressed in a comprehensive model among this population. Additionally, the role that self-efficacy plays in the transition has not been explored. Therefore this research will ask the following question: What are the effects of job demands, job control, social support and self-efficacy on job stress, job satisfaction and intentions to leave of newly graduated nurses? This is a necessary first step to developing targeted interventions for easing the transition of new nurses to the workplace.

Chapter Two: Literature Review

What follows is a literature review in which the transition of newly graduated nurses to the work environment is examined. The review begins with the seminal work of Marlene Kramer (1974) who first articulated the difficulties surrounding the transition for new nurses into work settings. Next, the review considers the interventions that were implemented following Kramer's identification of the problems surrounding the transition experiences of new nurses. It then looks at the experiences of new nurses in relation to the perceived job demands and control in the work setting as well as the role of perceived support and self-efficacy. Finally, the potential outcomes of the transition period, including job stress, job satisfaction and intention to leave, are addressed.

Search Strategy

Literature included in this review was identified primarily through searches on the Cumulative Index to Nursing and Allied Health Literature (CINAHL), which covers publications from 1982 to 2008. Keywords used were 'new graduate nurse', 'new graduate role', 'newly graduated nurses', 'novice nurses', and 'newly qualified nurses'. For literature prior to 1982 and additional literature, the bibliographies from identified articles or books were used. Finally, colleagues familiar with the topic area recommended literature. To be included, the literature had to address new nurses working in a hospital, their transition to the role of RN, their responses to the work environment or unique characteristics of the cohort. Because of the abundance of articles that met these criteria from 1990-2008, this search was limited to research articles. Relevant non-research articles were identified through the methods described above.

Kramer's Perspective on the Transition of New Graduates to the Workplace

In 1974 Marlene Kramer published *Reality Shock: Why Nurses Leave Nursing*. In this book she applied a socialization theory to newly graduated nurses. She postulated that a clash of values between school and the work place resulted in the problems encountered by new nurses in beginning their careers. Kramer distinguished between professional nursing values and bureaucratic values. She argued that in the educational context nursing students were socialized to professional values and were taught ideal nursing practice. Kramer suggested that students were unaware that they were learning the ideal rather than the norm. This resulted in conflict when they entered work settings and were faced with bureaucratic values that were incompatible with their professional values.

The clash in values caused a series of symptoms which Kramer (1974) referred to as 'reality shock', a term taken from the sociology literature (Louis, 1980). New employees often have to confront the difference between their expectations and the reality of the workplace, which results in shock (Schein, 1978). Kramer conceptualized reality shock for new nurses as role deprivation, the incongruence between a nurse's experience of practice and her ideal conception of nursing practice (Kramer). Role deprivation was measured in Kramer's work using Corwin Role Conception-Role Deprivation Scales (Kramer, 1968; Kramer). Corwin's three scales measure bureaucratic, professional, and service role conceptions. They present a series of situations and ask nurses to rate whether the action taken in the situation reflects what nurses should do and whether it is consistent with their observations of nursing practice. The difference between the two ratings represents role deprivation.

Kramer (1974) described four possible reference groups that newly graduated nurses could observe or imitate to resolve the clash between values (see Table 1). These groups were based on a sample of nurses who had chosen differing combinations of professional and bureaucratic values. Kramer believed successful nurses were those who were able to retain both high professional and high bureaucratic values and thus become bicultural. To encourage newly graduated nurses to hold onto high professional and also gain high bureaucratic values, Kramer advocated two interventions. The first was a program of anticipatory socialization. In this program nursing students were introduced to bureaucratic values and had their professional values challenged while they were still in school (Kramer). They were given forums to express their frustrations or anger within a safe, supportive environment. Kramer postulated that this would prepare them by giving them the necessary resources to resolve value conflicts prior to entering the workplace. The second intervention was a ‘bicultural training’ program designed for newly hired nurses in the workplace (Schmalenberg & Kramer, 1979). This program allowed new nurses to share the conflicts they faced in the workplace and provided training in managing conflicting values and conflict resolution.

Table 1.Reference Groups for Newly Graduated Nurses. (Adapted from Kramer, 1974, p. 79-95)

	Low professional	**High professional**
High bureaucratic	*Organization Women* -median age = 23 -generally no children -career-oriented, supervisory positions -fewest # of job changes -love nursing -largest % of new grads (65%) -less than 1/3 are members of professional organizations and less than 10% active -lowest dropout rate (15%)	*Bicultural Troublemakers* -median age = 23 -most single -more in autonomous positions than the other subgroup -mean # of job changes is 3 -71% rated by supervisors as being very successful -most likely to be involved with professional organizations -41% dropout rate, over ½ to teaching or grad school
Low bureaucratic	*Rutters* -median age = 28 (oldest group but 58% were new grads) -almost 1/2 married many with children -many have outside interests -almost 3/4 say nursing is okay, a job, or would not choose it again -least likely to be involved with professional activities -21% dropout rate	*Lateral Arabesquers* -median age = 22 -majority single -highest # of job changes (mean 3.58 (range 2-9) in 2 yrs) -40% new grads -many planned to return to school -most not happy with nursing -42.58% involved in professional activities -51% dropout rate

Kramer's (1974) theory identified four phases in the socialization of new nurses to the work place. During the first phase, new nurses focus on learning the necessary skills for work and the unit routines. Difficulties in negotiating this phase can lead to feelings of being overwhelmed and threaten their self-confidence. In the second phase, the new nurses' main concern is fitting in with coworkers. The third phase is moral outrage characterized by anger or frustration related to the discrepancy between their school-learned, professional values and the bureaucratic values that they encounter in the work place. Finally, phase four is resolution when the new nurse chooses which values she is going to uphold. Kramer theorized that the phases are not necessarily chronological and that they are independent of one another; thus not every nurse would go through all four, nor would they go through them in the same order.

Interventions Supporting Newly Graduated Nurses

Kramer's (1974) work resulted in widespread recognition that the transition to the workplace of newly graduated nurses needed to be addressed. Although there are few reports that her suggestions for anticipatory socialization and bicultural training programs were implemented, there are a vast number of reports of interventions targeted to helping newly graduated nurses adjust to the work environment. Kramer's identification of role deprivation as the source of difficulties in the transition from student to nurse seemed to be accepted with little further testing. Throughout the 1980s much of the nursing literature addressing newly graduated nurses seemed to implicitly accept that nursing students or new nurses needed to be exposed to the "real world" of nursing prior to beginning their careers. Many institutions accomplished this by pairing students or new nurses with a more experienced nurse to act as a preceptor. The literature is replete with descriptions of internships or preceptor programs targeted towards new nurses or nursing students.

A review of the literature on preceptor and internship programs conducted in 1980 determined that the benefits of these programs were questionable (Lewison & Gibbons, 1980). The lack of systematic and objective evaluations prohibited adequate assessment of their worth (Lewison & Gibbons). Currently it remains difficult to determine their impact on the transition experiences of new nurses. There are variations in the length of the programs which span anywhere from six weeks (Brasler, 1993) to one year (Altier & Krsek, 2006; Beecroft, Kunzman & Krozek, 2001; DeSimone, 1999; Halfer, 2007; Rosenfeld, Smith, Iervolino & Bowar-Ferres, 2004). The content of the programs are also varied such that some programs included mentors (Beecroft et al.; Dear, Celentano, Weisman & Keen, 1982; DeSimone; Halfer; Rosenfeld et al.), laboratory simulations (Beyea, von Reyn & Slattery, 2007) or rotating clinical experiences in addition to a preceptor (Beecroft et al.; DeSimone; Halfer; Rosenfeld et al).

Evaluation of these programs has improved somewhat since the review conducted in 1980 (Lewison & Gibbons, 1980). While some articles published since then continue to report only subjective evaluations, several have included quantitative reports of the outcomes of the programs. However, the outcomes of interest are varied. Some studies report the changes in job performance or role conceptions of new nurses, while others attempt to quantify the impact of different aspects of the programs themselves. Lewison and Gibbons noted that evaluations of the programs did not include their impact on the quality of patient care and this outcome is still absent.

Many interventions were implemented to assist new nurses in making the role transition into the work environment (Beyea et al., 2007; Blanzola, Lindeman & King, 2004; Clayton, Broome & Ellis, 1989; Dear et al., 1982; Denyer, Girard, Ray & Reeves, 2005; Dobbs, 1988; Harkins, Schambach & Brodie, 1983; McGrath & Princeton, 1987; Nelson, Godfrey & Purdy, 2004; Olson et al., 2001; Talarczyk, & Milbrandt, 1988). Appendix A provides a summary of empirically evaluated interventions designed for new nurses or nursing students. Some were based, either implicitly or explicitly, on Kramer's (1974) theory of socialization and evaluated the role conceptions and role deprivation of new nurses using the Corwin Role Conception-Role Deprivation Scales (Aldrich, 1988; Beecroft et al., 2001; Dobbs, 1988; Weiss, 1984). The majority of these utilized a form of preceptorship or internship.

In contrast to Kramer's (1974) findings, studies evaluating role conception found little difference between new nurses who underwent a preceptorship or internship and those new nurses who had not (Aldrich, 1988; Beecroft et al., 2001). However, one study conducted among pediatric nurses found that a control group of new nurses who had not undergone an internship program showed more inconsistent ratings of ideal nursing practice than the internship group (Beecroft et al.), which could signify that the control group was more vulnerable to role deprivation. In contrast, a preceptorship program directed at students (Dobbs, 1988) and an intervention involving self-administered transition modules for newly graduated nurses (Weiss, 1984) found that these programs led to differences in role deprivation for participants when compared to a control group.

There are many anecdotal reports of positive evaluations of preceptorship programs (Chesnutt & Everhart, 2007; Dear & Keen, 1982; Denyer et al., 2005; Keen & Dear, 1983; Lavoie-Tremblay et al., 2002; McGrath & Princeton, 1987; Murphy, Petryshen & Read, 2004) and the opportunities provided to preceptors (Lee & Raleigh, 1983; Talarczyk & Milbrant, 1988). This suggests that there are benefits of preceptorship programs that are not captured through the quantitative investigations of role conceptions. This is clearly illustrated in Aldrich's (1988) study, which found no quantitative differences in the role conceptions of the new nurses who had been involved in an internship program when compared to a control group. New nurses in the internship program did not show a significant decrease in measured stress levels during the first six months of employment unlike participants in the control group. The author posited that the reason that new nurses in the internship group had higher levels of stress was that over half of the group was working in a critical care setting. None of the control group was working in critical care. Despite this difference in the quantitative data, in qualitative interviews the interns used adjectives that were less distressing to describe their specialty area than the control group. The author suggested this might have been due to the nature of the internship, which was designed to promote positive attitudes toward the specialty area.

Some studies measured the effectiveness of interventions through the changes in performance of participants rather than by role conceptions or deprivation. The results varied with some authors reporting no difference between the internship group and a control group (Dear et al., 1982; Ignatavicius, 1983) while others found improved performance in both self-reports by the participants in the internship and in peer reports (Blanzola et al., 2004; Clayton et al., 1989). Often performance was measured using the Schwirian Six-Dimension Scale of Nursing Performance, which is comprised of subscales measuring leadership, teaching/ collaboration, planning, interpersonal relationships/ communication, professional development and critical care (Schwirian, 1978). Using this scale, the aspects of nursing performance influenced by the interventions also vary. One study found differences between the participants and a control group in the subscales tapping leadership, teaching and collaboration, planning, and interpersonal relationships and communication (Clayton et al.). Another found scores on the leadership subscale to increase over time among those who had a preceptorship while the scores on the critical care, teaching and collaboration, and planning subscales actually decreased in frequency and quality over time (Olson et al., 2001).

Using performance as the evaluation measure is problematic. There is little consensus on what constitutes adequate performance for newly graduated nurses. There is also no clear distinction between performance and competence (Ramritu & Barnard, 2001). Furthermore, there are differences between new graduates', educators' and practitioners' perceptions of performance (Ignatavicius, 1983; Failla, Maher & Duffy, 1999) and competence (Benner & Benner, 1979). New graduates place importance on different skills than nursing service personnel (Sweeny & Regan, 1982). Disagreement has also been found between senior nurses and preceptors in perceptions of the competence of new nurses (O'Connor, Pearce, Smith, Voegeli, & Walton, 2001) illustrating that the skills and knowledge required of newly graduated nurses have not been clearly delineated.

Some of the interventions were implemented and evaluated in terms of their impact on the retention of newly graduated nurses (Almada, Carafoli, Flattery, French & McNamara, 2004; Altier & Krsek, 2006; Andersen, 1989; Beecroft et al., 2001; Crabtree Tonges & Jones, 1985; Crimlisk, McNulty & Francione, 2002; Halfer, 2007; Lee & Raleigh, 1983; Nelson et al., 2004; Newhouse, Hoffman, Suflita & Hairston, 2007; Owens et al., 2001) and recruitment of new graduates to the institution (Harkins et al., 1983). Of the studies that have included a comparison group, reports of the impact of the programs have shown them to be successful. One found a 23% turnover rate for interns who were hired into staff positions compared to a 47% turnover rate for other newly graduated nurses (Nelson et al.) while another reported a turnover rate of 14% for interns compared to 36% for the control group (Beecroft, et al.). It was also found that students hired as summer externs into nurse aide positions had a 36% turnover rate compared to 64% turnover for other newly hired nurse aides (Harkins et al.). In contrast, one study found a significantly lower rate of turnover at 12 months post-hire between nurses who had gone through an internship program when compared to a department that did not participate at the program but the difference was not sustained at 18 and 24 months (Newhouse et al., 2007).

A few studies compared turnover or retention rates after implementation of the program to prior turnover rates. These comparisons were also favorable showing a decrease in turnover from 29.5% to 12.3% (Halfer, 2007) and 50% to 13% (Pine & Tart, 2007) after the implementation of an internship or residency program. Almada et al. (2004) reported a 29% increase in retention rates after implementing a program for newly graduated nurse hires. A final study evaluated job satisfaction and found no changes in overall satisfaction (p=0.055) over the course of a one-year residency program (Altier & Krsek, 2006). However, this was interpreted as a positive finding as they noted that this is a period of stress for new graduates and a time when dissatisfaction and attrition can occur.

Although the evaluations of the programs with regards to turnover have been mostly favorable, some caution is warranted when examining the findings. A systematic review of 16 studies that investigated the impact of interventions on the retention of new nurses commented that many of the studies used weak designs with limited amount of control (Salt, Cummings & Profetto-McGrath, 2008). They noted that all the programs, regardless of the type or length, resulted in positive outcomes, and suggested that this might not be the case if the programs were evaluated with more rigorous, experimental research designs.

The previous research regarding interventions for new nurses has not clarified which aspects of interventions impacts new graduates. It may be that new graduates appreciate having support when they begin their first employment position. In a survey of new nurses in England, 97% of a sample of 1596 responded that they would like to have a preceptor for their first job (Hardyman & Hickey, 2001). Additionally, there is empirical evidence suggesting that the support of a preceptor, as well as the preceptors' skills as a teacher and nurse, influenced the performance of newly graduated nurses (Brasler, 1993). In contrast, length of an orientation program, and number of classroom sessions or clinical rotations included in the preceptor program were not predictors of work performance (Brasler). However some of these variables may be important to retention rather than the performance of new nurses. Another study found that length of the orientation and the new nurses' perception that it met their needs contributed positively to retention (Scott, Engelke & Swanson, 2008).

Despite these inconclusive evaluations, preceptorship programs are being recommended in both the United Kingdom and the United States. The United Kingdom Central Council (UKCC) for Nursing, Midwifery and Health Visiting has advocated preceptorships as a method to smooth the transition from student to nurse (Hardyman & Hickey, 2001; Maben & Macleod Clark, 1998) while the Institute of Medicine in the United States has also advocated these programs as a mode of ensuring patient safety (Page, 2003). However, while institutions may commit verbally to preceptor programs, implementation of the programs may be less than ideal (Dearmun, 2000). The workload of the preceptor seems to be a limitation to the benefits of preceptorship (Ross & Clifford, 2002). Often, precepting duties are added to an experienced nurse's workload without recognition of the time it requires. There are reports from new graduates that their preceptor was too busy to spend enough time with them (Bick, 2000) or that they were not assigned a consistent preceptor, which led to frustration and confusion (Delaney, 2003). These reports draw attention to the fact that the benefits of preceptor programs for newly graduated nurses are dependent upon adequate support and compensation for preceptors.

In reviewing the literature describing the interventions for newly graduated nurses it becomes clear that overall conclusions cannot be drawn. The quantitative evaluations addressing role conceptions or perceptions of nursing are inconclusive and yet there are many reports that newly graduated nurses appreciate the program and that the programs decreased turnover rates of recently hired new graduates. This suggests that role conceptions may not be the issue of interest to newly graduated nurses. In fact, it has been suggested that the conception of the nursing role as measured by Corwin's scales is outdated (Taylor, Westcott & Bartlett, 2001). It could also be that role conceptions and role deprivation are not the source of the difficulties new nurses experience when entering the workplace for the first time. Indeed, despite the recognition of the necessity of support during the transition and the widespread implementation of preceptorship programs, in many cases new graduates continued to experience difficulties in the transition. Throughout the 1990s and 2000s a number of studies were published in which new graduates described their first work experiences often without presuppositions of the sources of the difficulties. This literature is reviewed in the next section.

Descriptions of the Experiences of New Nurses

The issues raised by newly graduated nurses in the descriptions of their first work experiences can be categorized into four themes (see Appendix B). The first theme reflects the demands placed on new nurses upon beginning a new job. The second theme incorporates the control associated with the role of new employee. The third theme addresses the importance of support in the workplace. The fourth theme addresses the new nurses' perceptions of self-efficacy. Potential outcomes of the transition experience are also explored.

Demands in the Workplace

Many new nurses reported being overwhelmed by workplace demands such as workload, staff shortages and learning the unit routines and administration (Boychuk Duchscher, 2001; Casey et al., 2004; Charnley, 1999; Delaney, 2003; Ellerton & Gregor, 2003; Gerrish, 2000; Kelly, 1996 Kelly, 1998; Maben & Macleod Clark, 1998; Newton & McKenna, 2007; Ross & Clifford, 2002; Thomka, 2001). One group of researchers surveyed over 3000 newly licensed RNs in the United States and found that over 80% of their sample reported that at least one or two days per week the new nurses were required to work fast or hard (Kovner et al., 2007). Facing new clinical situations (O'Shea & Kelly, 2007) and being responsible for the care provided by unregulated staff were also identified as sources of stress for new nurses (Amos, 2001; Casey et al.; Charnley; Horsburgh, 1989; Jasper, 1996; Maben & Macleod Clark). One author stated that nursing may be the only professional group that expects new practitioners to supervise others in their first positions (Horsburgh). An example of the demands placed on new nurses is evident when looking at the orientation goals a multidisciplinary team developed for their newly graduated nurses. Within an eight week orientation program the team members wanted new graduates not only to have sufficient clinical assessment skills specific to the patient populations with whom they were working, but also to be able to prioritize, incorporate laboratory data, know how to respond to emergency situations, and have knowledge of the whole health care system (Owens et al., 2001).

Employers have expressed concern that newly graduated nurses are not competent to deal with the demands the workplace requires or that they lack necessary skills (Lowry, Timms & Underwood, 2000; Mallory, Konradi, Campbell, & Redding, 2003; Utley-Smith, 2004), especially in setting priorities (Lowry et al.; Mallory et al.). Critical thinking skills have also been called into question (Boychuk Duchscher, 2003; del Bueno, 1994). The approach of new nurses to medication administration (Manias, Aitken & Dunning, 2004a; Manias, Aitken & Dunning, 2004b) and involvement in medication errors or near misses (Ebright, Urden, Patterson & Chalko, 2004; Smith & Crawford, 2003) has also been explored to determine their competency in dealing with the medication demands of the job. These concerns may be warranted as a recent study also found that for newly graduated nurses, competent performance was not guaranteed but rather something to celebrate (Jackson, 2005).

While the Schwirian Scale of Nursing Performance and other tools have assisted in standardizing performance measurement of newly graduated nurses for the purposes of research, they may not be that useful in practice. It appears that often the most common method of evaluating performance in the workplace is speed and ability to complete the tasks (Ellerton & Gregor, 2003; Jackson, 2005; Kelly, 1998). Successful performance, therefore, is regarded as the ability to handle a patient assignment equivalent to the more experienced nurses on the unit (Delaney, 2003) or to cope during a busy shift (Amos, 2001). This method of measuring the performance of new nurses contributes to the difficulty in determining performance standards for them. If performance is judged by the ability to manage the workload, performance requirements are dependent on the unit and are not generalizable to other contexts.

Control

New graduates experience different reactions to the autonomy or control they have over patient care in their new position. Many new nurses reported that their newly acquired responsibility and accountability for patient care was stressful (Amos, 2001; Boychuk Duchscher, 2001; Charnley, 1999; Gerrish, 2000; Jasper, 1996; Kelly, 1998; Maben & Macleod Clark, 1998; O'Shea & Kelly, 2007). There was a sense that the student role did not, and could not, prepare them for the responsibility of being a registered nurse. The responsibility for patient care decisions and outcomes that was bestowed upon new nurses was overwhelming (Boychuk Duchscher). This created stress for some (Boychuk Duchscher; Charnley; Kelly), while others embraced the newfound accountability (Amos; Delaney, 2003). Control or responsibility was best described as a 'double-edged sword' (Amos, Double-edged Sword section, ¶, 1). New nurses experienced excitement and exhilaration when they were able to manage responsibility effectively however it led to anxiety when they felt unprepared for it.

Beyond control for patient care, beginning a new position and unfamiliarity with the environment also affected the sense of control for new nurses. The surprise and recognition that the work environment differed from school was often documented (Boychuk Duchscher, 2001; Charnley, 1999; Delaney, 2003; Horsburgh, 1989; Jasper, 1996; Kelly, 1996; Ross & Clifford, 2002). Uncertainty regarding the expectations of the new role can lead to role ambiguity which has been found to be a stressor for newly graduated nurses early in their employment experiences (Chang & Hancock, 2003).

Support

The influence of support by coworkers or supervisors on newly graduated nurses cannot be overstated. Much energy is spent during the transition to practice on getting to know and adapt to coworkers (Tiffany, 1990). The need for support and dependence on the members of the health care teams has been widely recognized (Amos, 2001; Boychuk Duchscher, 2001; Casey et al., 2004; Charnley, 1999; Dearmun, 2000; Godinez et al., 1999; Horsburgh, 1989; Kelly, 1996; Kelly, 1998; Maben & Macleod Clark, 1998; McGrath & Princeton, 1987; Oermann & Moffit-Wolf, 1997; Ross & Clifford, 2002; Tiffany). Many new nurses reported that they felt supported by colleagues and preceptors (Coeling, 1990; Delaney, 2003; Ellerton & Gregor, 2003; Gerrish, 2000; Godinez et al.; Jackson, 2005; Hodges, Keeley & Troyan, 2008; Maben & Macleod Clark; Thomka, 2001) and that work group cohesion was high (Kovner et al., 2007). Lack of support from coworkers impacted new nurses’ ability to make unit changes or to challenge the status quo (Mooney, 2007). Support from nurse friends outside of the workplace has also been identified as important to new nurses. This support was the most useful predictor of new graduates’ self-evaluated performance (Brasler, 1993).

Self-efficacy

New graduates have been found to feel inadequate and incompetent during the first year of practice (Casey et al., 2004). Frequently they reported that they felt they didn't have the skills or knowledge required of them (Amos, 2001; Boychuk Duchscher, 2001; Casey et al.; Charnley, 1999; Clark & Holmes, 2007; Delaney, 2003; Ellerton & Gregor, 2003; Gerrish, 2000; Jackson, 2005; Kelly, 1996; Kelly, 1998; Maben & Macleod Clark, 1998; Newton & McKenna, 2007; Oermann & Moffit-Wolf, 1997). New nurses doubted their ability to make clinical decisions because the lack of experience did not give them a frame of reference within which to make the decisions (Boychuk Duchscher; Charnley). Rather than recognizing themselves as learners, they felt that their lack of knowledge was a weakness (Boychuk Duchscher). However, there was also evidence of changing efficacy perceptions. Increasing self-efficacy or gaining confidence was reported to develop with experience on the unit (Jackson; Hodges et al., 2008; Newton & McKenna). In one study, although new nurses felt they were not ready to practice independently immediately upon registration, within six months most had gained confidence and perceived themselves as ready (Clark & Holmes).

Outcomes of the Transition Experience

Job Stress. Job stress during the transition from nursing student to new nurse was consistently reported (Boychuk Duchscher, 2001; Charnley, 1999; Dearmun, 2000; Delaney, 2003; Gerrish, 2000; Kelly, 1996; Maben & Macleod Clark, 1998; McGrath & Princeton, 1987; Oermann & Garvin, 2002; Oermann & Moffitt-Wolf, 1997; Ross & Clifford, 2002; Thomka, 2001; Tiffany, 1990). Although the theme of stress is mentioned frequently, only a few studies were found which investigated the intensity of the stress that newly graduated nurses experience. These found that newly graduated nurses have moderate amounts of stress (Chang & Hancock, 2003; Oermann & Garvin; Oermann & Moffitt-Wolf). Their comfort and confidence appeared to follow a quadratic pattern over time: while initially they felt comfortable and confident in their role this decreased approaching their first year of employment until it reversed and rose to its highest peak after one year of practice (Casey et al., 2004). There were many stressors that appear to change with time. It was found that early in employment, new nurses experience stress due to role ambiguity, while role overload became a more significant stressor after newly graduated nurses had been employed for around a year (Chang & Hancock).

Job Satisfaction. The vast majority of the studies focused on the difficulties in the transition experience, although this may be because difficulties are more easily recalled than the satisfying aspects of the job (Maben & Macleod Clark, 1998). In fact, many new nurses expressed satisfaction with their role (Amos, 2001; Delaney, 2003; Hodges et al., 2008; Jackson, 2005; Maben & MacCleod Clark; Kovner et al., 2007; Oermann & Moffit-Wolf, 1997; O'Shea & Kelly, 2007; Tiffany, 1990) and recognized opportunities for personal growth and development (Maben & Macleod Clark). Others enjoyed the responsibility of working as a nurse (Amos). Inadequate staffing, pace of work and feeling unprepared for the responsibility of the role have been found to be dissatisfying to newly graduated nurses while achieving patient care goals and receiving recognition were satisfying (Cronin-Stubbs, 1977).

Satisfaction has also been investigated as an independent variable in samples of newly graduated nurses. Among new nurses job satisfaction was positively related to a sense of belonging (Winter-Collins & McDaniel, 2000), and it was negatively related to conflict (Gardner, 1992), role ambiguity and role stress (Chang & Hancock, 2003). Additionally, achievement, advancement, the work itself, working conditions, status, supervision and security loaded onto the same factor as job satisfaction suggesting these were related to satisfaction (Munro, 1983). Job satisfaction has also been linked to intent to stay among newly graduated nurses (Roberts, Jones & Lynn, 2004).

Intention to Leave. Although current research suggests that young nurses are at particular risk of turnover related to stress (Shader, Broome, Broome, West & Nash, 2001), new graduates have not often been considered a separate cohort in studies of nurse turnover. This is unfortunate as newly graduated nurses made decisions about whether they would stay or leave during the transition period to the work environment (Boychuk Duchscher, 2001). There is some evidence that turnover is a consideration for new nurses in particular, as it has been found that that new graduates were either currently considering leaving the job or the profession or they had considered it during the transition (Boychuk Duchscher; Coeling, 1990; Dearmun, 2000; Kelly, 1998; Thomka, 2001). Kovner et al. (2007) found that new nurses with an average of 9.6 months of experience were “neutral” (p. 65) about their plans to leave their current employer while another study found that intentions of newly graduated nurses to stay working in a critical care unit decreased during the first six months of employment, although the scores remained above the midpoint of the measurement scale (Boyle, Popkess-Vawter & Taunton, 1996).

In a study investigating reasons that newly graduated nurses left their first job, it was found that stress related to patient care, which included nurse-to-patient ratios, acuity of patients, and feelings that patient care was unsafe, was the most commonly given reason (Bowles & Candela, 2005). This was followed closely by geographical relocation or transfer to another area of nursing, and reasons related to the work environment and employment such as lack of support, too much responsibility, salary, schedule and benefits (Bowles & Candela). Similarly, Kovner et al. (2007) found that job stress and changing clinical specialty were commonly cited as the reasons for turnover from the job; however they also found that new nurses reported poor management as another factor contributing to turnover from the first position.

Conclusion

Kramer's (1974) work on socialization highlighted the problems new nurses were having adjusting to the work environment. There are a vast number of reports in the literature describing interventions that have been developed and implemented to support new nurses make the transition to the work environment. However the period of transition to the work environment has continued to be stressful for new nurses. There are two reasons that the interventions may not have had the desired effect. First, although the difficulties recognized by Kramer were often cited as the reason interventions were implemented, the interventions were often not designed or evaluated using the theory. Because of this, the majority of interventions were designed to address specific institutional issues, such as performance, and thus they do not address Kramer's identification of the source of stress, the difference between the nursing values they learned in school and those they encountered in the work setting.

The second reason the interventions may not have had the desired effect is that the majority of interventions do not consider many of the facets of the work environment in their design. Kramer's (1974) theory identifies the problem with the transition to be conflicting values and role deprivation of the newly graduated nurse. The suggested interventions, therefore, are to support the nurse in resolving this conflict through addressing the socialization of new nurses in support groups or preceptorships. In essence, the theory does not consider the elements of the work environment beyond the conflicting values that may influence the transition experiences of new nurses. The review of the literature describing the transition of new nurses to the work environment clearly indicates that other environmental factors contribute to this experience. Demands, such as workload and performance expectations often result in stress. Control and the responsibility of patient care are both stressful and exhilarating. Support from preceptors and colleagues can ease the transition, however support is not always present. These environmental factors also influence and are in turn influenced by the self-efficacy perceptions of new nurses. These findings in the literature suggest the need to explore the impact of these variables on new nurses.

Chapter Three: Conceptual Framework

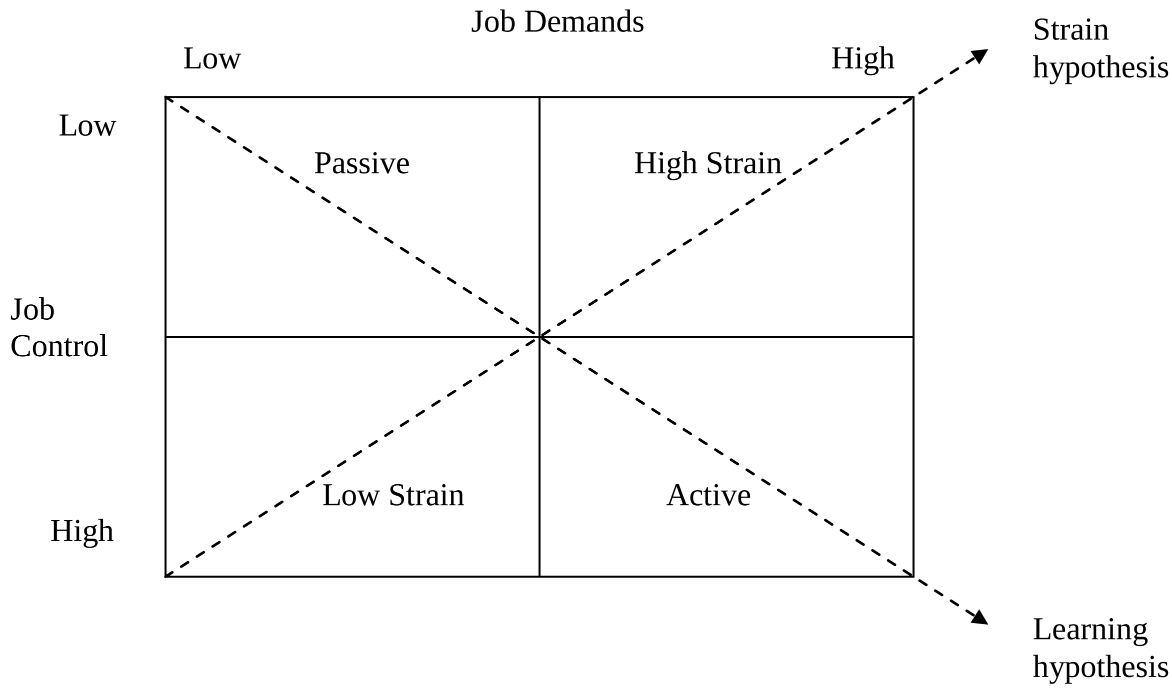
The Job Demands-Control Model

Background

The widespread reports of stress provide evidence that the difficulty in the transition is not limited to individual characteristics or responses to the work environment. The Job Demands-Control model (JDC) (Karasek, 1979; Karasek & Theorell, 1990) is particularly appropriate for studying the workplace stress accompanying the transition period of newly graduated nurses integrating into the workplace because it focuses on environmental stressors within the work setting. It was developed as a response to the view of stress as an individual reaction in which treatments focused on teaching individuals how to handle stress (Karasek & Theorell). Additionally, previous stress theories tended to focus on responses to traumatic events or catastrophes (Karasek & Theorell). The model developed by Karasek and his colleagues was novel in that it focused on the environmental link between psychosocial demands and physiological illness and it applied to the daily stresses encountered by employees in the workplace (Karasek & Theorell).

The JDC model conceptualizes job strain as a composite of workplace demands and control (Karasek, 1979) (see Figure 1). The model proposes two hypotheses, which came to be known as the ‘strain hypothesis’ and the ‘learning hypothesis’ (Van der Doef & Maes, 1999). The strain hypothesis has received much more attention in the literature. It is of particular interest to the study of newly graduated nurses and is the focus of the current research project. It asserts that perceptions of high demands and low control will produce psychological strain (Karasek; Van der Doef & Maes). The learning hypothesis states that learning occurs when one perceives high demands accompanied by high control (Karasek; Van der Doef & Maes). It is based on the idea that increased control at work will positively impact employees' motivation to learn (Paulsson, Ivergård & Hunt, 2005). High control is proposed to allow employees to cope with high demands on the job, which may in turn protect them from strain and result in learning (Taris, Kompier, de Lange, Schaufeli & Schreurs, 2003).

Figure 1. Karasek's Job Demand-Control Model (adapted from Karasek, 1979)



The Role of Social Support

About a decade after its inception, the model was expanded to include social support as a third dimension to the model (JDC-S; Johnson & Hall, 1988; Karasek, 1998; Karasek & Theorell, 1990; Sargent & Terry, 2000; Terry & Jimmieson, 1999). The iso-strain hypothesis states that the highest strain will be experienced when perceived job demands are high and perceived control and social support are low (Van der Doef & Maes, 1999). Although support is not always included in the model, the literature reviewed relating to new graduates emphasized their need for support suggesting the inclusion of this variable is necessary among this population. Support has been related to new nurses' self-reported performance (Brasler, 1993) and to the health outcomes and job satisfaction of experienced nurses (Munro, Rodwell & Harding, 1998).

Empirical Support for the Model

The strain model has been tested in many different populations with a variety of outcomes. Three factors must be considered when discussing support of the model: (a) statistically significant main effects versus interactions; (b) conceptualization and measurement of demands and control; and (c) the inclusion of moderators in the model.

Main Effects and Interactions

The JDC model has been tested in two ways: (a) the first method tests the main effects of the variables to determine whether or not those participants who perceive the highest demands and lowest control have the most negative outcomes; (b) the second method involves testing for an interaction between demands and control (Van der Doef & Maes, 1999). When discussing support of the model, it must be noted that there is disagreement about whether or not significant main effects alone constitute support of the model or if a significant multiplicative effect must be demonstrated (de Lange, Taris, Kompier, Houtman & Bongers, 2003; Karasek, 1989). Recognizing that it is difficult to obtain significant results for interaction terms, Karasek maintained that the implications for job redesign are essentially the same if either significant main effects or significant interactions are found. In both cases job redesign would consist of either decreasing demands or increasing control. Others have argued that the practical implications are in fact quite different (Van der Doef & Maes). This controversy has not yet been resolved and it appears that most researchers test and report both main effects and interactive effects. Overall, support for the interaction model is inconclusive (de Lange et al.; Terry & Jimmieson, 1999; Van der Doef & Maes) however the main effects model has received more consistent support (de Rijk, Le Blanc, Schaufeli & de Jonge, 1998).

Conceptualization and Measurement of the Demand and Control Variables

Karasek's conceptualizations of job demands and control were developed to tap general constructs that are common to a wide range of occupations. Job demands refer to stressors experienced on the job or mental workload (Karasek, 1989). Specifically, the concept of job demands consists of the speed and difficulty of the work, time available to do the work, workload and conflicting demands (Karasek et al., 1998). The concept of control, or decision latitude, is in fact two constructs: skill discretion and decision authority (Karasek). Skill discretion signifies the level of skill required, the ability to learn, develop skills or use creativity on the job, and the repetitiveness or variety of skills used on the job (Karasek et al.). Decision authority, often referred to as autonomy (Karasek), speaks to the ability of employees to make decisions regarding work (Karasek et al.). Based on these conceptualizations, Karasek developed the job content questionnaire (JCQ), which has been used to measure perceived job demands and control (Karasek et al.).

Karasek's conceptualizations of job demands and control have been criticized as being imprecise and the measurement of the concepts using the JCQ has been criticized as too broad. It has been suggested that the concept of demands needs to distinguish between psychological demands or workload and the physical and emotional demands experienced on the job (de Jonge, Mulder & Nijuis, 1999). A larger debate has surrounded job control. Like the argument for the greater specification of demands, Ganster (1989) noted that control in the work environment is also multi-dimensional, covering the control over the variety and order of work tasks, the quality or quantity of outputs, the pacing and scheduling of work, the physical environment, organizational goals or policies, and the ability to leave the employer or occupation. The multidimensionality needs to be accounted for when measuring control as a less precise measure may not capture the aspects of the work environment that are important to the stress being experienced by the population under study (Terry & Jimmieson, 1999).

Noting the limitations of the JCQ, many studies have used alternate measures when testing the JDC model (de Jonge et al., 1999; Rodríguez, Bravo, Peiró & Schaufeli, 2001; Tummers, Janssen, Landeweerd & Houkes, 2001). The use of alternate measures also contributes to the imprecision of the concept of control (Fox, Dwyer & Ganster, 1993). For example, measures of autonomy have been used to operationalize the concept of control (de Jonge et al.; Rodríguez et al.), which makes difference between the concepts difficult to specify. The different conceptualizations and measurements of the concepts make it difficult to compare the results of the studies and may contribute to difficulty in determining empirical support for the model. This needs to be acknowledged in discussions regarding the empirical support for the model.

Self-Efficacy as a Moderator

A final consideration in discussing support for the model is the addition of moderators. Findings that the model is supported for subsets of the samples studied (Van der Doef & Maes, 1999) suggest that factors other than demands, control and support may need to be considered when applying the model to specific populations. One moderator that has received consistent support in the JDC model is self-efficacy. Support for the demand-control model was found when employees perceived a good fit or had high self-efficacy however for those with low self-efficacy increased control may actually increase negative outcomes (Jimmieson, 2000; Schaubroeck, Jones & Xie, 2001; Schaubroeck & Merritt, 1997).

Self-efficacy is the perception that one can produce certain actions which will in turn lead to certain outcomes (Bandura, 1997). It is a person's belief in his or her ability to complete a task accounting for the external circumstances and individual skill (Bandura). Self-efficacy is both situation and task specific, however because it is a perception, it is also dependent on the characteristics of an individual. The uncertainty about the ability to complete tasks in a new occupational role is an efficacy perception (Brett, 1984), and thus it has been theorized that self-efficacy is important to newcomers to organizations (Saks & Ashforth, 1997). Empirical evidence also supports the importance of self-efficacy for new employees. Initial self-efficacy has been shown to moderate the relationship between training and adjustment for newly employed accountants (Saks, 1995) and to moderate the effects of socialization on role orientation for newly graduated MBA students (Jones, 1986). Self-efficacy also partially mediated the relationship between training and adjustment when post-training self-efficacy was controlled (Saks). The themes of uncertainty and low confidence in abilities were consistently evident in the literature of newly graduated nurses and thus its inclusion in the JDC-S model is warranted.

Applicability of the Model

Applicability to Nursing

Ganster, Fox and Dwyer (2001) recognized that nursing is a good occupation in which to study the JDC model because of the naturally occurring variations in demands and control within the profession. Indeed, samples of nurses have been used in tests of both the JDC and JDC-S models (Bourbonnais et al. 1999; de Rijk et al., 1998; Fox et al., 1993; Ganster et al., 2001; Morgan, Semchuk, Stewart & D'Arcy, 2002; Laschinger, Finegan & Shamian, 2001; Tummers et al., 2001). The nursing profession has been found to fall into the 'active job' quadrant of the model, characterized by high demands and high control, in international surveys (Karasek & Theorell, 1990) and in a direct test of the model within the nursing profession (Seago, 1996; Seago & Faucett, 1997), although one sample found that nurses in rural nursing homes had high control and low demands, classifying the job as low strain (Morgan et al.).

In samples of nurses, job satisfaction was predicted by both the main effects model (Munro et al., 1998) and the interaction model (Fox et al., 1993). Individual aspects of the model impacted different outcomes. Workload and social support were found to have a direct relationship with emotional exhaustion (Tummers et al., 2001) and another study found that decision latitude was negatively associated with absenteeism measured at the nursing unit level (Seago, 1996). The model has also predicted health care costs incurred by the sample of nurses, although it did not predict mental health as measured by distress and well-being (Ganster et al., 2001). Additionally, an expanded model that included active coping predicted burnout among nurses (de Rijk et al., 1998).

Applicability to Healthcare

Tests of the model in samples of all health care workers or physicians showed similar results. The main effects model was significantly associated with job satisfaction (Calnan, Wainwright & Almond, 2000) and symptoms of burnout (Landsbergis, 1988). The multiplicative model was associated with job satisfaction, psychosomatic health complaints (de Jonge et al., 1999; O'Connor, O'Connor, White & Bundred, 2000) and job involvement (de Jonge et al.).

Applicability to New Workers

Both the strain and the learning hypotheses have been investigated in longitudinal studies with samples of new employees (Bradley, 2007; De Witte, Verhofstadt & Omey, 2007; Rodríguez et al., 2001; Taris & Feij, 2004). It was theorized that new workers would show a stronger relationship between stressors and strain than more experienced workers (De Witte et al.) and that perceptions of the work environment would differ for new workers (Bradley). However, only one study compared new workers with experienced workers and although no two-way interactions were significant, there was a significant three-way interaction between demands, control and job tenure, such that control moderated the effect of demands on stress and intentions to quit for new teachers, but not for more experienced teachers (Bradley). Other studies found partial support for Karasek's model in predicting strain and learning over time (Taris & Feij) and full support of the model when predicting job dissatisfaction and learning (De Witte et al.). A final study found a significant four-way interaction between demands, control social support and locus of control in predicting job dissatisfaction (Rodríguez et al.).

Conceptualization of the Outcome Variables

Job Stress

The literature describing the experiences of newly graduated nurses entering the workplace clearly reveals the stress they feel when beginning to work as a registered nurse for the first time. The concept of stress, however, needs to be defined within this context. Stress is an imprecise term and has been studied from many perspectives (Cooper & Dewe, 2007). The term has been used to refer to stressors, responses to stressors, characteristics of an environment or individual, or the interaction between an individual and the environment (Parker & De Cotiis, 1983). Within the context of this study, stress is conceptualized consistent to the relational perspective described by Lazarus and Folkman (1984). Stress refers to an individuals' reaction to a situation or aspect of the environment that is perceived as stressful and a threat to one's well-being (Lazarus & Folkman). This conceptualization of stress is relevant to the daily stressors that occur in a work setting. Daily events will not invoke a similar reaction in all people; what is found to be stressful for one individual may not be so for another (Lazarus & Folkman). It is not the environmental conditions alone that result in a stress response; rather it is the individual's appraisal of the situation that leads to the stress response. The focus of the study was on stress experienced on the job and therefore the interaction between an individual and the work environment was of interest. Stress at work is the awareness of an uncomfortable response to particular conditions that leads to deviations from normal functioning, however it is also generally short-term (Parker & DeCotiis, 1983).

Job Satisfaction

Job satisfaction among nurses has been widely studied. A recent literature review found over 1000 articles published on the subject since the mid-1960s (Lu, While & Barriball, 2005). Job satisfaction has been defined as an emotional response to the appraisal of ones' job (Locke, 1976). Conceptualization and measurement have included both facet and global models (McGillis Hall, 2003). Facet approaches focus on responses to the different aspects of a job (Ironson, Smith, Brannick, Gibson & Paul, 1989). Global approaches, on the other hand, focus on overall response to the job. Global measures of job satisfaction require a single judgment that combines the reactions of the respondent to individual aspects of the job (Ironson et al.). Because the reaction of new nurses to different aspects of the job was not the main focus of this study, job satisfaction was conceptualized as the overall, global reaction to the job.

Intention to Leave

Turnover is of considerable interest to the nursing profession because of predictions of a worsening nursing shortage secondary to an aging nursing workforce (Goodin, 2003; O'Brien-Pallas, Duffield & Alksnis, 2004), and because of the recognized costs associated with replacing nurses. It has been estimated that nurse turnover costs 1.2-1.3 times a nurses' salary (Jones, 2005). Among newly graduated nurses, there needs to be a distinction between the new nurses' intention to leave their present position and their intention to leave the profession. Within the literature, it has been found that newly graduated nurses may intend to leave their position to look for additional challenges (Dearmun, 2000), to find better working conditions (Kelly, 1998), or because they didn't fit in with the unit culture (Coeling, 1990). However, some also expressed the desire to leave the profession because of the difficulty coping with the job (Boychuk

Duchscher, 2001). Both sources of turnover are of interest, as the financial costs associated with turnover will be the same whether a new nurse leaves the position or the profession. However, intentions of new nurses to leave the profession are also important because of the potential contribution to the nursing shortage.

Summary

This study employed the JDC-S model in a sample of newly graduated nurses. It contributes to the research utilizing Karasek's model among new and inexperienced employees. There is little previous research testing the model among new employees and thus it is worthwhile to study newcomers as a separate cohort. The study also adds to the growing body of literature investigating the role of self-efficacy in the JDC model. Self-efficacy had not previously been included in a model that also tested the role of social support.

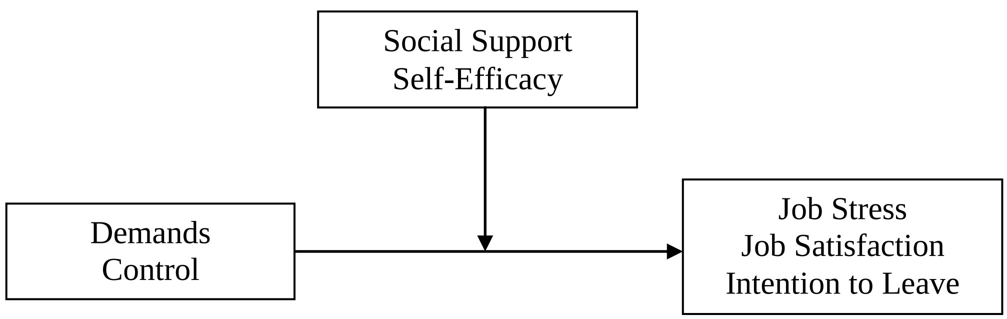
Finally, this study contributes to the nursing literature and extends the field of work on newly graduated nurses. Kramer's (1974) postulation that there was a clash of values between academic institutions and employing institutions which was manifested as reality shock in new nurses led to recognition that new nurses need support during the transition period. However, despite preceptorship programs and other interventions new nurses continue to express stress and difficulty when beginning their first job. Investigating the role of job demands, control and self-efficacy in addition to social support and understanding the effects of these variables on new nurses during the transition can provide direction to interventions designed to assist new nurses make a smooth transition to the work environment.

Purpose and Research Questions

The purpose of this study was to investigate effects of perceived demands, control, support and self-efficacy on the job stress, job satisfaction and intentions to leave of newly graduated nurses (see Figure 2). The specific research questions that will be addressed are:

1. What are the effects of job demands and job control on the job stress, job satisfaction and intention to leave of newly graduated nurses?
2. Do perceptions of coworker support, supervisor support and self-efficacy moderate the effects of demands and control on the job stress, job satisfaction and intention to leave of newly graduated nurses?

Figure 2. Relationships Under Investigation



Chapter Four: Methods

Design

The study design was a cross-sectional survey. Data were collected at one point in time through a questionnaire that was mailed to the homes of potential respondents. Because the JDC-S model had not been used with newly graduated nurses, this study was exploratory in nature. According to the Medical Research Council in the United Kingdom, developing interventions requires a clear theoretical understanding of the phenomena under study (Craig et al., 2008). To achieve this, preliminary descriptive and exploratory work is necessary to build the body of evidence on which to base interventions.

Sample and Setting

The sample for this study was drawn from a population of newly graduated nurses working in acute care hospitals in Ontario, Canada. A list of all nurses who had indicated that they had less than two years of experience as an RN when they renewed their registration in December of 2005 and who indicated their willingness to participate in research was obtained from the College of Nurses of Ontario (CNO).

Inclusion/ Exclusion Criteria

To be eligible for participation, new nurses must have identified English as their preferred language of correspondence with the CNO, must have finished the orientation or preceptorship periods specified by the institution of hire, and must be working independently with their own patient assignment. To ensure comparability of educational preparation, only new nurses who received their nursing education in Canada were included. Additionally, new nurses must not have had more than sixteen months of experience working as a nurse. The time it takes for new employees to adjust to the work environment is unknown (Brett, 1984). Previous researchers have considered employees to be new for up to 10 months post-hire, as authors have stated that newcomer adjustment is becoming stable at this point (Ashforth & Saks, 1996; Saks & Ashforth, 2000). Others have also found that adjusting to a new job can take six to ten months (Louis, 1980). In nursing, new graduates have reported that it takes 12 months to feel "comfortable and confident practicing in the acute care setting" (Casey et al., 2004, p. 309). Because the adjustment period is unknown, the sixteen-month time frame was chosen to increase the chances of including newly hired nurses who had been working independently for at least ten to twelve months and to increase the feasibility of attaining a large enough sample to investigate the relationships within Karasek's model.

Estimated Sample Size

Moderate effect sizes have been found in correlations between job demands and job dissatisfaction (Landsbergis, 1988) and between job demands and anxiety (Xie, 1996); however small effect sizes have been reported between control and anxiety (Xie) or dissatisfaction (Rodríguez et al., 2001). Therefore a conservative approach was to estimate that a small effect size would be found. For a study that has five independent variables, with an established significance level of 0.05, power level of 0.8, and a small effect size, a sample size of 645 participants is recommended (Cohen, 1992).

The target population was identified as the new general class members of the CNO in 2004. In 2004 the CNO had over 6000 new general class RN members with 4666 receiving nursing education in Canada (College of Nurses of Ontario, 2005). However, because the CNO does not collect employment information upon initial registration (College of Nurses of Ontario), it could not be determined whether the new members were working in acute care institutions. Nor could it be determined whether the new members were newly graduated nurses or were experienced nurses who relocated to Ontario.

The CNO does not release the names of the new general class members so the target population could be reached only by requesting the names of those nurses who indicated on their renewal in December of 2005 that they had less than two years of nursing experience and were working in acute care. Because the survey was sent in November 2006, some people who received the survey had more than sixteen months of experience and thus were ineligible for participation. Assuming a 25% response rate, the survey would have needed to be mailed to 2580 new nurses who met the inclusion criteria to obtain a sample of 645. However, because it would have been difficult to estimate the number of registrants who had greater than sixteen months of experience at the time of their receipt of the survey, all CNO renewing members indicating in 2005 that they had less than two years of experience, were working in acute care, had received their nursing education in Canada and whose preferred language of communication was English were invited to participate.

Measures

Independent Variables

Job Demands

Job demands were measured with a seven-item scale measuring quantitative work load (Caplan, Cobb, French, Harrison & Pinneau, 1980). This scale captured employee perceptions of the quantity of work assigned. Significant correlations were found between this scale and objective demands reported by nurses, such as patient load and the percentage of their time taken with patient contact (Fox et al., 1993). In the same study, the scale correlated at 0.29 with a scale measuring the frequency of stressful events (Fox et al.). These findings provide evidence of the scale's construct validity within a sample of nurses. The alpha coefficient measuring internal consistency of the scale was found to be 0.80 among a sample of 198 nurses in the United States (Fox et al.).

Job Control

Job control was measured using 20 items from a 22-item scale reflecting worker perceptions of control over the work environment (Dwyer & Ganster, 1991). Two items reflecting personalization of the workstation and control over the physical environment were deleted from the scale, as they do not pertain to staff nurses working in acute care. The items reflect control over a number of aspects of work including variety, order, and pacing of tasks, and scheduling breaks (Dwyer & Ganster). The multi-dimensional nature of the instrument is congruent with the conceptualization of control within this study, as it is reflective of the wide range of situations in which control may be important within work settings (Terry & Jimmieson, 1999). Additionally this measure has been previously used in samples of nurses illustrating its suitability for use within this population (Fox et al., 1993; Munro et al., 1998). Construct validity of the 22-item scale was shown through testing of the relationships between control and health and work satisfaction (Ganster, 1989, as cited in Smith, Tisak, Hahn & Schmeider, 1997). Previously, researchers have found the coefficient alpha of this scale to be 0.88 (Fox et al., 1993).

Social Support

Social support was measured by two four-item indices addressing support in the workplace (Caplan et al., 1980). One index referred to support from supervisors and the other to support from coworkers. These two sources of social support at work are consistent with the conceptualization of social support within Karasek's model as they were identified by Karasek, Triantis & Chaudhry (1982) as being related to mental strain. The items in these indices were developed based on previous research found in the empirical literature (Caplan et al.). The items were tested for their correlation with each other and the lack of correlation with items on the other indices such as role conflict and underutilization of abilities (Caplan et al.). Confirmatory factor analyses provided evidence of the superiority of considering them as two separate scales rather than combining them into a measure of overall support (Bradley, 2007). These indices have been previously used in a study of Karasek's model with a sample of new teachers (Bradley), providing evidence of its applicability to new employees in a service profession. In a sample of 228 social workers in the United States, coeffiecient alphas were 0.92 for the support from supervisor scale and 0.82 for the support from coworkers scale (Um & Harrison, 1998).

Self-Efficacy

Self-efficacy was measured with the Personal Efficacy Beliefs Scale (Riggs, Warka, Babasa, Betancourt & Hooker, 1994). This is a 10-item scale designed to tap individual self-efficacy regarding job-related performance without specifying work tasks. Responses are given on a six-point Likert-type scale in which the anchors are very inaccurate and very accurate (Schaubroeck et al., 2001). In a previous study of 217 full-time employees of a research organization the coefficient alpha was 0.74 (Schaubroeck et al.). The authors of the scale addressed concurrent validity. They found significant, positive correlations to measures of job satisfaction, organizational commitment and individual performance (Riggs et al.). Additionally, personal efficacy was not significantly correlated to personal outcome expectancy, collective efficacy or collective outcome expectancy (Riggs et al.) providing evidence of the discriminant validity of the scale.

Dependent Variables

Job Stress

Within the context of this study, job stress is conceptualized as the interaction between the individual and environment, such that it represents the appraisal of factors within the work environment as stressful or as a threat to well-being (Lazarus & Folkman, 1984). Stress manifests as an affective response. Stress at work has been measured as a variety of affective responses to the environment, including anxiety, depression, irritability and worry (Hurrell, Nelson & Simmons, 1998). It has been associated with decreased psychological well-being and can manifest as depression, anxiety, low self-esteem or dissatisfaction (Maslach, 1986). In this study job stress was measured using the 12-item version of the General Health Questionnaire (GHQ-12) (Goldberg, 1972). The GHQ is a widely tested and validated tool and has been recommended for screening for mental disorders (McDowell & Newell, 1996). This scale was developed for use among the general population to determine the frequency of abnormal thoughts, feelings and behaviours (Goldberg). It is focused on the current state of the individual, not with traits or past feelings or behaviours (Goldberg). In this study, the words “at work” were added to each item to capture the participants’ affect with the work setting. Responses are given on a four-point Likert-type scale measuring frequency of symptoms ranging from “not at all” to “much more than usual” (Goldberg).

Content validity was addressed during the development of the questionnaire through the use of literature review of other questionnaires and tools, through theoretical inclusion of items relevant to the general population and exclusion of personality traits, and pilot testing (Goldberg, 1972). Concurrent validity was tested through comparing the results of the questionnaire to those of a standardized psychiatric interview by two physicians in two different settings and finding a correlation of 0.77 between the methods (Goldberg). Additionally, reliability of the 60-item scale was tested extensively during development showing acceptable results on test-retest and split-half reliability tests (Goldberg). The 12 best items were determined through analyzing the individual items and these 12 form the GHQ-12 (Goldberg). The GHQ-12 has been frequently used as an outcome within the context of Karasek’s model (Calnan et al., 2000; Daniels & Guppy, 1994; Taris & Feij, 2004) and has been used in the model with a sample of nurses (Munro et al., 1998). Previous research found the coefficient alpha of the GHQ-12 to be 0.88 among a sample of 60 nurses (Munro et al., 1998).

Supplementary Measure of Stress

The expanded version of the Nursing Stress Scale (ENSS; French, Lenton, Walters & Eyles, 2000) was used to supplement the more general measure of stress at work as it is specific to the nursing profession. It is expanded from the original nursing stress scale which was based on the relational model of stress described by Lazarus and Folkman (1984) among others, which identifies stress as occurring when an individual perceives environmental stressors as negatively impacting well-being (French et al.). It reflects the appraisal process identifying the frequency that the stress response occurs in the work environment.

The ENSS is a 57-item scale comprised of eight subscales measuring the frequency of the stress response in relation to specific job stressors for nurses working in acute care, such as exposure to death and dying, conflict with physicians, inadequate preparation, problems with peers and supervisors, workload, uncertainty concerning treatment, interactions with patients and family and discrimination. The response options range from 1-4 with higher values indicating greater frequency of stress. There was also a response option for not applicable, which was scored zero. The 3-item subscale measuring discrimination was excluded because of the low psychometric properties found during the scale development. This was theoretically justifiable as well, as discrimination was not mentioned as a stressor for newly graduated nurses in the literature.

The ENSS was tested among a sample of 2280 Canadian nurses who had been working for over one year and a coefficient alpha for the whole scale has been reported to be 0.96 while for the subscales range from a low of 0.70 for problems with peers to a high of 0.88 for problems with supervisors (French et al., 2000). The alpha coefficient in a sample of 222 nurse aides in long-term care was 0.82 for the whole scale with the subscale coefficient alphas ranging between 0.65 and 0.88 (McGilton, McGillis Hall, Wodchis & Petroz, 2007).

Content validity was addressed during scale development through the use of literature, focus groups and pretests of the survey (French et al., 2000). Construct validity was assessed through correlating the subscales to measures of health problems. Correlations fell between 0.12 and 0.34 providing evidence construct validity (French et al.). Concurrent validity was also tested through testing the correlations between the subscales and one question measuring overall life stress. Although the correlations ranged form 0.07-0.17, they were significant and in the hypothesized direction giving evidence of the concurrent validity (French et al.).

Job Satisfaction

Job satisfaction was measured using a 3-item scale assessing global job satisfaction (Cammann, Fichman, Jenkins & Klesh, 1983). This measure has a seven-point Likert-type response scale with the anchors signifying strongly disagree and strongly agree (Cammann et al.). When used among a sample of new employees, a coefficient alpha of 0.93 was obtained (Saks & Ashforth, 2000). Content validity was addressed during the construction of the measure through the use of three approaches: it was based on existing theory and review of the literature and it accounted for variations between organizations by focusing on issues of general importance (Cammann et al.).

Intention to Leave

Intention to leave was measured using an expanded version of a propensity to leave scale (Lyons, 1971). This is a three-item scale asking respondents how likely they are to stay at the job or leave. The scale was expanded to include respondents' propensity to leave the profession as well. The three items were repeated and asked about the profession rather than their current position. In previous research correlations among the three items of the scale have been greater than 0.50 (Lyons). The alpha coefficient has been 0.85 in two studies with samples of nurses (Keil, Armstrong-Stassen, Cameron & Horsburgh, 2000).

Demographic and Employment Variables

Demographic and employment variables were collected via the questionnaire and included age, experience as a nurse, experience in present position, gender and highest educational degree received within and outside of nursing. Hours of work each week, unit of employment, employment status and shift worked were also collected because of their potential relation to the outcome variables (Bourbonnais et al., 1999). Additionally, the number of RN positions held, the type of hospital (teaching, community or small) and the length of orientation were measured.

Previous experience on the nursing unit as a student or as an unregistered employee was also of interest as there is evidence from British Columbia that 60% of newly graduated nurses took positions on units where they had had clinical placements (RNABC, 2003). There is conflicting evidence in literature regarding what impact previous work experience has on new employees; however, differences between those with prior experience and those without have been found (Duncan, 1997; Taylor, 1988). Previous experience on the nursing unit of hire, even if in a different role, may ease the transition because the environment is familiar and thus potentially less stress invoking. Specifically, demands may be lessened because information regarding location of supplies and layout of the unit are already known (Charnley, 1999; Ross & Clifford, 2002).

Procedures for Data Collection

Prior to the main study, the questionnaire was pilot tested with a random sample of nurses selected from the list of potential respondents received from the CNO. The pilot test was done to ensure the clarity and coherence of the individual survey items and to determine the length of time required to complete the survey. The mailing list received from the College of Nurses of Ontario (CNO) contained the names of 1238 nurses working across the province that had received their nursing education in Canada, were working in acute care settings and had indicated at their most recent renewal that they had less than two years experience working as an RN. A random sample of 40 new nurses was selected using Microsoft Excel 2000 random number generator. In October 2006, the information about the pilot study, the questionnaire, consent form, feedback sheet and request for certificate of participation were mailed to the homes of these 40 people (see Appendices C, D, E, F and K).

Following the analysis of the pilot responses, questionnaires, a letter of information, consent forms, a request form for a certificate of participation with envelope and pre-paid return envelope were mailed to the homes of newly registered nurses (Appendices F, G, H and K). The surveys did not require identification of the participants and thus ensured the anonymity and the confidentiality of responses. Data collection occurred during November 2006 to May 2007. To achieve maximum participation, a modified Dillman (2007) method was used for follow up: three weeks after the initial mailing of the survey, a postcard was sent to the whole sample thanking those who returned the survey and reminding those who had not responded of the study (see Appendix H); and four weeks after the postcard mailing, a second survey was sent to those who had not responded (see Appendix I). Returned consent forms were used to determine who had previously responded.

While there were no direct benefits to the participants, nurses were offered a certificate of participation that they could keep as part of their reflective practice portfolio. Participants could ask for a certificate of participation by means of a request form (see Appendix J). All nurses are required by the CNO to engage in reflective practice to maintain registration. While a certificate of participation in a research study would not be required to be submitted to the CNO, it may be helpful to nurses as a reminder of an activity they engaged in for the purposes of reflective practice. A website was set up which contained information regarding the study and contact information. Results were also posted here so that participants could access them if they wished. Only pooled data were available on the website, protecting the anonymity and confidentiality of individual respondents.

Ethical Considerations

Ethics approval was obtained from the University of Toronto Research Ethics Board. To maintain the anonymity of the responses, any information containing identification of the respondent was separated from the survey itself. Participants were instructed to return the consent form and the request form inside a sealed envelope within of the outer envelope containing the survey. Upon receipt the sealed envelope was removed from the survey and opened separately so that the name of the participant was not linked to the survey responses. The consent forms were used to guide follow-up mailings. Returned surveys are stored in a locked cabinet in the Faculty of Nursing at the University of Toronto. Surveys will be saved for six years and then will be destroyed. Data entered into the computer were also not linked to any individual participants. Access to the data on the computer is protected by password. Only the doctoral student and the thesis committee have access to the data.

Data Analysis

Data were entered into SPSS Data Entry Builder software program, which utilized a double entry system to minimize errors in data entry. Data were analyzed using the SPSS

Version 16.0 computer program. Prior to the main analysis, the frequencies of all variables were examined to assess for accuracy of data entry and missing values. Univariate missing values for the study variables ranged from less than one percent to 4.7% and were handled through listwise deletion except in the case of the R-ENSS where the scoring instructions suggested mean imputation. All items on the R-ENSS had less than two percent of data missing and imputation of the item means was used to complete the data set. Subscale scores were calculated for respondents who had answered the majority of items in each subscale. The distributions of the dependent variables were also examined to ensure they met the assumptions for linear regression models. In one case, the dependent variable was skewed and therefore the variable was reflected and log transformed. In one further case, the dependent variable was dichotomized and a logistic regression was performed. The standardized residuals were examined for each regression model and three cases with outliers that fell greater than three standard deviations from the mean were eliminated from the analysis.

A multiple regression analysis was conducted on the dependent variables separately to determine which demographic variables were predictive of each dependent variable. Categorical demographic variables were converted into dichotomous dummy variables and those in which ninety per cent or more of the respondents fell into the same dichotomous category were not included (Tabachnick & Fidell, 2007). This excluded gender, shift worked and whether or not the respondent was currently on leave. Any variable that was significant in predicting the dependent variable at $p \leq 0.05$ was retained.

To test the research questions, regression procedures were carried out in hierarchical blocks. Each model contained five blocks of predictors: to control for the effect of covariates, the first block contained only demographic and employment variables (Tabachnick & Fidell, 2007);

the second block added the main effects of demands, control, support from supervisor and coworkers, and self-efficacy; the third block added all possible the two-way interactions; the fourth block added the three-way interactions between demands, control and support, and demands, control and self-efficacy; and in the fifth block, the four-way interaction between demands, control, support and self-efficacy was added. The changes in the R^2 and the F-statistic were evaluated for each progressive block and most parsimonious model was interpreted. The interaction terms were created by multiplying the variables together (Baron & Kenny, 1986). However including these terms can create problems with multicollinearity and therefore the variables were centred on the means (Tabachnick & Fidell, 2007).

Chapter Five: Results

This cross-sectional survey was designed to explore the effects of demands and control on the job stress, satisfaction, and intention to turnover of new nurses and to determine whether social support and self-efficacy moderate these effects. This chapter presents the results of the survey. It begins with a discussion of the pilot study, the survey response rate and the psychometric evaluation of the study instruments. This is followed by a discussion of the demographic characteristics of the sample and descriptive statistics. Finally, the results of each of the research questions are presented.

Pilot Test

The instruments used in the study were pilot tested prior to the initiation to determine the comprehensibility and clarity of the items. The survey packages were mailed to a random sample of forty newly graduated nurses from the CNO mailing list. Eight nurses returned the questionnaires for a response rate of 20%. An additional four surveys were received late, after changes had been made to the questionnaire and main study initiation, and were not included in the analysis. Review of these four late questionnaires did not reveal any additional changes that would have been made to the survey instruments had they been included in the analysis. The mean length of time taken to complete the questionnaire was 26 minutes with a range from 15-30 minutes. In response to the question asking about survey length, five out of the eight respondents had no comment while three commented that the R-ENSS was quite long. Two changes were made to the questionnaire based on responses from the pilot study. Three out of eight people stated that one item on the demands scale asking about a slowdown in workload was difficult to understand. The wording to this item was changed (see Figure 3). Additionally to provide a frame of reference for answering this question the order of the questions were changed so that this followed directly after a question asking about the amount of workload and the instruction to complete the scale in relation to an average day's workload was bolded. Three out of eight respondents identified difficulty with the response options on the R-ENSS. The R-ENSS items present potentially stressful events and the response options are: never stressful, occasionally stressful, frequently stressful, and extremely stressful. The respondents noted that the final response category asked to rate the intensity of the stress experience rather than the frequency. Therefore, this response option was changed to "always stressful" for the main study.

Figure 3. Change to the demands scale

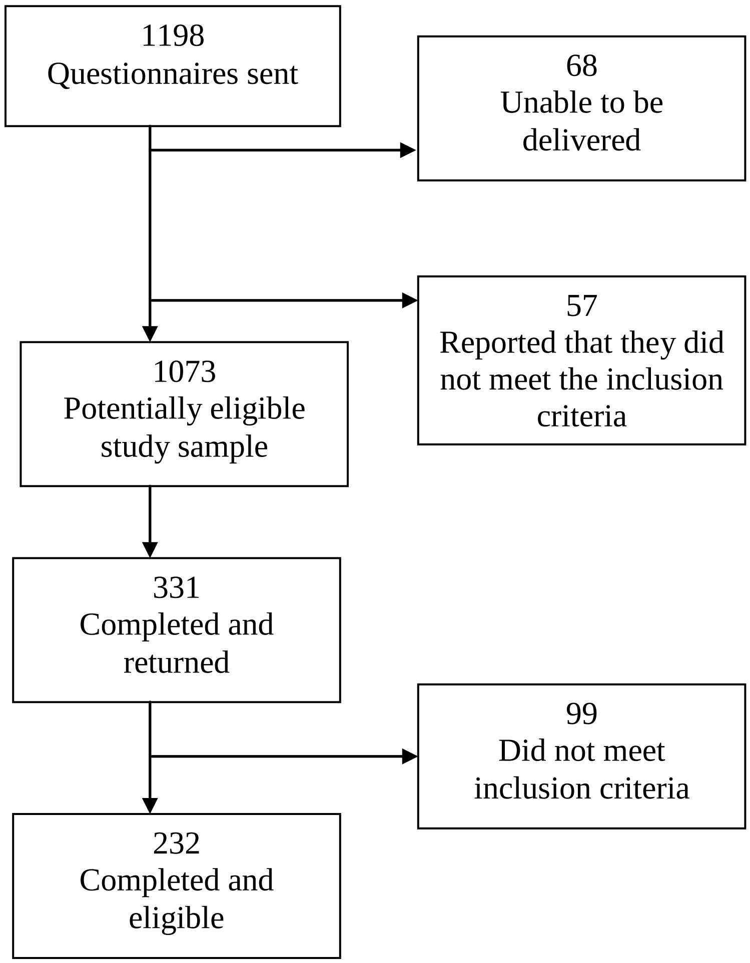
Original version: How much slowdown in the workload do you experience?
Adapted version: How much of a reduction in the workload do you experience?

The range of experience as an RN of the eight respondents was between 13 and 29 months with a mean of 19 months. Additionally, two respondents indicated that they had held more than one position as an RN. Based on these results the inclusion criteria were expanded to include nurses with fewer than two years of working experience and those who had changed positions. While this sample had more experience than originally planned, it is congruent with Benner's theory that nurses' typical require two to three years in the same or similar work environments to achieve a competent level of performance (Benner, 2001). The University of Toronto Ethics Review Board approved this change and a question was added to the demographic section asking new nurses how long they had been employed in their current position.

Response rate

Study packages were mailed to the homes of the remaining 1198 new nurses identified by the CNO. Figure 4 includes a summary of the responses received to this mailing. Of these packages, 68 were returned because they were unable to be delivered. An additional fifty-seven people responded that they did not qualify for the study, the most common reason being that they had greater than two years of experience working as a registered nurse (n = 49). Other reasons included previous experience as an RPN (n = 4) or currently being outside the country (n = 3). One person did not give the reason they did not qualify. All of these were removed from the list of potential respondents decreasing the sample size to 1073.

Figure 4. Summary of Responses



Three hundred and thirty-one surveys were completed and returned. Ninety-nine of the respondents did not meet the inclusion criteria for the study and were excluded from the analysis. Ninety of these surveys were excluded because the respondent had greater than two years of experience working as an RN. Four surveys were excluded because the respondent did not indicate the duration of their RN experience; two others because the respondents indicated that they had previous experience as an RPN and a final three surveys because the respondents either did not work in acute care or because the responses were given for several different work places.

There are a number of ways in which to calculate a response rate to the survey. A meta-analysis of response rates found that some authors deleted unusable surveys from the numerator and some from the denominator (Asch, Jedrziewski & Christakis, 1997). In this study, if the response rate was calculated by subtracting ineligible responses from the numerator, the response rate would be 19.4% (232/1198). Conversely, if the response rate was calculated by subtracting ineligible responses from the denominator, the response rate would be 34.0% (331/974). In either of these scenarios, the response rate provides only partial information. Therefore in this study, the ineligible responses were excluded from both the numerator and the denominator for the calculation of the response rate. The response rate was determined by dividing the number of completed and eligible surveys by the revised study sample excluding those that did not meet the inclusion criteria (1073 – 99 = 974). This resulted in a response rate of 23.8% (232/974).

While it is common to exclude unusable surveys in the calculation of a response rate, a simpler method is to consider the ratio of returned surveys to the number sent (Asch et al., 1997). Using this definition, the response rate for this study would be 331/1198 = 27.6%.

Psychometric Evaluation of Study Instruments

The Cronbach's alpha for each study instrument used in this study were calculated and evaluated. These results can be found in Table 2. The Cronbach's alphas were high, at greater than 0.75 for all the scales except for four of the subscales of the R-ENSS, indicating good internal consistency of the study instruments. Additionally, the correlation between the R-ENSS and the R-GHQ was evaluated. The R-ENSS total scale score was significantly and positively related to the R-GHQ ($r = 0.43$, $p < 0.01$, $n = 219$) providing some evidence of construct validity of the measurement of stress in this study.

Table 2. Cronbach's Alpha for Study Instruments

Instrument	α	n	Number of Items
Demands	0.76	228	7
Control	0.79	229	20
Social Support from Supervisor	0.88	228	4
Social Support from Coworkers	0.87	230	4
Self-Efficacy	0.82	228	10
Job Stress – R-GHQ	0.86	222	12
Job Stress – R-ENSS	0.95	231	54
Death and Dying	0.72	232	7
Conflict with Physicians	0.67	232	5
Inadequate Preparation	0.67	232	3
Problems with Peers	0.72	232	6
Problems with Supervisors	0.85	231	7
Workload	0.79	232	9
Uncertainty Concerning Treatment	0.79	232	9
Patients and Their Families	0.84	232	8
Job Satisfaction	0.88	230	3
Intention to Leave the Job	0.87	231	3
Intention to Leave the Profession	0.85	229	3

Descriptive Findings

The nurses represented in the study ranged in age from 22 to 53 with an average age of 26.8 years. The median age was 25 and the mode was 24 suggesting that the majority of the sample fell below the mean. The nurses had an average of 18 months of experience as a registered nurse and an average of 15 months in their current position. Seven nurses reported that they had more experience on the unit than they had working as an RN. The length of orientation for the new nurses averaged five and a half weeks. Nurses who reported full-time employment averaged 41 hours of work each week with part-time and casual nurses averaging approximately one shift less per week. Those working in another employment status, such as temporary, contract or job share positions, worked an average of 40 hours each week. This information is summarized in Table 3.

Table 3. Demographic and Employment Information

Demographic or employment characteristic (N)		Mean (SD)
Age in years (228)		26.8 (4.9)
Months of experience as RN (232)		18.2 (3.2)
Months of experience in position (232)		15.1 (5.6)
Weeks of orientation (231)		5.5 (4.8)
Worked hours/week (220)	Full-time	40.9 (4.5)
	Part-time	34.1 (7.5)
	Casual	32.0 (6.9)
	Other	40.1 (7.4)

The categorical demographic and employment characteristics of the sample are summarized in Table 4. The majority of the sample was female, not currently on leave and had a bachelor's degree in nursing. Fewer than 30% of the sample had a diploma or degree in a field other than nursing. Most nurses reported that they were employed in full-time positions and had only one employer. Over half of the sample worked on medical or surgical units and at teaching hospitals. Almost all nurses reported working rotating shifts.

Table 4. Categorical Demographic and Employment Characteristics (N=232)

Demographic or employment characteristics		N (%)
Female		221 (95.3)
Currently on leave		9 (3.9)
Highest education in nursing	Diploma	24 (10.3)
	Bachelor	207 (89.2)
	Master	1 (0.4)
Highest education in a field other than nursing	Diploma	21 (9.1)
	Bachelor	41 (17.7)
	Not Applicable	161 (69.4)
	Missing	9 (3.9)
Work Status	Full-time	163 (70.3)
	Part-time	57 (24.6)
	Casual	3 (1.3)
	Other	8 (3.4)
	Missing	1 (0.4)
Employed in more than one RN position	Yes	39 (16.8)
	No	191 (82.3)
	Missing	2 (0.9)
Clinical Specialty	Medical or Surgical	132 (56.9)
	ER or ICU	49 (21.1)
	Other	50 (21.6)
	Missing	1 (0.4)
Institution of work	Teaching hospital	136 (58.6)
	Community hospital	78 (33.6)
	Small hospital	17 (7.3)
	Missing	1 (0.4)
Shift worked	Days	3 (1.3)
	Nights	5 (2.2)
	Rotating	224 (96.6)

Previous experience on the nursing unit was also explored. Around one third of the sample reported that they had previous experience on the unit on which they were now employed as an RN (n=71, 30.6%). The average length of experience on the unit was 23 weeks (SD 45.6), though this ranged from two weeks to over five years.

Table 5 shows the mean scale scores with the 95% confidence intervals and standard deviations. The range of potential scores for each scale is also shown. Demands, control, social support and self-efficacy are all well above the mid-points of their respective scales. Mean stress as measured by the R-GHQ is below the mid-point of the scale. However, the mean of stress as measured by the total R-ENSS is above the midpoint of the scale. Job satisfaction of new nurses is above the midpoint, while intention to leave the job and the profession are both below the midpoint. Pearson's bivariate correlations were conducted and the results of these analyses can be found in Appendix L. The relationships between the study variables were all in the expected direction with demands showing a significant, negative relationship to control, social support and self-efficacy. The outcome variables were also significantly related to each other. To meet assumptions of regression, job satisfaction was reflected and log transformed while intention to leave the profession was dichotomized. All the outcome variables, job stress, job dissatisfaction and intention to leave, were positively correlated with one another.

Table 5. Descriptive Statistics

	Mean (SD) (95%CI)	N
Demands (Scale range 7-35)	27.9 (3.4) (27.4-28.3)	228
Control (Scale range 20-100)	52.0 (8.1) (50.9-53.0)	229
Social Support from Supervisor (Scale range 4-16)	10.4 (3.5) (10.0-10.9)	228
Social Support from Coworkers (Scale range 4-16)	13.6 (2.5) (13.3-13.9)	230
Self-Efficacy (Scale range 10-60)	41.9 (6.5) (41.1-42.8)	228
Job Stress – R-GHQ (Scale range 0-36)	11.7 (4.8) (11.1-12.3)	221
Stress – R-ENSS (Scale range 0-216)	128.9 (31.2) (124.9-133.0)	231
Job Satisfaction (Scale range 3-21)	16.2 (3.8) (15.7-16.7)	230
Propensity to Leave the Job (Scale range 3-15)	6.8 (2.7) (6.4-7.1)	230
Propensity to Leave the Profession (Scale range 3-15)	5.3 (2.4) (5.0-5.6)	229

Research Questions

The research questions for this study were tested through hierarchical regression models. To determine which demographic and employment variables to include in the models, separate linear regressions were conducted on each dependent variable. Significant variables were retained in the hierarchical models. Mulicollinearity can occur when correlations between variables are greater than 0.90 (Tabachnick & Fiddell, 2007). In these analyses however, bivariate correlations between the demographic and employment variables were less than 0.50, with the exception of the variables representing clinical specialty which had a Pearson's correlation of -0.60. The results of the regression analyses are summarized in Table 6.

Table 6. Demographic variables included in the regression models

Dependent variable	Demographic predictor	B	p
Job Stress (R-GHQ)	Months as an RN	0.23	0.05
	Medical/Surgical Unit	0.10	0.92
	ER or ICU	-3.21	0.00
Job Stress (R-ENSS)	Medical/Surgical Unit	20.16	0.00
	ER or ICU	1.19	0.86
Job Satisfaction (log job dissatisfaction)	Medical/Surgical Unit	0.03	0.43
	ER or ICU	-0.10	0.01
Intent to Leave the Job	Medical/Surgical Unit	-0.37	0.48
	ER or ICU	-1.35	0.03
	Teaching hospital	-0.92	0.02
Intent to Leave the Profession	More than 1 RN position	1.11	0.00
	Education other than RN	0.84	0.04

Research Question One

The first research question asked: *What are the effects of job demands and job control on job stress, job satisfaction and intention to leave the job or the profession?* The results pertaining to this question are discussed below in relation to each dependent variable.

Job Stress

Job stress was measured with both the R-GHQ and the R-ENSS. Separate regressions were run on each of these scales to assess the effects of the independent variables and moderators. When the independent variables were regressed on job stress as measured by the R-GHQ, the interactions between demands, control and the moderators did not explain significantly more variance in distress than the main effects model (R^2 change = 0.05, p = 0.14) and thus only the main effects were retained for interpretation. The final hierarchical regression model explained 33% of the variance in job stress as measured by the R-GHQ (R^2 = 0.36, adjusted R^2 = 0.33). The unstandardized regression coefficients, standard errors of the regression coefficients and standardized coefficients are shown in Table 7.

Table 7. Summary of Hierarchical Regression Analysis for Variables Predicting Job Stress (R-GHQ) (N = 209)

Variable	B	SE B	β
Step 1			
Months working as an RN	0.14	0.11	0.09
Medical/Surgical Unit	0.36	0.83	0.04
ER/ICU	-2.40	0.98	-0.21*
Step 2			
Demands	0.16	0.09	0.11
Control	-0.07	0.04	-0.12
Support – Supervisor	-0.29	0.08	-0.22**
Support – Coworkers	-0.26	0.12	-0.13*
Self-Efficacy	-0.22	0.05	-0.30**
Months working as an RN	0.17	0.09	0.11
Medical/Surgical Unit	0.25	0.70	0.03
ER/ICU	-1.81	0.83	-0.16*

Note. R^2 = .06 for Step 1; ΔR^2 = .30 for Step 2 (ps < .05).
*p <0.05. **p<0.01.

In answer to the first research question, demands and control did not have a significant effect on job stress as measured by the R-GHQ. The main effects of support from supervisors, support from coworkers and self-efficacy were all negatively related to job stress. Additionally, employment in an emergency room or intensive care unit was associated with less stress than employment in another clinical specialty.

A multiple regression was also conducted on the R-ENSS. The only demographic variable that was significantly related to job stress as measured by the R-ENSS was employment on a medical or surgical unit. As with the analysis of job stress as measured by the R-GHQ, the model including the interaction terms did not explain significantly more variance than the main effects (R^2 change = 0.04, p = 0.35). The main effects model explained a significant amount of variance in job stress (R^2 = 0.34, adjusted R^2 = 0.31). A summary of the regression analysis is presented in Table 8.

Table 8. Summary of Hierarchical Regression Analysis for Variables Predicting Job Stress (R-ENSS) (N= 218)

Variable	B	SE B	β
Step 1			
Medical/Surgical Unit	18.19	5.10	0.29**
ER/ICU	-2.08	6.14	-0.03
Step 2			
Demands	2.38	0.58	0.26**
Control	-1.06	0.25	-0.28**
Support – Supervisor	-0.70	0.54	-0.08
Support – Coworkers	0.16	0.76	0.01
Self-Efficacy	-0.33	0.29	-0.07
Medical/Surgical Unit	14.78	4.51	0.24**
ER/ICU	-0.80	5.38	-0.01

Note. R^2 = .10 for Step 1; ΔR^2 = .24 for Step 2 (ps < .05).
*p <0.05. **p<0.01.

When job stress was measured by the R-ENSS, demands and control had a significant effect. Demands significantly and positively predicted job stress while control significantly and negatively predicted job stress. Additionally, employment on a medical or surgical unit was associated with higher stress than employment in other clinical specialties. Support and self-efficacy were not related to job stress in this model.

Job Satisfaction

Another multiple regression was conducted to assess the predictive effect of the independent variables on job satisfaction. To ensure the assumptions of regression were met, job satisfaction was reflected and log transformed. This resulted in the dependent variable representing the log of job dissatisfaction. The interaction model did not explain significantly more variance than the main effects model (R^2 change = 0.04, p = 0.32) and thus the main effects model was retained for interpretation. The main effects explained 28% of the variance in the log of job dissatisfaction ($R^2 = 0.31$, adjusted $R^2 = 0.28$). The results of the regression analysis are summarized in Table 9.

Table 9. Summary of Hierarchical Regression Analysis for Variables Predicting the Log of Job Dissatisfaction (N=219)

Variable	B	SE B	β
Step 1			
Medical/Surgical Unit	0.05	0.03	0.12
ER/ICU	-0.09	0.04	-0.19*
Step 2			
Demands	0.01	0.00	0.13*
Control	-0.00	0.00	-0.13
Support – Supervisor	-0.01	0.00	-0.13*
Support – Coworkers	-0.02	0.01	-0.25**
Self-Efficacy	-0.00	0.00	-0.13*
Medical/Surgical Unit	0.04	0.03	0.09
Works in an ER or ICU	-0.08	0.04	-0.17*

Note. R^2 = .07 for Step 1; ΔR^2 = .23 for Step 2 (ps < .05).
*p <0.05. **p<0.01.

Demands had a significant and positive effect on the log of job dissatisfaction; however, control did not have a significant effect. Additionally, support and self-efficacy negatively predicted the log of job dissatisfaction. Clinical specialty was also significant with nurses working in ER or ICU environments reporting a lower score on the log of job dissatisfaction when compared to those working in other specialty units.

Intention to Leave the Job

A regression analysis was conducted to predict the intention of new nurses to leave their current job. The independent variables, as well as the demographic variables representing employment in an ER or ICU and whether or not they worked in a teaching institution were included along with the interaction terms in a sequential regression. The model including the interactions between the independent and moderator variables did not explain significantly more variance than the main effects model (R^2 change = 0.04, p = 0.29). The main effects model accounted for 20% of the variance in intention to leave the job (R^2 = 0.23, adjusted R^2 = 0.20). This model is summarized in Table 10.

Table 10. Summary of Hierarchical Regression Analysis for Variables Predicting Intention to Leave the Job (N=216)

Variable	B	SE B	β
Step 1			
Medical/Surgical Unit	-0.13	0.46	-0.03
ER/ICU	-1.07	0.55	-0.17*
Teaching hospital	-0.87	0.36	-0.16*
Step 2			
Demands	0.19	0.06	0.24**
Control	-0.03	0.02	-0.10
Support – Supervisor	-0.09	0.05	-0.121
Support – Coworkers	-0.21	0.07	-0.19**
Self-Efficacy	-0.01	0.03	-0.03
Medical/Surgical Unit	-0.44	0.43	-0.08
ER/ICU	-0.93	0.50	-0.14
Teaching hospital	-0.72	0.34	-0.13*

Note. R^2 = .05 for Step 1; ΔR^2 = .18 for Step 2 (ps < .05).
*p <0.05. **p<0.01.

In answer to the first research question, demands were significantly related to intention to leave the job; however, control showed no effect. Demands positively predicted intention to leave the job. Support from coworkers and working at a teaching hospital also negatively affected intention to leave the profession.

Intention to Leave the Profession

The distribution of the variable representing intention to leave the profession showed a significant skew indicating that the majority of new nurses reported low intention to leave the profession. The departure from normality negated the possibility of conducting a multiple linear regression analysis and thus the variable was dichotomized. The scale measuring intention to leave the profession consisted of three items. Thirty-three per cent of respondents answered in the lowest category for all three questions, suggesting that the possibility of their leaving the profession was very low. These respondents were coded as '0' on the dependent variable. The remaining sixty-seven per cent of respondents had answered in the second lowest category on one or more of the three questions. These respondents were coded "1" on the dependent variable.

A logistic regression analysis was performed to evaluate the impact of the independent, moderator and demographic variables on the dichotomous dependent variable. The test of the main effect model against a constant-only model was significant, χ^2 (7, n=209) = 23.32, p = 0.001). The Cox & Snell R^2 was 0.11 and the Nagelkerke R^2 was 0.15 suggesting the model explains 11-15% of the variance in intention to leave the profession. The regression coefficients, Wald statistics, odds ratios and 95% confidence intervals for odds ratios are shown in Table 11.

Table 11. Summary of Logistic Regression Analysis for Variables Predicting Intention to Leave the Profession (N = 209)

Variable	B	Wald Chi-Square	Odds Ratio	95% CI for Odds Ratio	
				Lower	*Upper*
Demands	0.01	0.05	1.01	0.91	1.12
Control	-0.02	0.62	0.98	0.94	1.03
Support – Supervisor	-0.07	2.09	0.93	0.84	1.03
Support – Coworkers	-0.07	0.92	0.93	0.81	1.08
Self-Efficacy	-0.06	4.45	0.94	0.89	1.00
More than one RN position	1.08	6.80	2.94	1.31	6.59
Other education than RN	0.39	1.18	1.47	0.73	2.96
(Constant)	-0.40	0.71			

Demands and control were not related to the dependent variable. Only self-efficacy and having more than one position as an RN reliably increased the probability of falling into the category of those who reported some intention to leave the profession. The odds ratio of 0.94 for self-efficacy suggests a slight decrease in intention to leave the profession with each unit increase on the self-efficacy scale. Having more than one RN position showed a larger effect; if a nurse has more than one position as an RN, he or she was almost three times more likely to report intentions to leave the profession.

Research Question Two

The second research question asked: *Do social support and self-efficacy moderate the effects of the independent variables on the dependent variables?* This question was also addressed through hierarchical regression models. The interaction terms between demands, control and social support and self-efficacy were added to the regression equation in hierarchical blocks. By examining the change in the R-square at each block it was determined if the moderating terms significantly contributed to explaining the variance in the dependent variables (Tabachnick & Fidell, 2007). Because the blocks that included the interaction terms were not significant in any of the regression models, it was determined that the moderating relationships were not significant. In several models however, the main effects of social support and self-efficacy were significant in predicting the dependent variables. These results were discussed above. The complete results of the hierarchical regressions can be found in Appendix M.

Chapter Six: Discussion

Entering the work environment has been found to be stressful for new nurses (Boychuk Duchscher, 2001; Gerrish, 2000). While many researchers have documented sources of stress, there has been a lack of coherent theory guiding this research. The purpose of this study was to explore the experiences of new nurses from the perspective of Karasek's job demands-control-support model. Specifically this study assessed the effects of job demands, control, and the potential moderating effects of social support and self-efficacy on the job stress, job satisfaction and intentions to leave of new nurses. In this chapter, the findings from the study are discussed in relation to literature on the theoretical model and in relation to previous research pertaining to new nurses and nurses in general.

Descriptive Findings

Description of the Sample

The sample in the current study was compared to other published sources of samples of new nurses from across Ontario to determine how representative it was of the population of interest. This was especially important in this study as the response rate was lower than expected which increased the possibility for selection bias. The comparisons showed that the current sample was similar to the samples of new nurses in other reports. The nurses ranged in age from 22 to 53 with an average age of almost 27. Eighty-four per cent of the sample was under 29 years of age. These findings correspond to other studies of new nurses in Ontario in which the mean age was also found to be 27 (Cho, Laschinger & Wong, 2006) and 58 to 88 % were under 30 years of age (Baumann, Blythe, Cleverly & Grinspun, 2006). The sample in this study was over

95% female, which was also similar to other published sources that described samples as 93% female (Cho et al.; Baumann et al.).

A difference in the current study's sample was found in educational preparation. In this study, 10% of new nurses had a diploma in nursing and 89% had a baccalaureate degree. In contrast, 57% of the sample in Cho et al.'s (2006) study had diploma education. This difference between the samples is likely due to the sampling time frame. In Ontario, entry-to-practice requirements were changed in January 2005 (CNO, 2007). At that time all new nurses were required to have a baccalaureate degree in nursing. Data collection in the current study began in November 2006 and therefore the majority of nurses who qualified for the study would have entered practice with a baccalaureate degree under the new regulations. Although Cho et al. do not report when their data collection took place, it was likely earlier and therefore the change in educational preparation of new nurses was not captured.

There were variations found in the literature regarding the employment status of new nurses. In this study just over 70% of new nurses reported working full-time. Similarly, Cho et al. (2006) found that 65% of their sample of new nurses was working full-time. In these studies nurses had been working for an average of 18 and 20 months respectively (Cho et al.). Differing results have been reported when employment of new graduates was measured earlier in their careers. At six months after graduation, Baumann et al. (2006) found that only 32 to 43% of new nurses were employed full-time.

The current study and Cho et al.'s (2006) research both drew samples from newly employed nurses working in acute care settings. The units on which new nurses were employed were similar. In the current study 57% of the sample worked on medical-surgical units and another 21% worked in critical care or emergency. Cho et al. found that 59% of their sample worked in medical-surgical units and 20% worked in critical care units. In contrast, Baumann et al. (2006) found that only 41% of their sample worked in medical-surgical units. However, the population of interest included new nurses from any sector.

The current study found that the percentage of new nurses who had greater than one employer was 16.8%. Comparisons to the literature show that there is variation in the number of new nurses working for more than one employer. A study that asked this question of new nurses working in Ontario found that of the new nurses who graduated in 2003-2004, 24.8% reported having more than one position six months after graduation, although this decreased for those graduating the following year to 12.8% (Baumann et al., 2006). In additional studies, 29% of new nurses in British Columbia (CRNBC, 2005) and over 12% of new nurses in the United States (Kovner et al., 2007) reported having more than one employer.

It was also of interest in this study to determine if new nurses were being hired onto units on which they had prior experience. A British Columbia study of newly graduated nurses found that 40% of respondents indicated that prior experience on the unit or within the hospital was a factor influencing their decision to accept their first RN position (CRNBC, 2005). In this study, 30.6% of respondents reported that they had prior experience either as a student or in another employment role on the unit in which they were now employed as an RN. This suggests that student placements are a means of recruiting new nurses.

Overall, the sample in the current study appears to be representative of the population of new nurses working in Ontario. With the exception of educational preparation, demographic and employment factors were similar to those found in other samples of new nurses in Ontario. As data collection for the current study occurred shortly after a change in regulation regarding the education of nurses, future studies will likely find more similar results in comparisons of educational preparation.

Descriptive Findings of the Dependent Variables

The mean levels of job stress, job satisfaction and intention to leave were compared to findings in the literature when possible to provide a better understanding and interpretation of the descriptive findings. Two recent reports examined stress among nurses in Canada and provide evidence of its prevalence. Utilizing measures of general health and mental health, O'Brien-Pallas et al. (2005) found that in Ontario, RNs working in acute care hospitals rated their health more poorly than nurses working in other sectors. The second report utilized Karasek's definition of strain and classified nurses into the four quadrants of the model based on their reported levels of demands and control (Shields & Wilkins, 2006). This study found that one third of nurses fell into the high strain quadrant of the model.

One measure of stress in the current study was the R-GHQ-12. The mean for stress as measured by the R-GHQ-12 was 11.7 (SD 4.8), which is comparable to the mean of 11.6 (5.3) found for healthcare workers in general medical practice in a NHS Trust in England (Calnan et al., 2000). It is higher, however, than the means of 10.50 (SD 4.79) and 10.75 (4.85) found in two administrations to chartered accountants in England. This may suggest that new nurses report their stress to be comparable to other health care workers, but higher than other workers such as experienced accountants. It should be noted that comparisons to previous findings using the GHQ-12 should be interpreted with caution because the words "at work" were added to each of the items in this study. This change required that participants responded about their stress in the work setting rather than their stress in general. The change may have altered the participants' responses in some way so that the results are not directly comparable.

The mean of global job satisfaction was 16.2 (SD 3.8) out of a possible of 21. When converted to an item-level mean, the average response was 5.41 (SD 1.28) on a seven-point scale with higher responses indicating higher job satisfaction. In the literature, the same measure was used with a sample of business school graduates who were working in their first position. The mean item responses in that sample were slightly lower at 5.06 and 5.08 at four and ten months of work respectively (Saks & Ashforth, 2000). The level of job satisfaction among new nurses in this study was also comparable to that in a sample of employees in a veteran's hospital in the United States (5.76, SD 1.23; Bruck, Allen & Spector, 2002). These comparisons suggest a comparable level of job satisfaction to business school graduates and other hospital employees.

The mean of intention to leave the job was 6.8 out of a possible range of 3 to 15. When this was converted to item-level, the average response was 2.26 (SD 0.89) on a scale from 1-5 with higher scores indicating higher intention to leave. This is comparable to the means found in the literature on this scale of part-time nurses, which ranged from 2.14-2.26 (Keil et al., 2000). The intention to leave the profession measure was adapted for this study so there are no direct comparisons using this scale. However, the mean item-level response was 1.77 (SD 0.80), which was lower than the intention to leave the job. That nurses' reported higher intention to leave the job than the profession is consistent with previous finding that reported that 16.9% of nurses were planning to leave their current position in the upcoming year, however only 2.4% of RNs were planning to begin a career outside of the profession in the same time period (O'Brien-Pallas et al., 2005). The findings from the current study suggest that the new nurses in this sample are not planning to leave their jobs or the nursing profession.

Discussion of Findings Related to the Research Questions

Research Question One

The first research question asked: What are the effects of job demands and job control on stress, job satisfaction and intention to leave the job or the profession? The findings in relation to this question are addressed for each dependent variable below.

Job Stress. Job stress in this study was measured using both the revised 12-item version of the General Health Questionnaire (Goldberg, 1972) and the revised Expanded Nursing Stress Scale (ENSS; French, Lenton, Walters & Eyles, 2000). Regression analyses were undertaken to determine the effects of demands and control of each of these dependent variables. Job demands and control did not have significant main effects on job stress as measured by the R-GHQ-12. In contrast, when job stress was measured using the R-ENSS, both demands and control were significant. As predicted by the theoretical model, demands were positively related to job stress while control was negatively related. The interaction between demands and control was not significant in either model.

These differing results for the two measures of stress may be explained by the theoretical basis of the two measures. Stress has different conceptualizations and has been studied from different perspectives (Cooper & Dewe, 2007). These conceptualizations are reflected in the measures. The GHQ-12 conceptualizes stress as the individual's reaction to a stressful event, and while its title is the General Health Questionnaire, it has been used to capture mental health status or stress (Calnan et al., 2000), psychological well-being (Daniels & Guppy, 1994; Jimmieson, 2000), health (Munro et al., 1998) and strain (Taris & Feij, 2004). The ENSS conceptualizes stress as the participants' appraisal of the frequency of stress in response to workplace stressors. The scale presents respondents with a number of situations and they are asked to rate how often the situation is stressful. In short, the GHQ-12 is a measure of reaction to the environment, while the ENSS is a measure of stressors within an environment. The fact that demands and control have different associations with each of them is thus perhaps not surprising.

Although it was expected that demands and control would significantly predict stress in both models, the inconsistent support is in line with other research using Karasek's (1979) model. In a literature review of studies in which Karasek's model was tested, the main effects of the demands and control were found to have received variable support when using reactions to stress, such as health and well-being, as an outcome (de Lange et al., 2003). Among a sample of acute care psychiatric nurses in Australia, demands did not have an impact on employee stress, although control was a significant predictor (Munro et al., 1998). Likewise, among samples of new teachers and customer service representatives, the main effect of control significantly predicted stress, although demands did not (Bradley, 2007; Jimmieson, 2000).

Demands in Karasek's model and in the current research study are conceptualized as workload and thus it was expected that demands would be a significant predictor of stress among nurses. Workload has been cited as one of the main sources of workplace stress for nurses (McVicar, 2003). It has been found that nurses who worked involuntary overtime and nurses who wanted to reduce their work hours, both of which may be indirect measures of workload, were less likely to be physically and mentally healthy (O'Brien-Pallas et al., 2005). Among new nurses as well, workload and volume of work were frequently recognized as a cause of stress (Charnley, 1999; Delaney, 2003; Ellerton & Gregor, 2003; Gerrish, 2000).

Control was hypothesized to have significant effects on stress, however this was found only in stress as measured by the R-ENSS. Significant effects of control have not been consistently reported in the literature. Karasek et al. (1998) noted that control was often found to be associated with depression or anxiety, rather than with exhaustion or burnout. Further research has found that control predicted stress among nurses (Munro et al., 1998) and new teachers (Bradley, 2007), and it predicted burnout among nurses (Sundin, Hochwälder, Bilt & Lisspers, 2007). However Escribà-Agüir and Pérez-Hoyos (2007) did not find that control predicted emotional exhaustion among nurses although it did so among physicians. In the current study, control was measured using an instrument that addressed issues such as control over variety of tasks, control over the amount of work completed, and how work is done. Within the workplace, new nurses often did not comment about these aspects of control, but rather about the control they had over patient care. Responsibility and accountability for patients was a frequent theme in the literature focused on new nurses (Amos, 2001; Biley & Smith, 1998; Ellerton & Gregor, 2003). This aspect of control was not captured in the measure and is not well-captured in Karasek's (1979) conceptualization of control. This may explain why control was not significant in predicting stress as measured by the GHQ.

Job Satisfaction. Job demands were found to be significantly and negatively related to job satisfaction among new nurses in this study. However neither the main effect of control nor the interaction between demands and control significantly predicted satisfaction. Job satisfaction has been widely studied in nursing research. In the mid-1990s two meta-analyses were published in which particular correlates of job satisfaction were identified (Blegen, 1993; Irvine & Evans, 1995). While neither meta-analysis included demands or control directly, Irvine and Evans found that work overload had a correlation of r= –0.16 with job satisfaction, supporting the finding in this study that demands were negatively related to job satisfaction. Autonomy, which has been used in Karasek's model to operationalize the concept of control (Claessens, Van Eerde, Rutte & Roe, 2004; de Jonge et al., 1999; De Witte, Verhofstadt & Omey, 2007; Daniels & Guppy, 1994; Rodríguez, 2001; Tummers et al., 2001), was also correlated with job satisfaction (Blegen; Irvine & Evans). In fact, Irvine and Evans found that autonomy was the variable with the second largest relationship (r=0.46) with job satisfaction after routinization (-0.52).

More recent studies have found similar results to the two previous meta-analyses. Chu, Hsu, Price and Yee (2003) found that workload and autonomy were significantly correlated with job satisfaction although neither were significant predictors in a regression model (Chu et al.). Conversely, Kovner, Brewer, Wu, Cheng & Suzuki (2006) found that although autonomy was significantly related to job satisfaction, workload was not. Like Irvine and Evans (1995), Chu et al. found that routinization had a large negative impact on job satisfaction (r=-0.44), while Kovner et al. report a significant, positive relationship between variety and job satisfaction. This is interesting in light of the findings of the current study. Routinization, or repetitiveness (Price & Mueller, 1981) can perhaps be conceptualized as low control within Karasek's model. Control is defined as decision authority and skill discretion, sometimes referred to as autonomy and skill variety (Karasek, 1989). Routinized jobs lack variety. In fact, Karasek & Theorell (1990) characterized routinized workers as having low control. The findings from the meta-analyses and the recent studies underscore the importance of variety to job satisfaction, suggesting that control is important to nurses. However in the current study there was no effect of control on job satisfaction.

Job satisfaction has been examined as an outcome of the JDC model with inconsistent results. Unlike the current research, previous studies of nurses, new teachers and customer service workers found that job control had significant main effects on job satisfaction (Bradley, 2007; Fox et al., 1993; Jimmieson, 2000; Munro et al., 1998). There was also evidence that the interaction between control and demands was predictive of job satisfaction (Fox et al.). However, a literature review reported that in approximately one half of the studies (n=16), the main effects of demands, control or both predicted job satisfaction, while only 10 studies found evidence of a significant interactive effect between demands and control (Van der Doef & Maes, 1999). The findings of the current study reflect the inconsistent support of Karasek's model in predicting job satisfaction. While the positive effects of demands on job satisfaction was demonstrated, control and the interaction between control and demands were not found to have any effect.

Intention to Leave the Job or the Profession. The current study found that demands were significantly related to intention to leave the job, but not to intention to leave the profession. Control and the interaction between demands and control were not significant in predicting either outcome. In this study intention to leave was used as a proxy to measuring actual turnover. Intentions to leave are the best predictor of turnover itself (Irvine & Evans, 1995). However, previous research examining turnover and intention to leave is somewhat unclear because of a lack of clarity in both the conceptualization and measurement of turnover. As others have noted, definitions of turnover have been varied and include voluntary and involuntary turnover, the leaving of a particular position, leaving an organization or leaving the profession (Coomber & Barriball, 2007; Hayes et al., 2006; O'Brien-Pallas et al., 2006). Measurement has also been inconsistent with some researchers measuring intention to stay while others measure intention to leave or measure turnover as the number of vacant positions (Tai, Bame & Robinson, 1998). Measurement of turnover can also be compromised by inaccuracy of record-keeping (Tai et al.). Studies are not always clear about the definition and measurement of the concept (Hayes et al.; O'Brien-Pallas et al.). Thus comparisons in studies of turnover are difficult to make (Tai et al.).

A few previous studies have examined intention to leave the job as a dependent variable in Karasek's model. As in the current study, one group of researchers found that demands had a significant main effect on intention to leave however control and the interaction between demands and control were not significant (Schaubroek, Lam & Xie, 2000). In another study, demands and control were found to have significant main effects and the interaction term was significant in predicting thoughts of early retirement among health care and social workers in Finland (Elovainio et al., 2005). However, a final study conducted with new teachers found that neither demands nor control had a significant main effect on intention to leave the job, but the interaction between them was significant (Bradley, 2007). No previous studies were found which looked at intent to leave the profession from the perspective of Karasek's model.

In the current research the relationships between job stress, job dissatisfaction and intention to leave were not examined within the same analysis model, although the correlations between these outcome variables were all found to be significant. This is consistent with several models of turnover in nursing literature include job satisfaction as a significant predictor of turnover (Irvine & Evans, 1995; Parasuraman, 1989; Tourangeau & Cranley, 2006). In one model, job satisfaction was found to have no net influence on turnover, but it was found to be an important mediator between turnover and other determinants (Price & Mueller, 1981). Other studies have found that workload or demands can impact turnover through stress (Coomber & Barriball, 2007; Strachota, Normandin, O'Brien, Clary & Krukow, 2003) or through stress and job satisfaction (Tai et al., 1998; Parasuraman, 1989). These findings suggest that job satisfaction and job stress may act as mediators between the job characteristics specified in Karasek's model and intention to leave. The findings from this study as well as previous studies have suggested that demands have a direct impact on intention to turnover from the job, but in light of the literature, future research should consider a partial mediation model in which demands can impact job turnover directly, but also through job stress and satisfaction.

It is important to study determinants of new nurses' intention to leave the profession and how these differ from intention to leave the job. Young or new employees are mobile (Kovner et al., 2007) and some turnover of jobs is expected. It's been found that nurses with less than three years of experience, who had educational preparation from a degree program and who were expecting job instability were likely to consider leaving their current position (O'Brien-Pallas et al., 2005). A study of nurses with five years of experience or less found that only one third of the sample was still in their first nursing position and 22% of the reasons given for leaving the first position was to move geographical locations or to a different area of nursing (Bowes & Candela, 2005). Another study of nurses who had turned over, found that 80% of the sample were employed in other nursing positions (Strachota et al., 2003). There are different implications of turnover from the job and turnover from the profession. By not differentiating between those nurses who are changing positions from those who are leaving the profession the effects of new nurse turnover on nursing shortages cannot be adequately assessed.

Intention to leave the profession was not well explained by Karasek's model in the current study. The findings suggest that demands and control did not impact intention to leave the profession. The lack of main effects of demands is contrasted by one previous study that found that demands were the second most common reason for turnover from the profession as reported by nurses under the age of 30, following salary (Flinkman, Laine, Leino-Kilpi, Hasselhorn & Slanterä, 2008). In another study of nurses under the age of 55, it was found that younger nurses, those nurses in part-time or casual positions and nurses who wanted to decrease work hours were more likely to consider leaving the profession than other nurses (O'Brien-Pallas et al., 2005). Clearly this area needs further investigation.

Research Question Two

The second research question asked: Do support and self-efficacy moderate the effects of the independent variables on the dependent variables? This question will be addressed in relation to each dependent variable below.

Job Stress. There were significant main effects of social support and self-efficacy on job stress as measured by the R-GHQ-12. As expected, social support from both supervisors and coworkers and self-efficacy had negative effects on job stress. There was no evidence of a moderating influence of these variables in either of the regression models predicting job stress. These findings are congruent with a literature review of the JDC-S model in which inconsistent support was found for the model. Some studies have reported interactive effects between the three variables while others found only significant main effects of some of the variables (de Lange et al., 2003). Among nurses, a significant main effect of social support is more common. Using this model in a sample of nurses, work support was found to have a significant main effect on stress (Munro et al., 1998). In another study, supervisory support was negatively related to stress in both ICU nurses and non-ICU nurses (Verhaeghe, Vlerick, De Backer, Van Maele & Gemmel, 2008). In a comprehensive study of nurses from across Canada, low support from supervisors and coworkers was significantly related to reports of fair or poor mental health (Shields & Wilkins, 2006). These research results suggest that among the nursing population, social support is important for decreasing stress.

It was unexpected that social support was not a significant predictor of stress as measured by the ENSS. This finding is contrary to a previous study in which supervisor support was negatively related to stress as measured by the R-ENSS among nursing assistants in long-term care (McGilton et al., 2007). While this relationship hasn't been previously tested in a sample of new nurses, in a study of new teachers, neither coworker nor supervisor support had significant effects on stress (Bradley, 2007).

Self-efficacy significantly and negatively predicted job stress when measured by the R-GHQ-12, although not when measured with the R-ENSS and in neither model did self-efficacy moderate the relationship between demands or control and stress. This finding is in contrast to one study in which self-efficacy was included in Karasek's model. Self-efficacy had a significant main effect and significant three-way interactions with both work overload and role clarity and active coping in predicting job strain (Jex, Bliese, Buzzell & Primeau, 2001). However, in a study of customer service representatives there was no significant three-way interaction between self-efficacy, role conflict and control in predicting well-being as measured by the GHQ-12 (Jimmieson, 2000).

The main effect of self-efficacy on job stress as measured by the GHQ-12 supports the findings in the literature on new nurses. Lack of confidence and not feeling competent were the most frequently reported stressors among newly graduated nurses with an average of 2.74 months of experience (Oermann & Garvin, 2002). The findings of the current study provide some of the first evidence that self-efficacy may be an important contributing factor to decreased stress among new nurses.

Job Satisfaction. Both supervisory support and support from coworkers had a significant positive effect on job satisfaction, although neither moderated the relationship between demands and/or control and job satisfaction. Inconsistent effects of social support on job satisfaction have been previously reported for Karasek's model when support is included (Van der Doef & Maes, 1999). However using this model in a sample of nurses, Munro et al. (1998) found that support at work was associated with increased job satisfaction, as were outside sources of support. Research using the model among administrative or clerical staff found that support at work (Rodríguez et al., 2001) and the interaction between demands, control and supervisory support (Sargent & Terry, 2000) were significant predictors of job satisfaction. However among a sample of new teachers neither supervisory nor coworker support had significant effects on job satisfaction (Bradley, 2007).

The finding that social support from both coworkers and supervisors contributed to job satisfaction of new nurses is consistent with the literature investigating job satisfaction among nurses. In a review of the literature, Lu et al. (2005) found that sources of job satisfaction included relationships with coworkers and supervisors. Chu et al. (2003) found that support from coworkers was a significant correlate of job satisfaction while supervisory support had a positive relationship to the job satisfaction of nurses' aides in long-term care (McGilton et al., 2007). Supervisory support and work group cohesion were also found to be significantly and positively related to work satisfaction among a national sample of nurses in the United States (Kovner et al., 2006). Additionally, the finding is supported by results of meta-analyses in which communication with supervisors and peers was found to have a moderate relationship with job satisfaction (Blegen, 1993) and the relationship with supervisors was highly correlated ($r= 0.51$) with job satisfaction (Irvine & Evans, 1995).

It's evident that coworkers and supervisors contribute to the job satisfaction of new nurses, but the reasons for this remain unclear. For example, it has been suggested that supportive relationships may make for a more pleasant work environment, which in turn may lead to increased job satisfaction (Fisher, 1985). However it has also been found that recognition from managers is a source of job satisfaction among nurses (Lu et al., 2005). It may be that recognition is considered a form of support in the current study. The process through which social support impacts job satisfaction is still uncertain.

In the current study, self-efficacy also had a significant and positive main effect on job satisfaction. There was no evidence of moderation. One study examined the relationship of self-efficacy to job satisfaction using Karasek's model and found that self-efficacy moderated the relationship between both role conflict and control with job satisfaction among customer service workers (Jimmieson, 2000). The significant main effect of self-efficacy is congruent with organizational socialization literature. In a review of organizational socialization, self-efficacy is reported to have a significant main effect on job satisfaction among newcomers (Saks & Ashforth, 1997). Additionally, in a recent meta-analysis the average correlation between self-efficacy and job satisfaction was found to be 0.28 (Bauer, Bodner, Erdogan, Truxillo & Tucker, 2007). This study supports these findings and provides initial evidence that self-efficacy impacts job satisfaction among new nurses, a finding which warrants more investigation.

Intention to Leave the Job or the Profession. Social support from coworkers had a negative relationship with intentions to leave the job, however support from coworkers or supervisors was not associated with the intention to leave the profession. Additionally, there was no evidence that social support moderated the relationships between demands or control and intention to leave. There is very little literature investigating intentions to leave from the perspective of Karasek's model. One study was found for comparison, in which supervisor support had a significant main negative effect on intention to quit among new teachers (Bradley, 2007). However supervisor and coworker support did not moderate the relationship between either job demands or job control on intention to quit in this study (Bradley). This contrasts with the current study that found that coworker support was a negative predictor of intention to leave the job. However, the importance of coworkers in turnover supports much of the literature in nursing. Several studies have found that turnover is associated with factors relating to coworkers, such as group cohesion (Shader et al., 2001), collegial climate (Fochsen, Sjögren, Josephson and Lagerström, 2005), teamwork (Tourangeau & Cranley, 2006) and support from other staff and the nursing care team (Bowles & Candela, 2005).

Self-efficacy was found to have a negative main effect on intention to leave the profession, but not on intention to leave the job. Self-efficacy did not moderate the relationship between demands and control and intentions to leave. One study was found which investigated the impact of self-efficacy on intentions to leave the job utilizing Karasek's model. It found that the 3-way interaction between demands, control and self-efficacy did significantly predict intentions to leave the job among a sample of American bank tellers, but this was not true for bank tellers from Hong Kong (Schaubroek et al, 2000). High job control led to higher turnover intentions among those with low self-efficacy. The relationship was reversed for those with high self-efficacy. In a study not based on Karasek's model, it was found that nurses who had gone through a residency program and who rated themselves low on self-confidence in nursing skills and perceptions of competence were more likely to also report intent to leave their facility (Beecroft, Dorey & Wenten, 2008). The impact of self-efficacy on intentions to leave the profession was not found in previous research.

The finding that higher self-efficacy was inversely related to new nurses' intentions to leave the profession is an important advance in understanding of turnover among new nurses. Although the effect is small, it suggests that self-efficacy may be one reason new nurses stay in the profession. One of the themes that emerged in the new graduate literature was the increase in confidence that came with experience (Amos, 2001; Charnley, 1999). Closely related to this theme was the need to learn through experience. Several studies found that new nurses reported that the best way to learn how to be a nurse was through actually working as a nurse (Amos; Charnley; Gerrish, 2000). The sources of self-efficacy, enactive mastery, vicarious experience, verbal persuasion, and physiological arousal, have been described as "four categories of experience" (Gist & Mitchell, 1992, p. 188). Enactive mastery, the experience of success, is the most influential of these sources (Bandura, 1997). It stands to reason that the longer a nurse has been practicing, the more opportunities he or she has had to be successful. Theoretically, successful experiences increase self-efficacy. This may be one explanation of how self-efficacy might be related to retention.

Discussion Related to Incidental Findings

Several demographic and work characteristics were gathered from participants. The impact of these on stress, job satisfaction or intentions to leave was also explored. A significant predictor of stress and job satisfaction in the current study was clinical setting. Working in a medical-surgical unit was positively related to stress when measured with the R-ENSS and working in an intensive care unit or emergency room was negatively related both to stress when measured with the R-GHQ-12 and to job satisfaction.

There are varied findings in the literature regarding the impact of clinical specialty on the stress and job satisfaction of nurses. One study found that intensive care nurses reported fewer stress symptoms than nurses from other areas (Milazzo, 1988), and another found that medical surgical nurses had higher job stress than home care nurses and higher frequency (though not intensity) of stress than the normative comparison groups of professional female employees (Salmond & Ropis, 2005). In contrast, others found no differences in the frequency of stress between groups of ICU, hospice and medical-surgical (Foxall, Zimmerman, Standley & Captain, 1990). Sources of job stress differed by unit, however, with ICU and hospice nurses rating higher stress related to death and dying, and medical-surgical nurses reporting higher stress related to workload (Foxall et al.). Leveck and Jones (1996) found that working on a medical-surgical unit was negatively related to professional job satisfaction. However another group of researchers found no differences in job satisfaction between experienced medical-surgical and critical care nurses from five hospitals in three states (Davis, Ward, Woodall, Shultz & Davis, 2007). Schmalenberg & Kramer (2008) compared job satisfaction among nurses on several units and found that nurses working in outpatient clinics reported highest job and professional satisfaction while nurses reporting the lowest job satisfaction worked in the operating room and postanesthesia care units.

The current study supports the assertion from Chu et al. (2003) that the clinical specialty should be investigated in more detail when looking at job satisfaction. This study showed that the clinical specialty explains additional variance in job stress and satisfaction beyond Karasek's model and self-efficacy. Comparisons investigating the differences between medical-surgical, emergency, intensive care units and other clinical specialty units are needed to identify other determinants of job stress and satisfaction of new nurses.

This study also found that working in a teaching hospital was negatively related to intentions to leave the job. There is some evidence in the literature that nurses at teaching hospitals view their environments differently than nurses at community hospitals. McGillis Hall, Doran, Sidani & Pink (2006) found that nurses working in teaching hospitals perceived higher quality of care and quality of work environments than nurses working in community hospitals. Additionally, although job stress was higher among nurses in teaching hospitals, job satisfaction was also higher and role tension was lower.

Teaching hospitals may have different characteristics than community or small hospitals, which may impact on new nurses' intentions to leave the job. For example, dissatisfaction with opportunities for promotion or further training is a significant source of job dissatisfaction among nurses in England (Shields & Ward, 2001). Because teaching hospitals are often larger and located in urban centres, it may be that they can provide nurses with greater opportunities for job expansion, which may contribute to their intentions to stay. It could also be that teaching hospitals are a more conducive learning environment for new nurses, as training new health care professionals is one of their primary functions. One of the sources of stress for new nurses was also the difference between expected and actual work environments (Boychuk Duchscher, 2001). Perhaps, if the new nurses had more clinical placements in academic institutions than other types of acute care settings, they may have had a better idea of what to expect upon entering as a new employee.

Finally, this study found that concurrently holding more than one RN position was positively related to intentions to leave the profession. This was an unexpected finding and it has not been found elsewhere in the nursing literature. However, Jamal, Baba & Rivière (1998) found that teachers who held a second position in addition to a full-time job had lower intentions to turnover than their counterparts with only one job. Clearly this finding needs to be explored in further research studies.

Limitations of the Study

There were several limitations in this study. Generalizability of the findings are limited to new nurses working in the province of Ontario who received their nursing education in Canada, speak English, and do not have prior experience as a registered health care professional. Additionally, the sample indicated on their registration with the CNO that they had less than two years of nursing experience. Generalizability is also compromised by the low response rate to the study. The response rate was only 23.8% which was lower than the average response rates to mailed surveys with samples of nurses (Asch et al., 1997). Low response rates increase the potential for selection bias and decrease the generalizability of the study findings (LoBiondo-Wood & Haber, 2005). It may have been that the sample obtained in this study was not representative of new nurses in Ontario in terms of their job stress, job satisfaction or their intention to leave. Replication of the results in future studies would provide confirmation of the relationships under investigation.

There are two reasons that may explain the low response rate in this study. First, it was difficult to reach new nurses by mail before they had more than two years of work experience. The mailing list obtained from the CNO contained the names of the nurses who indicated in

December of 2005 that they had less than two years of experience. However, due to the logistics of obtaining the mailing list, the main survey was not mailed until almost one year later, with the first mailing completed in November 2006. Therefore many of the people to whom the survey was mailed may not have met the qualification to have less than two years of experience. There was no way to estimate how many people did not return the survey because they did not meet the inclusion criteria.

The second reason the response rate may have been low was that data collection occurred over the holiday season of November 2006 and early 2007. Dillman (2007) suggests avoiding the Christmas season for mailed surveys because the increased volume of mail during the holidays can increase the chances of mistakes in delivery. Additionally, people might be busier or away from home during the Christmas season (Dillman). Despite this, the decision was made to conduct the survey at that time to maximize the response rate in an effort to sample nurses who had less than two years of experience.

In spite of these issues, comparison of the sample in this study to other sources provided some evidence that it is representative of the population of new nurses from across Ontario, with the exception of educational preparation. The current sample had a higher percentage of baccalaureate prepared nurses than previous research had found. There is evidence that educational preparation impacts negatively on job satisfaction of nurses (Blegen, 1993; Chu et al., 2003), but there is some inconsistency and the direction of the relationship is not clear (Coomber & Barriball, 2007). For this reason also, caution needs to be taken in generalizing of the results of the current study.

Another limitation of the study is that causal relationships between the variables cannot be assumed because of the cross-sectional nature of the data. The direction of the relationships between the variables cannot be determined through this study because the data were collected at one point in time suggesting the need for repetition of the study longitudinally. This is especially important in light of the finding in a review of the job demands-control-support model suggesting that it is more often supported in cross-sectional studies than longitudinal designs (Van der Doef & Maes, 1999). Another reason for the need for longitudinal studies of new nurses is the fact that the transition to the work environment is characterized by change (Boychuk Duchscher, 2001; Schoessler & Waldo, 2006). Although a previous study found that the relationship between socialization tactics and employee outcomes, such as job satisfaction and intentions to quit, changed little between four and ten months of employment (Ashforth & Saks, 1996) there may have been changes in new nurses perceptions of demands, control, support or self-efficacy over time which were not captured in the current study.

Self-reports were used to collect the data in this study, which is also a limitation. Self-reports have been critiqued as a methodological weakness based on the fact that common method variance can inflate the relationships between the variables (Karasek et al., 1998). However, it is also recognized that self-reports are necessary for the study of concepts such as intentions and perceptions of the environment (Podsakoff & Organ, 1986; Spector, 1994). Common method variance is of concern when self-reports are used to measure both the independent and dependent variables. Common method variance is defined as the artifact associated with method of measuring variables, rather than the variables themselves (Podsakoff, MacKenzie, Lee & Podsakoff, 2003; Spector, 1987). While the existence of common method variance is well recognized, there is debate over its impact. Common method variance can either inflate or deflate the relationships seen between the variables (Podsakoff et al.). While it has been suggested that the effects of common method variance may not be large (Spector, 1987), other strongly disagree with this assertion (Williams, Cote & Buckley, 1989).

Common method variance can occur for several reasons: the consistency motif suggests that respondents try to maintain consistency in their responses; implicit theory or illusory correlations may cause respondents to answer in accordance to pre-existing theories about what the relationships between the variables under study should be; social desirability bias occurs when respondents try to present themselves favorably; and acquiescence may lead respondents to answer in accordance with the format of the items, rather than the content (Podsakoff et al., 2003). Some specific precautions were taken in this research to decrease the impact of common method variance. To address the possibility of consistency motif, social desirability and acquiescence, the respondents were assured of their anonymity (Podsakoff et al.). The anchors of the response scales also differed, which may have helped to decrease acquiescence (Podsakoff et al.). Despite these precautions, common method variance cannot be ruled out in the current study.

A final limitation in this study was that some of the scales used for measurement were altered. The control scale and the ENSS were shortened to increase the relevancy of the scales to newly graduated nurses. The words "at work" were added to the GHQ-12 to make this measure specific to the work environment. In addition, the wording of one of the items on the demand scale and the ordering of the items were also changed based on responses from the pilot study. The alpha coefficients for the scales were greater than 0.70 confirming reliability of the scales, but validity may have been altered in ways that cannot be estimated.

Implications for Research

There are several implications for future research. This research provides evidence of the importance of self-efficacy to new graduates' stress, job dissatisfaction and intentions to leave the profession. This is an important finding, especially because efficacy perceptions can be influenced through learning and feedback (Gist & Mitchell, 1992). Further research confirming these findings would provide valuable evidence that initiatives that promote self-efficacy may assist new nurses in making a smooth transition to the work setting.

The finding that control did not affect any of the outcomes except one measure of stress also warrants more research. Control is a critical aspect of the JDC-S model and it was unexpected that it was not associated with the majority of outcomes studied in this research. As mentioned previously, it may have been that this conceptualization of control was less important to new nurses than to other populations. This finding should also be investigated and future research should differentiate between control and responsibility or accountability.

Future research should also consider a more complex model for investigating turnover of new nurses. The JDC-S model with self-efficacy explained a relatively small amount of the variance in intent to leave the job and very little of the variance of intent to leave the profession. Previous investigations have found that turnover is often related to job satisfaction or job stress (Irvine & Evans, 1995; Tai et al., 1998). Other variables, such as salary (Flinkman et al., 2008), may also be important in new nurses decisions regarding turnover. A more comprehensive model is likely required to adequately explain turnover. This research also highlights the need to consider intention to leave the job as separate from intention to leave the profession. These two outcomes had different predictors in the current study as well as in previous research (O'Brien-

Pallas et al., 2005). These findings indicate that there is a need to consider intentions to leave the job separately from intentions to leave the profession.

Demographic or employment variables were not the main focus of this study and thus these results are incidental. The findings related to nursing unit indicate the need for future comparison studies to investigate differences between medical surgical units, ICUs, ERs and other clinical specialty units and how the differences might impact new nurses. Additionally, comparisons between teaching hospitals and community or small hospitals could also provide valuable insights into the factors beyond the JDC-S model that influence the transition of new nurses into the work setting. The negative impact that concurrently holding more than one position had on intentions to leave the profession also warrants more study to confirm and validate this finding.

Implications for Nursing Practice

This research can provide direction to nursing leaders who work with newly graduated nurses. In congruence with the JDC-S model, this study found that workplace demands might be related to increased stress, job dissatisfaction and intentions to leave the job among new nurses. While this study cannot infer the direction of the relationships, interpreting these findings in light of the JDC-S model suggests that it may be important for managers and nurse leaders to ensure manageable workloads for new nurses. Determining what constitutes a workload that is manageable for a novice is not easy and would differ in each unique clinical situation. Managers could perhaps start to consider decreasing the number of patients assigned to a novice nurse or limiting the complexity and severity of patient conditions when determining the assignment for a new nurse.

Support from supervisors and coworkers was also associated with a decrease in stress and job dissatisfaction. Therefore regular communication with new nurses and ensuring that coworkers are aware of their needs and are available for support can also help new nurses make a smooth transition to the work place. Support from coworkers was also associated with a decrease in new nurses intentions to leave the job and so working towards a cohesive work unit may help increase retention.

Finally, self-efficacy was related to a decrease in stress and job dissatisfaction and an increase in intentions to stay within the profession. Strategies nurse managers and leaders can undertake to help new graduates build their self-efficacy are based on the sources of efficacy. Enactive mastery refers to experiences of success in achieving a desired outcome (Bandura, 1997). In the case of new nurses, this may again be accomplished through ensuring manageable workloads. Providing them with a workload that is manageable can increase their chance of successful performance, which in turn could increase their self-efficacy in their ability to function as a nurse. Another way of impacting self-efficacy is through vicarious experience. Through role modeling, managers and leaders provide new nurses with information about what behaviours contribute to being a successful RN. However, vicarious experience is more influential if the observer perceives the role model is similar to him or herself (Bandura, 1997). Therefore, pairing new nurses with preceptors who have achieved a beginning level of success as an RN could also help increase the self-efficacy of new nurses.

In the current study just over 30% of the sample reported that they were working on a unit on which they had prior experience either as a student or as an employee. While not a direct implication for practice, this finding suggests that internships or student placements might be a means of recruitment of new staff. It was thought that previous experience might reduce new nurses perceptions of demands (Charnley, 1999) or ease the experience of reality shock (Duncan, 1997; Taylor, 1988) because the work environment was more familiar. In this study, prior experience on the unit was not related to the outcomes of job stress, job satisfaction or intentions to leave. Additionally, the study cannot explain reasons that new nurses may seek employment on units on which they had prior experience. However, this finding may support prior reports in the literature that clinical experiences as a student influenced the decision to where to work as a registered nurse (Andrews, Brodie, Andrews, Wong & Thomas, 2005).

This study also provides some insight into the work status of new nurses. The majority of the sample (70.6%) reported working full-time. A prior study of newly graduated nurses in Ontario reported that less than half of new nurses were employed in full-time positions six months after graduation (Baumann et al., 2006). Since that time, the Ministry of Health and Long Term Care in Ontario funded an employment initiative for new nurses entitled, the Nursing Graduate Guarantee (NGG: Health Force Ontario website, N.D.) This initiative links newly graduated nurses who are looking for full-time work with employers and provides funding to allow them an orientation in a position in which they are not included in the total staffing of the unit (Health Force Ontario website). An evaluation of this initiative found that over 80% of new nurses preferred full-time work and almost 65% of them were employed in permanent, full-time positions (Baumann, Hunsberger, Idriss, Alameddine & Grinspun, 2008). While the evaluation of the NGG doesn’t report on the length of time since graduation of the new nurses, it does appear that the strategy has positively impacted the number of new nurses employed in full-time positions in Ontario (Baumann et al., 2008). This and the findings of the current study imply that full-time work may be available for new nurses in Ontario.

Summary and Conclusion

The purpose of this research was to investigate the effects of perceived demands, control, support and self-efficacy on the job stress, job satisfaction and intentions to turnover of new nurses. This inquiry was guided by Karasek's Job Demands-Control-Support model, which has been widely used to investigate employees' experiences of stress at work. This research found that Karasek's model was partially supported in this sample of newly graduated nurses, except when examining new nurses' intentions to leave the profession. Demands had a significant positive effect on job stress as measured by the R-ENSS, job dissatisfaction and intentions to leave the job. However control only impacted job stress as measured by the R-ENSS. Additionally, neither demands nor control significantly impacted job stress as measured by the R-GHQ-12. Social support had a negative effect on stress and job dissatisfaction, such that as social support increased, stress and dissatisfaction decreased. Social support from coworkers also had a negative effect on new nurses' intentions to leave the job. Self-efficacy was included within the model as the theme of low confidence in abilities was recurrent within the literature describing new nurses' experiences when beginning work. Self-efficacy was found to have a negative effect on job stress, job dissatisfaction and intentions to leave the nursing profession.

The effects of demographic and employment variables were also explored. Clinical specialty proved to be an important contributor to the job stress and job dissatisfaction of new nurses with those nurses working in medical or surgical units reporting higher stress as measured by the R-ENSS than those working in other specialty units, while nurses working intensive care units or emergency rooms reported less stress as measured by the R-GHQ and less job dissatisfaction than those working in other specialties. Additionally, nurses working in teaching hospitals were less likely to report intentions to leave their job. Finally, those nurses who concurrently held more than one position as an RN had a greater likelihood of reporting some intention to leave the profession.

This study contributes to the literature on newly graduated nurses by providing the first study to investigate new nurses' experiences of stress during the transition to the work environment from the perspective of the JDC-S model. Despite the recognition following Kramer's (1974) work that new nurses needed support when entering the work environment, new nurses continue to report feeling overwhelmed upon beginning work as an RN (Boychuk Duchscher, 2001). Interventions designed to assist new nurses need to consider a wide variety of potential difficulties that may be encountered by this population. Therefore, an understanding the factors within the work environment which can affect the job stress, job satisfaction and intentions to leave of new nurses is important to help new nurses make a successful transition to the work setting. This study provides a first-step toward gaining an understanding of these factors.

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Appendix A.

Interventions for newly graduated nurse

Study	Type of Program and Length	Activities in Program	Participants (n)	Data Collection Times	Measures	Findings	Limitations
Aldrich (1988)	- neurosciences internship program - 8 weeks	- for acute care: 68 classroom hours and 268 clinical hours - for critical care: 112 classroom hours and 224 clinical hours	- 32 interns - 21 controls who were new graduates in the traditional hospital orientation program (6 weeks)	- at the beginning of the internship/ orientation - when employed for six months - interviews conducted 7-8 months after beginning employment	- Corwin's Role Conception Questionnaire - demographic and self-evaluation instrument developed by author - 19 participants from were interviewed by a hospital counselor - Cantril's scale to measure stress	- statistical differences between the groups not measured for self-evaluation tool but "dramatic differences in the two groups were not noted" (p. 379) although the control group was less confident in some requirements of the position - no significant differences between groups on Corwin's scale - stress significantly decreased by six months for control group only	- small sample - no report of psychometric properties of measures
Almada et al. (2004)	- preceptorship program - minimum of 11 weeks; extra support available on the unit for 1 year	- classroom learning - rotating clinical experiences - preceptorship - availability of professional development staff	- 40 new nurses	- after completion of the program and after 3 months of working independently	- program specific survey including open-ended questions - retention: compared 14-months prior to implementation of the program to 14-months post-implementation	- 35/40 reported that program influenced their recruitment to the facility - high satisfaction with program - retention increased by 29% to 89%	- no control group

Altier & Krsek (2006)	- residency program - 1 year	- core curriculum - preceptorship - access to a facilitator - general hospital orientation - course work specific to clinical area	- 316 new graduates; 111 had complete data	- at beginning and end of the 1-year program	- McCloskey-Mueller Satisfaction Survey - retention	- no significant difference in overall job satisfaction between beginning and end of program - 275/316 new nurses were retained (87%)	- no control group
Andersen (1989)	- Nurse Advocate position - length not specified	- during 12 hours/ week, the Advocate did rounds and met weekly with all the new graduates - conducted workshops, role playing and meetings with staff involved with orientation	- 30 new graduates were hired during the first year of the program	- not specified	- turnover - cost of replacement of new graduates	- 29 new graduates remained employed after 6 months to 1 year - replacement costs for new graduates decreased from $150, 000 in 1987 to $19, 000 in 1988	- no control group - program is dependent upon characteristics of the Advocate

Beecroft, Kunzman & Krozek (2001)	- internship program - 1 year	- one-to-one preceptor - mentor - debriefing sessions - rotating clinical experiences - classroom and lab training	- 50 interns - 28 controls who had been hired within 24 months prior to the internship program start	- from controls at the beginning of the internship program - from interns at the beginning of the internship and at six and 12 months of employment	- Corwin's Nursing Role Conception Scale - Schutzenhofer Professional Nursing Autonomy Scale - Skills Competency Self-Confidence Survey - Slater Nursing Competencies Rating Scale - Organizational Commitment Questionnaire - Anticipated Turnover Scale	- at 12 months, the only difference between the groups was that the control group had greater discrepancy between their observed and ideal scores on the Corwin Scale - 36% of control group turned over compared to 14% of the interns [although they measure the group as 50 when it was really 68 to begin with and 18 left before completing the program, therefore turnover would be 37%]	- defined as a program for new graduates, but control group had 0.8-2 years of experience as an RN - timing of survey completion by the control group is not specified
Blanzola, Linderman & King (2004)	- internship program - 16 weeks	- 100 hours of rotating clinical practice - 20 hours/ month of classroom learning	- 8 interns newly reporting to the Navy Hospital - 10 new nurses in the control group who began earlier - 25% of the interns and 20% of the controls had 12-18 months experience	- peer/ managers evaluations were done after each 30 day rotation and six months after program completion - self-assessments were done before and immediately following the internship and six months later	- measure of organizational attributes (self-evaluation of performance) - peers and managers also rate new nurse performance	- peer group evaluations of the interns' performance were significantly higher than the control group post-internship and 6 months later - at six months post-program there was no difference in the self-evaluations of performance between the groups - there was no difference at six months between the self-evaluations and peer evaluations of performance of the control group	- 20-25% of the sample had 12 to 18 months of experience as a nurse

Brasler (1993)	- preceptor orientation program - comparison of 6 different hospitals matched for size, teaching affiliation, and geographic location - ranged from 6-12 weeks	- support group sessions for some participants	- all new graduates in medical-surgical, maternity, pediatric, and psychiatric units - 107 completed first questionnaire - 65 returned the second	- pre and post orientation	- Schwirian's Six-Dimension Scale of Nursing Performance - Preceptor Characteristics Evaluation Tool	- support from other nurse friends was a significant predictor of self-evaluation of performance - other predictors were preceptor's support and his/her skills as a teacher and nurse - number of classroom sessions or clinical rotations and length of orientation were not useful predictors of self-evaluated performance	
Beyea, von Reyn & Slattery (2007)	- residency program - 12 weeks or longer depending on clinical unit	- didactic educational sessions - simulations in a laboratory - preceptorship	- 42 new nurses	- weekly	- self-perceptions of competence, confidence and readiness for practice rated on visual analog scale ranging from extremely low to extremely high and the Nurse Resident's Readiness for Entry into Practice Competence Questionnaire - performance - length of orientation	- mean scores of confidence, competence and readiness to practice all increased between second and tenth week - positive feedback from residents and unit leaders - anecdotal reports that length of orientation decreased	- a pilot program - no control group

Crabtree Tonges & Jones (1985)	- interunit rotation program - 12 months of rotating clinicals	- hospital orientation - four month time periods working on three different units - monthly "rap sessions" - participants were able to accept permanent positions on any unit prior to completing the rotations	- 40 participants in 3 years	- not specified	- turnover	- 10 of 40 completed the rotation sequence - 70% remain working at the hospital	- although program is described as being for newly graduated nurses, some may have previous experience - no empirical evaluations other than turnover - no control group
Crimlisk, McNulty & Francione (2002)	- hired new graduates into a pre-existing float pool - 4-5 months	- 4 days of hospital orientation - 4 days of classes - telemetry training was optional - 4 months rotating clinical through areas covered in float pool	- 39 new graduates were hired since 1999	- program evaluation occurred every 4-5 months, at the end of the program for each group	- individual interviews - turnover	- new graduates enjoyed the program - 32 (82%) are employed at the facility - 27 (69%) are employed in the float pool	- no control group to compare turnover results

Dear, Celentano, Weisman & Keen (1982)	- internship program - 6 months	- 4 days/ week oriented on one surgical unit with the option of another unit within the surgical service at the end of six months - 1 day/ week classes and seminars	- 28 interns - 27 matched controls matched who oriented concurrently in a traditional program - participants were in 5 successive intakes over 3 years	- immediately following internship/ orientation and every six months for 3 years	- Berger Self-Acceptance Scale - Rotter Locus of Control I-E Scale - knowledge of medical-surgical nursing - perceived autonomy described by Weisman et al. - job attitudes and satisfaction - Slater Scale - clinical performance	- job performance as measured by head nurses or observers was the same for both groups - no difference in job satisfaction, attitude toward role, perceived autonomy or caring	- incomplete data given on measures including lack of psychometric properties - potential contamination between groups
DeSimone (1999)	- internship program - 1 year - run by school and hospital	- one-to-one preceptor - mentor - 3 hours/ week in class - paid $800/ semester to be in internship program - were paid 15% less than other new graduates	- 10 new graduates - 7 completed the evaluation at the end of one year - 8 mentors completed final evaluation	- second and last week of the program	- Leadership Performance Competence Profile	- at the second week, interns perceived mentors as strong in all aspects of leadership while the mentor perceived the interns as weak in all aspects of leadership - mentors perceived that interns improved - 7 interns employed six months later	- small sample
Ignatavicius (1983)	- 13 weeks	- 1/3 of time in classes - 2/3 of time in supervised clinical practice	- 10 new graduates who had completed the entire orientation - 9 new graduates who had participated in 7 to 12 weeks of the orientation	- 6 months after program was completed	- Competency Index developed by author included technical and administrative skills	- mean score for those who had completed was 81.5 out of 100 - mean score for those who didn't was 83.7 - no significant difference between the groups - no relationship between new nurses self-evaluations and the evaluations completed by head nurses	- small sample - those who didn't complete the orientation completed varying lengths

Lee & Raleigh (1983)	- preceptorship program - no deadline for completion of the preceptorship period are set	- new nurse works the preceptor's schedule such that the orientation and preceptorship period are individualized - rotating clinicals were available after the program was established	- not specified	- not specified	- turnover	- turnover of all nurses dropped from 37% to 25% during the 2 and a half years since its inception	- turnover only measured for all nurses, new graduate attrition is not specified - no additional measures - all new staff must be "preceptored" on specific units
Loiseau, Kitchen & Edgar (2003)	- orientation program to the emergency department - 4 months	- the first three months consist of classes on cardiology, CPR etc., and they are partnered with 1-2 preceptors - last month partnered with a staff nurse	- 18 new graduates hired to the emergency department	- near to the end of the program or after program completion	- Student Self-Efficacy Questionnaire - Gallup Organization Employee Attitude Survey	- the average self-efficacy score of all participants from 1999-2002 reflected that students were confident - participants' scores on the Gallup survey were similar to students' scores measured after they completed an orientation to a medical-surgical area	- no control group used - scores were combined for all interns even though the program had changed - measures completed only after program completion
Owens et al. (2001)	- internship program - 8 weeks (extended in several instances) - occurred at 5 different sites	- classroom teaching - preceptored clinical	- 19 new graduates, 23 preceptors, and 15 patient care directors formally evaluated new graduate performance - 75 new graduates went through program	- classroom sessions were followed with evaluations of the speakers and content - immediately following the internship, qualitative evaluation of what was causing stress for new	- new graduate performance (no specific measures reported)	- no statistical differences between the ratings of new grad performance by the three groups - 73-74% retention rates on original hiring unit for new graduates - 14-15% transferred within the system - 12% turn over rate	- no comparison group used - no measures or psychometric properties reported

				graduates - 3 months after internship formal evaluation done			
Newhouse et al. (2007)	- internship program - 1 year	- education - group work - mentorship - preceptorship - individual development plans	- control group was new nurses hired prior to implementation of the program with less than 1 year of experience; n = 73 - interns n unclear	- control group was sent a one-time anonymous questionnaire - interns surveyed at 6 and 12 months after hire	- Organizational Commitment Questionnaire - Modified Hagerty-Patusky Sense of Belonging Instrument - Anticipated Turnover Scale - retention at 12, 18 and 24 months (a non-participating unit used as the comparison group)	- no significant differences in organizational commitment or psychological sense of belonging between baseline, interns at 6 months or interns at 12 months - interns at 6 months scored significantly lower on the anticipated turnover scale than control group - interns at 6 months had lower sense of belonging antecedents - interns had higher retention rate at 12 months than the comparison unit but no significant difference at 18 or 24 months	- non-equivalent control group
Rosenfeld et al. (2004)	- residency program - 1 year	- preceptor - mentor - clinical learning days both on and off the unit - parties	- 112 new nurses who had gone through the program within the previous 5 years	- one mailed questionnaire	- institution specific instrument asking for how valuable the aspects of the program were	- independent experience on the unit was considered the most valuable part of the program - parties were seen as the least valuable	- 93% of respondents were still working at the institution (93%)

Weiss (1984)	- self-administered learning modules -modules completed over first 2-4 months of practice	-3 modules developed for inservices: 1. clinical competency; 2. adjustment; and 3. pragmatics of Hospital System	- newly graduated nurses from 8 hospitals - control group (n=58) - experimental (n=63)	-three scales given to new grads on entry to work and six weeks later -job satisfaction measured at six weeks -all four measures given again at 6 months -cost data collected 10 months after new grads started	-Skills Inventory (Benner & Benner, 1979) -Seeman's Powerlessness Scale -Corwin's Role Conception Scale -Munson's Job Satisfaction Index -Nursing Service Questionnaire -Pre and post-tests from modules	- control group scored significantly higher on skill discrepancy though both groups improved over time - control group scored significantly lower on bureaucratic role conception -there was significant cost difference based on retention	- control and experimental groups were a year apart so there may have been different environmental influences

Interventions for nursing students

Study	Type of Program and Length	Activities in Program	Participants (n)	Data Collection Times	Measures	Findings	Limitations
Clayton, Broome & Ellis, (1989)	- preceptorship - 10 weeks (2 consecutive 5 week clinicals)	- preceptorship in some clinical placements final quarter of senior year	- 33 preceptored students - 33 students in control group - assignment to the preceptorship condition depended on the students' choice of placement	- prior to practicum - immediately after practicum - six months after graduation	- Schwirian's Six-Dimension Scale of Nursing Performance	- immediately after graduation, the preceptored group scored significantly higher than before the program on 5 out of 6 dimensions on the scale - at six months after graduation, there were significant differences between the groups on 4 of 6 dimensions with the preceptored group scoring higher	- did not control orientation and socialization practices that may have occurred after hire
Dobbs, (1988)	- preceptorship - 8 weeks (28 hours/ week)	- preceptored clinical	- 103 baccalaureate students	- before and after the preceptorship	- Corwin's Nursing Role Conception Scale	- there was a statistically significant decrease in total role deprivation - students who changed role models from a school centered nurse to a work centered nurse had greater decrease in role deprivation	- no control group - lack of discussion of whether the scores have any actual relevance making it difficult to determine the implications of their findings

Harkins, Schambach & Brodie (1983)	- summer extern program - 4 weeks each in medicine, psychiatry and urology	- students hired as nurses' aides - first week of each rotation worked with a preceptor - patient conferences and classes each week	- 22 nurses assistants were hired, of which 11 were summer externs	- December following the summer hire	- retention - recruitment	- 11/22 were still employed in December - 7/11 (64%) of the externs were employed - recruitment increased by 12-15% in 2 years	- no empirical measures used to evaluate program other than turnover
Nelson, Godfrey & Purdy (2004)	- mentorship program - 2 semesters prior to graduation	- students are hired as a 'nursing technician' - work a minimum of 16 hours every 2 weeks with an assigned mentor - expected to work as an RN for at least 1 year after graduation - optional rotation to other units	- 20 students participated in the program between 2000 and 2001 - control group consisted of 62 new graduates who were hired during the same period, but did not work there as students	- administrative data collected on interns hired between 2000 and 2001	- turnover	- 23% intern turnover rate for 2 years: 13 were hired and worked for 1 year after graduation as full-time RNs after graduation; 3 left after 1 year - 47% control group turnover - positive evaluations from the students	- no demographic information provided on interns or control groups - no quantitative evaluations other than turnover

Olson et al. (2001)	- residency program - 900 hours over 1 year (400 during the summer and 250/ semester for 2 semesters)	- students hired into paid positions at a hospital, but paired with a preceptor - met with faculty and hospital representatives twice each semester	- 14 (over 2 years)	- prior to and after the preceptorship - at the end of first year of employment - data collected from preceptors after the preceptorship - data collected from supervisors (head nurse) after 1 year of employment	- Schwirian's Six-Dimensional Scale of Nursing Performance - written vision statements - NLN medication administration test - NLN IV therapy test - California Critical Thinking Disposition Inventory (CCTDI	- at the end of 1 year of employment, students scored higher on frequency and quality of opportunities on the leadership subscale - interpersonal relationship/ communication and professional development remained the same - critical care, teaching/collaboration and planning decreased - the medication test approached the national standardized mean for RNs with less than 3 years of experience - the IV test also improved but didn't reach the national mean - CCTDI was within the range and didn't change over time	- no control group - did not control orientation and socialization practices that may have occurred after hire

Appendix B. Themes found in reports of newly graduated nurses first work experience

1) Perceived Demands in the workplace

Study	Workload/ / Staff shortages/ unit routines and administration	Rushed/ Busy/ Not enough time	Difficulty with Skills or Inter-personal interactions	Responsibility for the work of others/ Supervision of staff or students	Performance expectations from others	Self-expectations of performance	Relationships with physicians	Dealing with death and dying	Given leadership positions too fast
Amos (2001)		✓	✓	✓	✓	✓	✓	✓	
Biley & Smith (1998)	✓		✓		✓	✓			
Boswell, Lowry & Wilhoit (2003)							✓		
Boychuk Duchscher (2001)	✓	✓					✓		
Casey et al. (2004)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Charnley (1999)	✓	✓	✓	✓		✓			
Dearmun (2000)			✓						
Delaney (2003)	✓		✓			✓	✓	✓	
Ellerton & Gregor (2003)	✓	✓	✓				✓		
Gerrish (2000)	✓	✓	✓	✓					
Hodges, Keeley & Troyan (2008)	✓	✓					✓		✓
Horsburgh (1989)				✓	✓				

Jackson (2005)		✓	✓						
Jasper (1996)				✓		✓			
Kelly (1996)	✓			✓	✓	✓			✓
Kelly (1998)	✓	✓	✓		✓				
Kovner et al. (2007)	✓	✓							
Maben & Macleod Clark (1998)	✓		✓	✓	✓		✓		
McGrath & Princeton (1987)			✓						
Oermann & Garvin (2002)	✓								
Oermann & Moffit-Wolf (1997)	✓	✓	✓			✓	✓		
O'Shea & Kelly (2007)				✓			✓	✓	
Ross & Clifford (2002)	✓				✓				
Thomka (2001)	✓				✓				
Tiffany (1990)	✓	✓	✓			✓			✓

2) Perceived Control in the Workplace

Study	Organization/ prioritizing	Surprise/ different than expected/ different than school	Accountability/ Responsibility	Adjusting to shift work	Enjoying the responsibility of patient care	Role as a change agent
Amos (2001)			✓		✓	
Biley & Smith (1998)			✓			✓
Boychuk Duchscher (2001)	✓	✓	✓			
Casey et al. (2004)	✓		✓	✓		
Charnley (1999)	✓	✓	✓			
Dearmun (2000)			✓			
Delaney (2003)	✓	✓	✓			
Ellerton & Gregor (2003)	✓					
Gerrish (2000)	✓		✓			
Hodges, Keeley & Troyan (2008)	✓		✓			
Horsburgh (1989)		✓		✓		
Jackson (2005)	✓				✓	
Jasper (1996)		✓	✓		✓	✓
Kelly (1996)		✓				
Kelly (1998)			✓			
Maben & Macleod Clark (1998)	✓		✓			✓
Mooney (2007)						✓
Oermann & Garvin (2002)	✓					
Oermann & Moffit-Wolf (1997)	✓					
Ross & Clifford (2002)		✓				
Tiffany (1990)	✓	✓	✓	✓	✓	

3) Perceived Support in the Workplace

Study	Supported by colleagues/ good preceptors	Need for support/ dependence/ lack of support	Fitting in with coworkers
Amos (2001)		✓	✓
Bick (2000)		✓	
Biley & Smith (1998)			✓
Boswell, Lowry & Wilhoit (2003)	✓		
Boychuk Duchscher (2001)	✓	✓	✓
Casey et al. (2004)	✓	✓	✓
Charnley (1999)		✓	
Coeling (1990)	✓		✓
Dearmun (2000)		✓	✓
Delaney (2003)	✓		✓
Ellerton & Gregor (2003)	✓	✓	
Gerrish (2000)	✓		✓
Horsburgh (1989)			✓
Jackson (2005)	✓		
Jasper (1996)			✓
Kelly (1996)		✓	
Kelly (1998)		✓	✓
Kovner et al. (2007)	✓		
Maben & Macleod Clark (1998)	✓	✓	✓
McGrath & Princeton (1987)		✓	
Mooney (2007)			✓
Newton & McKenna (2007)			✓
Oermann & Garvin (2002)		✓	✓
Oermann & Moffit-Wolf (1997)		✓	
Ross & Clifford (2002)	✓	✓	
Thomka (2001)	✓	✓	
Tiffany (1990)		✓	✓

4) Self-Efficacy

Study	Low confidence	Lack of knowledge (perceived or real)	Learning by doing (Experiential learning)	Confidence increases with experience
Amos (2001)	✓	✓	✓	✓
Biley & Smith (1998)		✓		
Boswell, Lowry & Wilhoit (2003)		✓		
Boychuk Duchscher (2001)	✓	✓		✓
Casey et al. (2004)	✓		✓	✓
Charnley (1999)	✓		✓	
Clark & Holmes (2007)				✓
Dearmun (2000)	✓			✓
Delaney (2003)	✓			✓
Ellerton & Gregor (2003)	✓	✓		
Gerrish (2000)	✓		✓	
Hodges, Keely & Troyan (2008)	✓			✓
Jackson (2005)		✓	✓	✓
Jasper (1996)	✓			✓
Kelly (1998)	✓			
Kelly (1996)		✓		
Maben & Macleod Clark (1998)			✓	
McGrath & Princeton (1987)		✓		
Newton & McKenna (2007)		✓		✓
Oermann & Garvin (2002)	✓			
Oermann & Moffit-Wolf (1997)	✓			
Tiffany (1990)			✓	✓

5) Outcomes of the Transition

Study	Stress/ Anxiety/ Apprehension	Overwhelmed	Excitement/ Challenge/ Achievement	Satisfaction or dissatisfaction	Considered turnover
Amos (2001)			✓	✓	
Biley & Smith (1998)	✓				
Boswell, Lowry & Wilhoit (2003)				✓	
Boychuk Duchscher (2001)	✓	✓		✓	✓
Casey et al. (2004)				✓	
Charnley (1999)	✓				
Coeling (1990)					✓
Dearmun (2000)	✓				✓
Delaney (2003)	✓	✓	✓	✓	
Ellerton & Gregor (2003)		✓		✓	
Gerrish (2000)	✓				
Hodges, Keeley & Troyan (2008)				✓	✓
Horsburgh (1989)				✓	
Jackson (2005)			✓	✓	
Kelly (1996)	✓				
Kelly (1998)	✓	✓			✓
Kovner et al. (2007)				✓	✓
Maben & Macleod Clark (1998)	✓		✓	✓	
McGrath & Princeton (1987)	✓				
Oermann & Garvin (2002)	✓	✓	✓	✓	
Oermann & Moffit-Wolf (1997)	✓	✓	✓	✓	
O'Shea & Kelly (2007)	✓		✓	✓	
Ross & Clifford (2002)	✓				
Thomka (2001)	✓	✓			✓
Tiffany (1990)	✓	✓	✓	✓	

Appendix C. Letter of Information for the Pilot Study

October 16, 2006

Dear new nurse:

I am writing to invite you to participate in a pilot study entitled “First Work Experiences of Newly Graduated Nurses in Acute Care: An Exploration of Influencing Factors (Pilot)”. This pilot study is designed to test a questionnaire which I will use in a later research study that will investigate the effects of perceived demands, control, support and self-efficacy on the job stress, job satisfaction and intentions to turnover of newly graduated nurses. The purpose of this pilot test is to identify any difficulties with the questionnaire itself, rather than to investigate your responses to the clinical environment.

I am a registered nurse who is a doctoral student in the Graduate Department of Nursing Science at the University of Toronto. I am conducting this study in partial fulfillment of the requirements for the Doctor of Philosophy (Nursing Administrative Science) degree. My proposal has been approved by my thesis committee which is led by my supervisor Dr. Linda McGillis Hall, Faculty of Nursing, University of Toronto. I have also received ethical approval from the Office or Research Services at the University of Toronto for the conduct of this research.

Your participation in the study is completely voluntary. Your involvement would consist of completing a questionnaire and providing feedback about the questionnaire. The questionnaire will take approximately 45 minutes to complete. Your answers are confidential and your name is not required on any documents. Your name will not be used in any publications or presentations of the results of the study. You may refuse to answer any of the questions and you may choose not to participate. The questionnaires and your feedback will be kept in a locked filing cabinet at the Faculty of Nursing and will be destroyed after 6 years.

There are no known risks associated with participating in this study. There are also no direct benefits, however it is hoped that through this pilot study the survey which will be sent out to new nurses is designed to gain the best responses possible. The study will help me to gain a better understanding of issues that are important to new nurses working in hospitals in Ontario, which may lead to changes that will benefit future newly graduated nurses.

If you agree to participate, please complete the consent form. Keep one copy of the consent forms for yourself and return the other to me. Please complete the questionnaire and the Feedback Form to the best of your ability. If you have any feedback regarding specific questions, you may also indicate these directly on the questionnaire. You have been sent two envelopes. Please seal the consent form in the separate inner envelope and return this inside the outer stamped and addressed envelope along with the questionnaire and the feedback form. When we receive it, we will open the inner envelope separately from the questionnaire. This will ensure that your questionnaire will remain anonymous.

If you wish, I will send you a certificate of completion. This will state that you have participated in this research study. You may keep this certificate as part of your reflective practice portfolio. To receive this certificate, complete the form included with the questionnaire and put it into the sealed envelope inside of the return envelope along with the consent form.

You can also keep track of the progress of the study on the website http://individual.utoronto.ca/newgradstudy. This website contains information and progress regarding the study. The results will also be posted here after all the data is collected.

If you have any questions or comments about the study, please feel free to contact me and I will be happy to provide you with any information I can. My address, phone number and email address are available on the consent form. If you have questions about your rights as a research participant, please contact Jill Parsons, Health Sciences Ethics Review Officer, Ethics Review Office, University of Toronto at telephone (416) 946-5806 or by email at jc.parsons@utoronto.ca.

Thank you very much for your assistance with the study.

Jessica Peterson, RN, PhD Candidate
Faculty of Nursing, University of Toronto
155 College Street, Suite 130
Toronto, Ontario M5T 1P8
(416) 946-8269
email: j.peterson@utoronto.ca

Appendix D. Consent Form for the Pilot Study of the Questionnaire

I agree to participate in a pilot study entitled “First Work Experiences of Newly Graduated Nurses in Acute Care: An Exploration of Influencing Factors (Pilot)”. This study is being conducted by Jessica Peterson, RN, doctoral student in the Graduate Department of Nursing Science at the University of Toronto who is conducting this study in partial fulfillment of the requirements for the Doctor of Philosophy (Nursing Administrative Science) degree. The proposal has been approved by her thesis committee which is led by her supervisor Dr. Linda McGillis Hall, Faculty of Nursing, University of Toronto. The study has also received ethical approval from the Office or Research Services at the University of Toronto.

I understand that the purpose of the study is to identify any difficulties with a questionnaire that will be used in a later research study. I agree to complete the questionnaire, which may take approximately 45 minutes of my time.

I understand that my participation is voluntary and that I may choose not to participate. I understand that I may opt out of responding to any question at any time. I understand that the questionnaire will not contain any information about my identity and that my name will not be used in any publication or sharing of the results of the study. I understand that no one other than Jessica Peterson and her thesis committee members will have access to the questionnaire at any time.

I understand that there are no known risks involved in participating in the pilot study. I also understand that there are no direct benefits to my participation, but that the results may help in designing a questionnaire that will obtain the best information possible from new nurses working in acute care hospitals in Ontario.

I know that if I have any questions or concerns regarding the study, I can contact Jessica Peterson, PhD candidate at the Faculty of Nursing, University of Toronto at (416) 946-8269 or j.peterson@utoronto.ca. If I have questions about my rights as a research participant, I may contact Jill Parsons, Health Sciences Ethics Review Officer, Ethics Review Office, University of Toronto at telephone (416) 946-5806 or by email at jc.parsons@utoronto.ca.

____________________________ ____________________________

Participant Name (please print) (Date)

____

Participant Signature

Appendix E. Feedback Form for the Pilot Study

Thank you for agreeing to participate in the pilot study entitled "First work experiences of newly graduated nurses in acute care: An exploration of influencing factors – Pilot". Please use this sheet to provide any general feedback you have about the questionnaire.

How long did it take you to complete this questionnaire?

Do you have any comments on the length of the questionnaire?

Were the items clear and easy to understand?

Were the response scales clear and easy to understand?

Were there any questions that were unclear or difficult to answer? If yes, which ones?

Do you have any other comments or suggestions regarding the questionnaire?

Appendix F. Questionnaire

A. GENERAL HEALTH AT WORK

Please contact nferNelson Publishing Company Ltd.

B. PROPENSITY TO LEAVE

For each statement, please check the box with the one answer that best describes your situation. *If you have more than one employer in nursing, please choose one as your primary employer and answer the questions with respect to this employer. If you have changed jobs, please respond with respect to your current nursing employer.*

1. If you were completely free to choose, would you prefer to continue working in this hospital or would you prefer not to? (Check one.)
___(1) I would prefer very much to continue working in this hospital
___(2) I would prefer to work here
___(3) I would not care either way
___(4) I would prefer not to work here
___(5) I would prefer very much not to continue working here

2. How long would you like to stay in this hospital? (Check one).
___ (1) I would like to stay for as long as I can work
___ (2) I would like to stay for quite a while longer
___ (3) I would like to stay for a little while longer
___ (4) I would like to leave soon
___ (5) I would like to leave as soon as possible

3. If you had to quit work for a while (for example, because of pregnancy), would you return to this hospital? (Check one.)
___ (1) No, I definitely would not come back here
___ (2) No, I probably would not
___ (3) Perhaps, but I would look around first
___ (4) Yes, I probably would
___ (5) Yes, I definitely would come back here

4. If you were completely free to choose, would you prefer to continue working as a nurse or would you prefer not to? (Check one.)
___(1) I would prefer very much to continue working as a nurse
___(2) I would prefer to work as a nurse
___(3) I would not care either way
___(4) I would prefer not to work as a nurse
___(5) I would prefer very much not to continue working as a nurse

5. How long would you like to stay working as a nurse? (Check one).
___ (1) I would like to stay for as long as I can work
___ (2) I would like to stay for quite a while longer
___ (3) I would like to stay for a little while longer
___ (4) I would like to leave soon
___ (5) I would like to leave as soon as possible

6. If you had to quit work for a while (for example, because of pregnancy), would you return to this the nursing profession? (Check one.)
___ (1) No, I definitely would not come back
___ (2) No, I probably would not
___ (3) Perhaps
___ (4) Yes, I probably would
___ (5) Yes, I definitely would come back

C. JOB SATISFACTION

The following are statements about you and your job. When answering, keep in mind the kind of work you do and the experiences you have had working here. How much do you agree or disagree with each statement? *If you have more than one employer in nursing, please choose one as your primary employer and answer the questions with respect to this employer. If you have changed jobs, please respond with respect to your current nursing employer.*

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

1.	All in all, I am satisfied with my job.	1	2	3	4	5	6	7
2.	In general, I don't like my job.	1	2	3	4	5	6	7
3.	In general, I like working here.	1	2	3	4	5	6	7

D. SOCIAL SUPPORT

These questions deal with the people in your work place. Please indicate the most appropriate answer to each question. Answer these questions in relation to your current work setting or your primary employer. *If you have changed jobs, please respond with respect to your current nursing employer.*

Very much	Somewhat	A little	Not at all	Don’t have any such person
4	3	2	1	0

1. How much does each of these people go out of their way to do things to make your work life easier for you?

A. Your immediate supervisor (manager)

B. Your coworkers

2. How easy is it to talk with each of the following people?

A. Your immediate supervisor (manager)

B. Your coworkers

3. How much can each of these people be relied on when things get tough at work?

A. Your immediate supervisor (manager)

B. Your coworkers

4. How much is each of the following people willing to listen to your problems about work?

A. Your immediate supervisor (manager)

B. Your coworkers

E. PERSONAL SELF-EFFICACY

Think about your ability to do the tasks required by your job. When answering the following questions, answer in reference to your own personal work skills and ability to perform your job. *If you have more than one employer in nursing, please choose one as your primary employer and answer the questions with respect to this employer. If you have changed jobs, please respond with respect to your current nursing employer.*

Strongly agree	Agree	Agree Somewhat	Disagree Somewhat	Disagree	Strongly Disagree
1	2	3	4	5	6

1.	I have confidence in my ability to do my job.	1	2	3	4	5	6
2.	There are some tasks required by my job that I cannot do well.	1	2	3	4	5	6
3.	When my performance is poor, it is due to my lack of ability.	1	2	3	4	5	6
4.	I doubt my ability to do my job.	1	2	3	4	5	6
5.	I have all the skills needed to perform my job very well.	1	2	3	4	5	6
6.	Most people in my line of work can do this job better than I can.	1	2	3	4	5	6
7.	I am an expert at my job.	1	2	3	4	5	6
8.	My future in this job is limited because of my lack of skills.	1	2	3	4	5	6
9.	I am very proud of my job skills and abilities.	1	2	3	4	5	6
10.	I feel threatened when others watch me work.	1	2	3	4	5	6

F. DEMANDS SCALE

Please answer the following questions with reference to your workload ***on an average day.*** *If you have more than one employer in nursing, please choose one as your primary employer and answer the questions with respect to this employer. If you have changed jobs, please respond with respect to your current nursing employer.*

A great deal	A lot	Some	A little	Hardly any
5	4	3	2	1

1. How much workload do you have?
2. How much of a reduction in the workload do you experience?
3. How much time do you have to think and contemplate?
4. What quantity of work do others expect you to do?
5. How much time do you have to do all your work?
6. How many projects, assignments, or tasks do you have?
7. How many lulls between heavy workload periods do you have?

G. CONTROL SCALE

Below are listed a number of statements which could be used to describe a job. Please read each statement carefully and indicate the extent to which each is an accurate or an inaccurate description of *your* job by writing a number in front of each statement. *If you have more than one employer in nursing, please choose one as your primary employer and answer the questions with respect to this employer. If you have changed jobs, please respond with respect to your current nursing employer.*

1	2	3	4	5
Very little	Little	A moderate amount	Much	Very much

1. How much control do you have over the variety of methods you use in completing you work?
2. How much can you choose among a variety of tasks or projects to do?
3. How much control do you have personally over the quality of your work?
4. How much can you generally predict the amount of work you will have to do on any given day?
5. How much control do you have personally over how much work you get done?
6. How much control do you have over how quickly or slowly you have to work?
7. How much control do you have over the scheduling and duration of your rest breaks?
8. How much control do you have over when you come to work and leave?
9. How much control do you have over when you take vacations or days off?
10. How much are you able to predict what the results of decisions you make on the job will be?
11. How much control do you have over how you do your work?
12. How much can you control when and how much you interact with others at work?
13. How much influence do you have over the policies and procedures in your work unit?
14. How much control do you have over the sources of information you need to do your job?
15. How much are things that affect you at work predictable, even if you can’t directly control them?
16. How much control do you have over the amount of resources (tools, material) you get?
17. How much can you control the number of times you are interrupted while you work?
18. How much control do you have over the amount you earn at your job?
19. How much control do you have over how your work is evaluated?
20. In general, how much overall control do you have over work and work-related matters?

H. EXPANDED NURSING STRESS SCALE

Below is a list of situations that commonly occur in a work setting. For each situation you have encountered in your **PRESENT WORK SETTING,** please indicate **HOW STRESSFUL** it has been for you. *If you have more than one employer in nursing, please choose one as your primary employer and answer the questions with respect to this employer. If you have changed jobs, please respond with respect to your current nursing employer.*

Instructions: Enter the number in the right had column that best applies to you.

Never stressful	Occasionally stressful	Frequently stressful	Always stressful	Does not apply
1	2	3	4	5

1. Performing procedures that patients experience as painful.
2. Criticism by a physician.
3. Feeling inadequately prepared to help with the emotional needs of a patient's family.
4. Lack of opportunity to talk openly with other personnel about problems in the work setting.
5. Conflict with a supervisor.
6. Inadequate information from a physician regarding the medical condition of a patient.
7. Patients making unreasonable demands.
8. Feeling helpless in the case of a patient who fails to improve.
9. Conflict with a physician.
10. Being asked a question by a patient for which I do not have a satisfactory answer.
11. Lack of opportunity to share experiences and feelings with other personnel in the work setting.
12. Unpredictable staffing and scheduling.
13. A physician ordering what appears to be inappropriate treatment for a patient.
14. Patients' families making unreasonable demands.
15. Listening or talking to a patient about his/her approaching death.
16. Fear of making a mistake in treating a patient.
17. Feeling inadequately prepared to help with the emotional needs of a patient.
18. Lack of an opportunity to express to other personnel on the unit my negative feelings towards patients.
19. Difficulty in working with a particular nurse (or nurses) in my <u>immediate</u> work setting.
20. Difficulty in working with a particular nurse (or nurses) <u>outside</u> my immediate work setting.

Never stressful	Occasionally stressful	Frequently stressful	Extremely stressful	Does not apply
1	2	3	4	5

21. Not enough time to provide emotional support to the patient.
22. A physician not being present in a medical emergency.
23. Being blamed for anything that goes wrong.
24. The death of a patient.
25. Disagreement concerning the treatment of a patient.
26. Feeling inadequately trained for what I have to do.
27. Lack of support of my immediate supervisor.
28. Criticism by a supervisor.
29. Not enough time to complete all of my nursing tasks.
30. Not knowing what a patient or a patient's family ought to be told about the patient's condition and its treatment.
31. Being the one that has to deal with the patients' families.
32. Having to deal with violent patients.
33. Being exposed to health and safety hazards.
34. The death of a patient with whom you developed a close relationship.
35. Making a decision concerning a patient when the physician is unavailable.
36. Being in charge with inadequate experience.
37. Lack of support by nursing administration.
38. Too many non-nursing tasks required, such as clerical work.
39. Not enough staff to adequately cover the unit.
40. Uncertainty regarding the operation and functioning of specialized equipment.
41. Having to deal with abusive patients.
42. Not enough time to respond to the needs of patients' families.
43. Being held accountable for things over which I have no control.
44. Physician(s) not being present when a patient dies.
45. Having to organize doctors' work.
46. Lack of support from other health care administrators.
47. Difficulty in working with nurses of the opposite sex.
48. Demands of patient classification system.
49. Having to deal with the abuse from patients' families.
50. Watching a patient suffer.
51. Criticism from nursing administration.
52. Having to work through breaks.
53. Not knowing whether patients' families will report you for inadequate care.
54. Having to make decisions under pressure.

I. DEMOGRAPHICS

1. How long have you been employed as a registered nurse? Number of months______

2. How long have you been employed in your present position? Number of months_____

3. What is the highest education you have received in nursing?
    a. ☐ Diploma
    b. ☐ Bachelor's degree
    c. ☐ Master's degree
    d. ☐ PhD
    e. ☐ Other: Please specify ___________________________________

4. What is the highest education you have received in a field other than nursing?
    a. ☐ Diploma
    b. ☐ Bachelor's degree
    c. ☐ Master's degree
    d. ☐ PhD
    e. What field is this degree in? _________________________________
    f. ☐ Not applicable

5. What is your date of birth?______

6. Sex: ☐ Male; ☐ Female

7. Do you work:
    a. ☐ Full-time
    b. ☐ Part-time
    c. ☐ Casual
    d. ☐ Other. Please specify__________________________

8. How many hours do you work in a week? _______________

9. Do you have more than one position as a registered nurse?
    a. ☐ No
    b. ☐ Yes

10. What type of unit do you work on? If you work on more than one unit, on which unit do you work the most hours?
    a. ☐ Medical or surgical (including intermediate or step-down units)
    b. ☐ ER or ICU
    c. ☐ Other specialty unit (e.g. maternity, mental health, OR)
    Please specify ____________________________________

11. What kind of institution do you work in? (If you work in more than one institution, at which institution do you work the most hours?)
    a. ☐ Small hospital
    b. ☐ Community hospital
    c. ☐ Teaching hospital

12. What shift do you work?
    a. ☐ Day shift (beginning not earlier than 6am and ending not later than 7pm)
    b. ☐ Evening shift (beginning not earlier than 2pm and ending not later than midnight)
    c. ☐ Night shift (beginning not earlier than 6 pm and ending not later than 8 am)
    d. ☐ Rotating shifts (any combination of the above categories)

13. How long was the orientation you received to your present position? (How long before you were included in the staffing count?) ___________

14. Have you ever worked as a student, volunteer, or staff member (e.g. nurse's aide, medical secretary) on the unit on which you are now employed as a registered nurse?
    a. ☐ No
    b. ☐ Yes. If you answered yes, for how long did you work there? ______________

Appendix G. Letter of Information for the Main Study

November 20, 2006

Dear new nurse,

I am writing to invite you to participate in a study entitled "First Work Experiences of Newly Graduated Nurses in Acute Care: An Exploration of Influencing Factors". The purpose of the study is to investigate the effects of perceived demands, control, support and self-efficacy on the job stress, job satisfaction and intentions to turnover of newly graduated nurses. Approximately 1200 new nurses from across the province of Ontario are being invited to participate in this study.

I am a registered nurse who is a doctoral student in the Graduate Department of Nursing Science at the University of Toronto. I am conducting this study in partial fulfillment of the requirements for the Doctor of Philosophy (Nursing Administrative Science) degree. My proposal has been approved by my thesis committee, which is led by my supervisor Dr. Linda McGillis Hall, Faculty of Nursing, University of Toronto. I have also received ethical approval from the Office or Research Services at the University of Toronto for the conduct of this research.

You have been selected to participate because you indicated on your registration with the College of Nurses of Ontario that you have less than two years of experience working as a registered nurse. You are eligible to participate if you:

- are working in an acute care hospital
- have been a registered nurse for less than two years
- have completed orientation and/or preceptorship and are working independently
- received your nursing education in Canada
- have not previously worked as a registered health care professional (e.g. registered practical nurse)
- can read, write and speak in English

You do not qualify for this study if you do not work in an acute care hospital, have been working as a registered nurse for over two years, if you are currently on orientation or working with a preceptor, if your nursing education was outside of Canada, if you have previously worked as a registered health care professional or if you cannot read, write or speak in English.

Your participation in the study is completely voluntary. Your involvement would consist of completing the survey included in this envelope and returning it in the pre-stamped envelope. The questionnaire will take approximately 30 minutes to complete. Your answers are confidential and your name is not required on the questionnaire. Your name will not be used in any publications or presentations of the results of the study. You may refuse to answer any of the questions and you may choose not to participate. The questionnaires will be kept in a locked filing cabinet at the Faculty of Nursing and will be destroyed after 6 years.

There are no known risks associated with participating in this study. There are also no direct benefits associated with participating in the study. It is hoped that through this study I will gain a better understanding of issues that are important to new nurses working in hospitals in Ontario which may lead to changes that will benefit future newly graduated nurses.

If you agree to participate, complete the attached consent form. Keep one copy of the consent forms for yourself and return the other to me. You have been sent two envelopes. Please seal the consent form in the separate inner envelope and return this inside the outer stamped and addressed envelope along with the questionnaire. When I receive the consent form, it will be removed from your completed questionnaire so that your questionnaire will remain anonymous.

If you wish, I will send you a certificate of completion. This will state that you have participated in this research study. You may keep this certificate as part of your reflective practice portfolio. To receive this certificate, complete the form included with the questionnaire and put it into the sealed envelope inside of the return envelope along with the consent form.

You can also keep track of the progress of the study on the website http://individual.utoronto.ca/newgradstudy. This website contains information and progress regarding the study. The results will also be posted here after all the data is collected.

If you have any questions or comments about the study, please feel free to contact me at the address or number listed below. I will be happy to provide you with any information I can.

If you have questions about your rights as a research participant, please contact Jill Parsons, Health Sciences Ethics Review Officer, Ethics Review Office, University of Toronto at telephone (416) 946-5806 or by email at jc.parsons@utoronto.ca.

Thank you very much for your assistance with this study.

Jessica Peterson, RN, PhD Candidate
Faculty of Nursing, University of Toronto
155 College Street, Suite 215
Toronto, Ontario M5T 1P8
(416) 946-8269
email: j.peterson@utoronto.ca

Appendix H. Consent Form for the Main Study

I agree to participate in a study entitled “First Work Experiences of Newly Graduated Nurses in Acute Care: An Exploration of Influencing Factors”. This study is being conducted by Jessica Peterson, RN, doctoral student in the Graduate Department of Nursing Science at the University of Toronto who is conducting this study in partial fulfillment of the requirements for the Doctor of Philosophy (Nursing Administrative Science) degree. The proposal has been approved by her thesis committee which is led by her supervisor Dr. Linda McGillis Hall, Faculty of Nursing, University of Toronto. The study has also received ethical approval from the Office or Research Services at the University of Toronto.

I understand that the purpose of the study is to investigate the effects of perceived demands, control, support and self-efficacy on the job stress, job satisfaction and intentions to turnover of newly graduated nurses. I agree to complete the questionnaire, which may take approximately 30 minutes of my time.

I understand that my participation is voluntary and that I may choose not to participate. I understand that I may opt out of answering any question at any time. I understand that the questionnaire will not contain any information about my identity and that my name will not be used in any publication or sharing of the results of the study. I understand that no one other than Jessica Peterson and her thesis committee members will have access to the questionnaire at any time.

I understand that there are no known risks involved in participating in the study. I also understand that there are no direct benefits to my participation, but that the results may help inform researchers about the issues that are important to new nurses working in acute care hospitals in Ontario, which may lead to improved work conditions for new nurses in the future.

I know that if I have any questions or concerns regarding the study, I can contact Jessica Peterson, PhD candidate at the Faculty of Nursing, University of Toronto at (416) 946-8269 or j.peterson@utoronto.ca. If I have questions about my rights as a research participant, I may contact Jill Parsons, Health Sciences Ethics Review Officer, Ethics Review Office, University of Toronto at telephone (416) 946-5806 or by email at jc.parsons@utoronto.ca.

____________________________ ____________________________

Participant Name (please print) Date

____

Participant Signature

Appendix I. Follow-up Postcard

Dear New Nurse, December 18, 2006

A few weeks ago, you received a letter requesting your participation in a study entitled, “First Work Experiences of Newly Graduated Nurses in Acute Care: An Exploration of Influencing Factors”.

If you have already returned the questionnaire, I would like to express my genuine thanks. If you have not completed the questionnaire, I would like to use this postcard as a reminder that your participation is important.

I would also like to remind you that I am a registered nurse who is a doctoral student in the Graduate Department of Nursing Science at the University of Toronto. I am conducting this study in partial fulfillment of the requirements for the Doctor of Philosophy (Nursing Administrative Science) degree. My proposal has been approved by my thesis committee, which is led by my supervisor Dr. Linda McGillis Hall, Faculty of Nursing, University of Toronto. I have also received ethical approval from the Office or Research Services at the University of Toronto for the conduct of this research.

If you did not receive a copy of the questionnaire, or if you no longer have it, please let me know and I will send you another. My contact information can be found below.

Thank you,

Jessica Peterson, RN, PhD Candidate
Phone: 416-946-8269
Email: j.peterson@utoronto.ca

Faculty of Nursing, University of Toronto
155 College Street, Suite 130
Toronto, Ontario M5T 1P8

Appendix J. Letter with Mailing of Second Questionnaire

January 15, 2007

Dear new nurse,

In November I sent you a questionnaire and requested your participation in a study entitled, "First Work Experiences of Newly Graduated Nurses in Acute Care: An Exploration of Influencing Factors". The purpose of the study is to investigate the effects of perceived demands, control, support and self-efficacy on the job stress, job satisfaction and intentions to turnover of newly graduated nurses. Your participation is very important to ensure accurate results of the study. The more people I hear from, the better the results will represent the experiences of new nurses from across the province. I am sending you a second questionnaire in the hope that you will consider participating.

For more information, please visit the website of the study at http://individual.utoronto.ca/newgradstudy. On the website you can see the number of people who have already responded and other information about the study.

I would like to remind you that your responses on the questionnaire are anonymous and confidential. By returning the consent form and request of participation in the sealed envelope inside the outer envelope, your responses cannot be linked to your name.

I am a registered nurse who is a doctoral student in the Graduate Department of Nursing Science at the University of Toronto. I am conducting this study in partial fulfillment of the requirements for the Doctor of Philosophy (Nursing Administrative Science) degree. My proposal has been approved by my thesis committee, which is led by my supervisor Dr. Linda McGillis Hall, Faculty of Nursing, University of Toronto. I have also received ethical approval from the Office of Research Services at the University of Toronto for the conduct of this research.

If you have already returned your questionnaire, please disregard this letter and accept my thanks. I appreciate your assistance with the study.

Sincerely,

Jessica Peterson, RN, PhD Candidate
Faculty of Nursing, University of Toronto
155 College Street, Suite 130
Toronto, Ontario M5T 1P8
(416) 946-8269
email: j.peterson@utoronto.ca

Appendix K. Request Form

If you would like a certificate of participation for taking part in this study please complete the form below, seal it in the envelope marked “Certificate of Participation”, and return it inside the bigger, pre-stamped envelope with your questionnaire.

Preferred mode of communication:

☐ Email

Name: ____

Email address: _____________________________________

☐ Mail

Name: ____

Address: ____

____

____

Appendix L. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Demands													
2. Control	-0.39** (226)												
3. Social Support-Supervisor	-0.21** (224)	0.33** (225)											
4. Social Support – Coworkers	-0.25** (226)	0.32** (227)	0.12 (228)										
5. Self-Efficacy	-0.12 (225)	0.26** (225)	0.25** (224)	0.13 (226)									
6. Job Stress (R-GHQ)	0.32** (218)	-0.34** (219)	-0.39** (217)	-0.26** (219)	-0.44** (217)								
7. Job Stress (R-ENSS)	0.44** (227)	-0.41** (227)	-0.25** (226)	-0.17* (228)	-0.21** (226)	0.43** (219)							
8. Log of Job Dissatisfaction	0.33** (226)	-0.35** (227)	-0.27** (228)	-0.34** (230)	-0.27** (226)	0.60** (219)	0.42** (228)						
9. Intent to Leave the Job	0.34** (226)	-0.33** (227)	-0.23** (226)	-0.28** (228)	-0.14* (226)	0.35** (219)	0.35** (228)	0.70** (228)					
10. Intent to Leave the Profession (dichotomized)	0.11 (225)	-0.13* (226)	-0.14* (227)	-0.14* (229)	-0.21** (225)	0.21** (218)	0.21** (227)	0.36** (229)	0.25** (227)				
11. Medical/ Surgical Unit	0.22** (227)	0.00 (228)	-0.02 (227)	0.00 (229)	0.02 (228)	0.14* (220)	0.30** (229)	0.23** (229)	0.06 (229)	0.04 (228)			
12. ER/ICU	-0.14* (227)	-0.00 (228)	0.06 (227)	0.01 (229)	0.05 (228)	-0.22** (220)	-0.19** (229)	-0.25** (229)	-0.12 (229)	-0.08 (228)	-0.60** (231)		

13. Teaching Hospital	-0.02 (227)	0.18 (228)	0.00 (227)	0.01 (229)	0.08 (227)	-0.03 (220)	-0.04 (229)	-0.12 (229)	-0.16* (229)	0.05 (228)	0.06 (230)	-0.04 (230)	
14. More than One RN Position	0.06 (226)	-0.05 (227)	0.05 (226)	-0.08 (228)	0.08 (226)	0.02 (219)	0.00 (228)	0.03 (228)	-0.00 (228)	-0.17* (227)	-0.03 (229)	0.02 (229)	-0.14* (229)

Note. Pearson correlations (N)
*p < 0.05. **p< 0.01.

Appendix M. Additional Results of the Hierarchical Regression Models

Steps 3 through 5 of Hierarchical Regression Analysis for Variables Predicting Job Stress (GHQ) (N = 209)

Variable	B	SE B	β	ΔR^2
Step 3				
1. Demands	0.16	0.09	0.11	
2. Control	-0.08	0.04	-0.13	
3. Support – Supervisor	-0.29	0.09	-0.21**	
4. Support – Coworkers	-0.31	-.13	-0.16*	
5. Self-Efficacy	-0.23	0.05	-0.30**	
1*2	-0.01	0.01	-0.08	
1*3	-0.05	0.03	-0.11	
1*4	0.01	0.04	0.02	
1*5	-0.01	0.02	-0.06	
2*3	0.01	0.01	0.07	
2*4	-0.01	0.02	-0.03	
2*5	-0.00	0.01	-0.04	
3*4	-0.04	0.04	-0.07	
3*5	0.01	0.01	0.06	
4*5	0.01	0.02	0.03	
Months working as an RN	0.15	0.09	0.10	
Medical/Surgical Unit	0.27	0.70	0.03	
ER/ICU	-1.76	0.84	-0.15*	0.05
Step 4				
1	0.15	0.10	0.11	
2	-0.08	0.04	-0.14*	
3	-0.23	0.09	-0.17*	
4	-0.34	0.13	-0.17**	
5	-0.22	0.05	-0.29**	
1*2	-0.02	0.01	-0.10	
1*3	-0.04	0.03	-0.10	
1*4	-0.01	0.04	-0.02	
1*5	-0.01	0.02	-0.03	
2*3	0.01	0.01	0.07	
2*4	0.00	0.02	0.01	
2*5	-0.01	0.01	-0.08	
3*4	-0.05	0.04	-0.09	
3*5	0.02	0.01	0.08	
4*5	0.01	0.02	0.05	
1*2*3	0.01	0.00	0.14	
1*2*4	-0.01	0.01	-0.16*	
1*2*5	0.00	0.00	0.06	
Months working as an RN	0.15	0.09	0.10	
Medical/Surgical Unit	0.24	0.70	0.03	

ER/ICU	-1.99	0.84	-0.17*	0.02
Step 5				
1	0.14	0.10	0.10	
2	-0.08	0.04	-0.13	
3	-0.23	0.09	-0.17*	
4	-0.35	0.13	-0.18**	
5	-0.22	0.05	-0.30**	
1*2	-0.02	0.01	-0.10	
1*3	-0.04	0.03	-0.09	
1*4	-0.01	0.04	-0.02	
1*5	-0.01	0.02	-0.03	
2*3	0.01	0.01	0.07	
2*4	0.00	0.02	0.01	
2*5	-0.01	0.01	-0.08	
3*4	-0.05	0.04	-0.09	
3*5	0.01	0.02	0.07	
4*5	0.02	0.02	0.06	
1*2*3	0.01	0.00	0.14*	
1*2*4	-0.01	0.01	-0.15*	
1*2*5	0.00	0.00	0.05	
1*2*3*5	0.00	0.00	-0.05	
1*2*4*5	0.00	0.00	0.04	
Months working as an RN	0.16	0.09	0.10	
Medical/Surgical Unit	0.26	0.70	0.03	
ER/ICU	-1.97	0.84	-0.17*	0.00

*p <0.05. **p<0.01.

Steps 3 through 5 of Hierarchical Regression Analysis for Variables Predicting Job Stress (ENSS) (N = 218)

Variable	B	SE B	β	ΔR^2
Step 3				
1. Demands	2.33	0.59	0.26**	
2. Control	-1.03	0.26	-0.27**	
3. Support – Supervisor	-0.68	0.55	-0.08	
4. Support – Coworkers	-0.36	0.83	-0.03	
5. Self-Efficacy	-0.40	0.30	-0.08	
1*2	-0.07	0.08	-0.06	
1*3	-0.22	0.19	-0.08	
1*4	0.59	0.24	0.16*	
1*5	0.05	0.10	0.03	
2*3	0.03	0.08	0.03	
2*4	0.08	0.11	0.05	
2*5	-0.02	0.04	-0.02	
3*4	-0.38	0.26	-0.10	
3*5	-0.12	0.09	-0.08	
4*5	0.10	0.11	0.06	
Medical/Surgical Unit	14.01	4.56	0.22**	
ER/ICU	-0.69	5.48	-0.01	0.04
Step 4				
1	2.10	0.65	0.23**	
2	-1.01	0.26	-0.26**	
3	-0.32	0.58	-0.04	
4	-0.33	0.83	-.03	
5	-0.48	0.32	-0.10	
1*2	-0.08	0.08	-0.07	
1*3	-0.21	0.19	-0.08	
1*4	0.63	0.26	0.17*	
1*5	0.05	0.10	0.04	
2*3	0.05	0.08	0.05	
2*4	0.09	0.11	0.05	
2*5	-0.01	0.04	-0.02	
3*4	-0.44	0.26	-0.11	
3*5	-0.12	0.09	-0.08	
4*5	0.10	0.12	0.06	
1*2*3	0.04	0.02	0.14	
1*2*4	0.01	0.03	0.02	
1*2*5	-0.01	0.01	-0.06	
Medical/Surgical unit	13.76	4.56	0.22**	
ER/ICU	-0.32	5.51	-0.00	0.01

Step 5				
1	2.19	0.65	0.24**	
2	-1.07	0.27	-0.28**	
3	-0.30	0.58	-0.03	
4	-0.25	0.83	-0.02	
5	-0.43	0.32	-0.09	
1*2	-0.11	0.08	-0.10	
1*3	-0.30	0.19	-0.11	
1*4	0.61	0.26	0.17*	
1*5	0.02	0.11	0.02	
2*3	0.04	0.08	0.04	
2*4	0.07	0.11	0.04	
2*5	-0.01	0.04	-0.02	
3*4	-0.46	0.26	-0.12	
3*5	-0.08	0.10	-0.05	
4*5	0.07	0.12	0.04	
1*2*3	0.03	0.02	0.11	
1*2*4	0.00	0.03	0.00	
1*2*5	-0.01	0.01	-0.05	
1*2*3*5	0.01	0.00	0.14	
1*2*4*5	-0.00	0.01	-0.04	
Medical/Surgical Unit	13.19	4.57	0.21**	
ER/ICU	-1.05	5052	-0.01	0.01

*p <0.05. **p<0.01.

Steps 3 through 5 of Hierarchical Regression Analysis for Variables Predicting Job Dissatisfaction (N = 219)

Variable	B	SE B	β	ΔR^2
Step 3				
1. Demands	0.01	0.00	0.14*	
2. Control	-0.00	0.00	-0.13	
3. Support – Supervisor	-0.01	0.00	-0.12	
4. Support – Coworkers	-0.02	0.01	-0.26**	
5. Self-Efficacy	-0.00	0.00	-0.13*	
1*2	0.00	0.00	0.03	
1*3	-0.00	0.00	-0.14*	
1*4	0.00	0.00	0.01	
1*5	-0.00	0.00	-0.01	
2*3	-0.00	0.00	-0.01	
2*4	0.00	0.00	0.04	
2*5	0.00	0.00	-0.05	
3*4	-0.00	-0.00	-0.08	
3*5	0.00	0.00	0.03	
4*5	0.00	0.00	0.16*	
Medical/Surgical Unit	0.04	0.03	0.10	
ER/ICU	-0.08	0.04	-0.17*	0.04
Step 4				
1	0.01	0.00	0.12	
2	-0.00	0.00	-0.13	
3	-0.01	0.00	-0.10	
4	-0.02	0.01	-0.26**	
5	-0.00	0.00	-0.13*	
1*2	0.00	0.00	0.01	
1*3	-0.00	0.00	-0.14*	
1*4	-0.00	0.00	-0.00	
1*5	-0.00	0.00	-0.00	
2*3	-0.00	0.00	-0.00	
2*4	0.00	0.00	0.05	
2*5	0.00	0.00	-0.06	
3*4	-0.00	0.00	-0.09	
3*5	0.00	0.00	0.03	
4*5	0.00	0.00	0.17*	
1*2*3	0.00	0.00	0.08	
1*2*4	-0.00	0.00	-0.02	
1*2*5	0.00	0.00	0.01	
Medical/Surgical Unit	0.04	0.03	0.10	
ER/ICU	-0.08	0.04	-0.17*	0.00

Step 5				
1	0.01	0.00	0.12	
2	-0.00	0.00	-0.12	
3	-0.01	0.00	-0.10	
4	-0.02	0.01	-0.26**	
5	-0.00	0.00	-0.13*	
1*2	0.00	0.00	0.01	
1*3	-0.00	0.00	-0.14	
1*4	0.00	0.00	-0.00	
1*5	-0.00	0.00	-0.01	
2*3	-0.00	0.00	-0.00	
2*4	0.00	0.00	0.05	
2*5	0.00	0.00	-0.06	
3*4	-0.00	0.00	-0.09	
3*5	0.00	0.00	0.03	
4*5	0.00	0.00	0.17*	
1*2*3	0.00	0.00	0.08	
1*2*4	-0.00	0.00	-0.02	
1*2*5	0.00	0.00	0.01	
1*2*3*5	-0.00	0.00	-0.00	
1*2*4*5	0.00	0.00	0.02	
Medical/Surgical Unit	0.04	0.03	0.09	
ER/ICU	-0.08	0.04	-0.17*	0.00

*p <0.05. **p<0.01.

Steps 3 through 5 of Hierarchical Regression Analysis for Variables Predicting Intention to Leave the Job (N=216)

Variable	B	SE B	β	ΔR^2
Step 3				
1. Demands	0.17	0.06	0.22**	
2. Control	-0.03	0.03	-0.10	
3. Support – Supervisor	-0.09	0.05	-0.11	
4. Support – Coworkers	-0.26	0.08	-0.23**	
5. Self-Efficacy	-0.02	0.03	-0.05	
1*2	0.00	0.01	0.02	
1*3	-0.01	0.02	-0.06	
1*4	0.00	0.02	0.01	
1*5	-0.01	0.01	-0.06	
2*3	0.01	0.01	0.07	
2*4	-0.00	0.01	-0.03	
2*5	-0.00	0.00	-0.07	
3*4	-0.04	0.02	-0.12	
3*5	-0.01	0.01	-0.09	
4*5	0.02	0.01	0.15*	
Medical/Surgical Unit	-0.31	0.43	-0.06	
ER/ICU	-0.93	0.51	-0.14	
Works in a teaching hospital	-0.68	0.34	-0.12*	0.04
Step 4				
1	0.12	0.06	0.15*	
2	-0.03	0.03	-0.08	
3	-0.07	0.05	-0.09	
4	-0.25	0.08	-0.23**	
5	-0.01	0.03	-0.03	
1*2	0.00	0.01	-0.02	
1*3	-0.01	0.02	-0.05	
1*4	0.01	0.02	0.02	
1*5	-0.01	0.01	-0.06	
2*3	0.01	0.01	0.08	
2*4	-0.00	0.01	-0.02	
2*5	-0.00	0.00	-0.08	
3*4	-0.04	0.02	-0.12	
3*5	-0.01	0.01	-0.08	
4*5	0.03	0.01	0.16*	
1*2*3	0.00	0.00	0.09	
1*2*4	0.00	0.00	0.06	
1*2*5	0.00	0.00	0.06	
Medical/Surgical Unit	-0.31	0.43	-0.06	
ER/ICU	-0.91	0.51	-0.14	
Works in a teaching hospital	-0.73	0.34	-0.14*	0.02

Step 5				
1	0.13	0.06	0.16*	
2	-0.02	0.03	-0.06	
3	-0.07	0.05	-0.09	
4	-0.25	0.08	-0.22**	
5	-0.01	0.03	-0.03	
1*2	-0.00	0.01	-0.02	
1*3	-0.01	0.02	-0.06	
1*4	0.00	0.03	0.00	
1*5	-0.01	0.01	-0.11	
2*3	0.01	0.01	0.06	
2*4	-0.00	0.01	-0.03	
2*5	-0.00	0.00	-0.07	
3*4	-0.04	0.02	-0.11	
3*5	-0.01	0.01	-0.09	
4*5	0.03	0.01	0.17*	
1*2*3	0.00	0.00	0.09	
1*2*4	0.00	0.00	0.06	
1*2*5	0.00	0.00	0.02	
1*2*3*5	-0.00	0.00	-0.01	
1*2*4*5	0.00	0.00	0.12	
Medical/Surgical Unit	-0.35	0.43	-0.07	
ER/ICU	-0.96	0.52	-0.15	
Works in a teaching hospital	-0.76	0.34	-0.14*	0.01

*p <0.05. **p<0.01.

Intention to Leave the Profession: Step 3

Variable	B	Wald Chi-Square	Odds Ratio	95% CI for Odds Ratio	
				Lower	*Upper*
1. Demands	0.01	0.01	1.01	0.89	1.13
2. Control	-0.02	0.41	0.98	0.93	1.04
3. Support – Supervisor	-0.10	3.02	0.91	0.82	1.01
4. Support – Coworkers	-0.14	2.49	0.87	0.73	1.04
5. Self-Efficacy	-0.06	3.67	0.94	0.89	1.00
1*2	0.01	1.30	1.01	0.99	1.02
1*3	-0.04	5.30	0.96	0.92	0.99
1*4	0.06	3.77	1.06	1.00	1.12
1*5	-0.02	2.65	0.98	0.96	1.00
2*3	-0.01	0.44	1.00	0.98	1.01
2*4	0.00	0.01	1.00	0.98	1.02
2*5	-0.00	0.96	1.00	0.99	1.00
3*4	0.04	1.74	1.04	0.98	1.09
3*5	0.01	1.03	1.01	0.99	1.03
4*5	0.00	0.00	1.00	0.98	1.03
More than one RN position	1.33	8.71	3.81	1.57	9.26
Other education than RN	0.44	1.36	1.56	0.74	3.27
(Constant)	-0.52	1.01			

χ^2 for Block (10, n=209) = 14.95, p = 0.13

Intention to Leave the Profession: Step 4

Variable	B	Wald Chi-Square	Odds Ratio	95% CI for Odds Ratio	
				Lower	*Upper*
1. Demands	0.22	0.11	1.02	0.90	1.16
2. Control	-0.02	0.31	0.99	0.93	1.04
3. Support – Supervisor	-0.10	2.70	0.91	0.81	1.02
4. Support – Coworkers	-0.12	1.60	0.89	0.74	1.07
5. Self-Efficacy	-0.07	4.76	0.93	0.87	0.99
1*2	0.01	1.91	1.01	1.00	1.03
1*3	-0.05	5.64	0.96	0.92	0.99
1*4	0.06	4.14	1.06	1.00	1.12
1*5	-0.02	3.01	0.98	0.96	1.00
2*3	-0.00	0.34	1.00	0.98	1.01
2*4	-0.00	0.02	1.00	0.98	1.02
2*5	-0.00	0.50	1.00	0.99	1.01
3*4	0.04	1.67	1.04	0.98	1.10
3*5	0.01	0.73	1.01	0.99	1.03
4*5	-0.00	0.03	1.00	0.97	1.02
1*2*3	0.00	0.08	1.00	1.00	1.00
1*2*4	0.00	0.73	1.00	1.00	1.01
1*2*5	-0.00	1.79	1.00	1.00	1.00
More than one RN position	1.37	8.99	3.94	1.61	9.65
Other education than RN	0.51	1.66	1.66	0.77	3.59
(Constant)	-0.57	1.21			

χ^2 for Block (3, n=209) = 2.18, p = 0.54

Intention to Leave the Profession: Step 5

Variable	B	Wald Chi-Square	Odds Ratio	95% CI for Odds Ratio	
				Lower	*Upper*
1. Demands	0.03	0.20	1.03	0.90	1.18
2. Control	-0.02	0.68	0.98	0.92	1.03
3. Support – Supervisor	-0.11	3.06	0.90	0.80	1.01
4. Support – Coworkers	-0.09	0.95	0.91	0.76	1.10
5. Self-Efficacy	-0.07	4.21	0.93	0.87	1.00
1*2	0.01	1.67	1.01	0.99	1.03
1*3	-0.06	6.94	0.95	0.91	0.99
1*4	0.07	4.57	1.07	1.01	1.13
1*5	-0.02	2.90	0.98	0.96	1.00
2*3	-0.01	0.38	1.00	0.98	1.01
2*4	-0.00	0.02	1.00	0.98	1.02
2*5	-0.00	0.19	1.00	0.99	1.01
3*4	0.03	1.39	1.03	0.98	1.09
3*5	0.01	1.80	1.01	0.99	1.04
4*5	-0.01	0.60	0.99	0.96	1.02
1*2*3	-0.00	0.59	1.00	0.99	1.00
1*2*4	0.00	0.71	1.00	1.00	1.01
1*2*5	-0.00	1.08	1.00	1.00	1.00
1*2*3*5	0.00	2.35	1.00	1.00	1.00
1*2*4*5	0.00	0.54	1.00	1.00	1.00
More than one RN position	1.36	8.62	3.89	1.57	9.65
Other education than RN	0.44	1.21	1.55	0.71	3.40
(Constant)	-0.51	0.91			

χ^2 for Block (2, n=209) = 3.04, p = 0.22