Review

Nurse turnover: A literature review – An update

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ABSTRACT

Background: Concerns related to the complex issue of nursing turnover continue to challenge healthcare leaders in every sector of health care. Voluntary nurse turnover is shown to be influenced by a myriad of inter-related factors, and there is increasing evidence of its negative effects on nurses, patients and health care organizations.

Objectives: The objectives were to conduct a comprehensive review of the related literature to examine recent findings related to the issue of nursing turnover and its causes and consequences, and to identify on methodological challenges and the implications of new evidence for future studies.

Design: A comprehensive search of the recent literature related to nursing turnover was undertaken to summarize findings published in the past six years.


Review methods: Keyword searches were conducted for publications published 2006 or later that examined turnover or turnover intention in employee populations of registered or practical/enrolled or assistant nurses working in the hospital, long-term or community care areas. Literature findings are presented using an integrative approach and a table format to report individual studies.

Results: From about 330 citations or abstracts that were initially scanned for content relevance, 68 studies were included in this summary review. The predominance of studies continues to focus on determinants of nurse turnover in acute care settings. Recent studies offer insight into generational factors that should be considered in strategies to promote stable staffing in healthcare organizations.

Conclusions: Nursing turnover continues to present serious challenges at all levels of health care. Longitudinal research is needed to produce new evidence of the relationships between nurse turnover and related costs, and the impact on patients and the health care team.

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What is already known about the topic?

- Concerns related to the complex issue of nursing turnover continue to challenge healthcare leaders in every sector of health care.
- Inconsistencies in nursing turnover definitions and methodological challenges continue to limit the ability to compare turnover rates between units and across jurisdictions over time.
- The predominance of studies in nursing turnover focus on determinants of nurse turnover intention in acute care settings; further research is needed to examine impact of turnover behavior on system cost, and nurse and patient outcomes.

What this paper adds

- There is a growing body of research that examines nursing turnover from a generational perspective, recognizing that recruitment and retention plans should consider generational needs.
- The scope of nursing turnover research is being expanded beyond that of direct care givers to offer new evidence of the impact of nurse manager, director of nursing and nurse executive turnover.
- Recognizing that most turnover studies consider only factors inside the organization, some recent studies consider the external market factors that are related to turnover and vacancy rates of nurses.

1. Introduction

Concerns about nursing turnover continue to challenge healthcare leaders and workforce researchers. The issue is recognized as being complex and multifaceted with factors affecting every sector of health care (Jones, 2008; LeVasseur et al., 2009). Turnover, employment stability, workforce stability and the concept of retention are closely aligned, such that research showing the high cost of turnover and recruitment reflects the importance of employment stability. It is becoming harder to recruit nurses within environments of staff shortages and it remains unclear what impact nurse turnover will have on nursing outcomes and quality and safety of health care. Rondeau et al. (2008) pointed out the lack of knowledge relating to the impact of market factors on nursing turnover and vacancy. While effective retention strategies are part of the solution to address turnover in organizations, not all reasons for turnover are employer based. Nurses tend to be more mobile early in their careers, however it remains unclear which factors influenced mobility (LeVasseur et al., 2009). Generational differences in nurses are being examined to determine the implications for recruitment and retention strategies in healthcare organizations. There is worrisome evidence that, in comparison to nurses from the Baby Boomer generation, nurses from the younger generations experience their work settings as less consistent with their personal values, and display more indicators of job burnout and less inclination to participate in knowledge sharing (Leiter et al., 2009). As a follow-up to a previous literature review to examine the issue of nursing turnover, its determinants and impact on patient, nurse and system outcomes (Hayes et al., 2006), this paper summarizes subsequent research and describes ongoing methodological challenges and implications of new evidence for future studies.

2. Methodological approach

Following Cooper’s (1998) approach for synthesizing research, keyword searches were conducted using electronic databases of CINAHL, MEDLINE and PubMed. The main search terms included nurse turnover, nurse turnover determinants, nurse turnover impact, nurse turnover cost, and nurse turnover outcomes. References lists of current articles were scanned for additional items and new releases of key journals were individually reviewed for recently published studies. From about 330 titles and abstracts that were scanned initially, 68 studies were selected based on the following criteria: (1) published 2006 or later; (2) written in English; and (3) examined turnover or turnover intention in employee populations of registered or practical/enrolled or assistant nurses working in the hospital, long-term or community care areas. Details of most of the studies, extracted primarily from the abstracts of the articles, are provided in two tables in the appendices to highlight recent evidence relating to the issue of nursing turnover. Appendix A provides information about 51 studies that examine determinants of nurse turnover intent, and Appendix B provides information about 9 studies that examine turnover consequences.

3. Turnover definition

Researchers continue to identify inconsistencies and variations of nursing turnover definitions that limit the ability for comparison of turnover over time and between units (Buchan, 2010; Flinkman et al., 2010). While in some studies, turnover was described as the process by which nursing staff members leave or transfer within the employee’s organization (Boyle and Miller, 2008; LeVasseur et al., 2009), other research did not include transfers between units/wards or other departments (Beecroft et al., 2008). Two types of turnover are described as external turnover, referring to a numerical value attached to the number of people who leave an organisation for various reasons, and internal turnover which involves job changes within an organisation (International Council of Nurses, 2010).

Standard measures of turnover have been used in comparing "leaving" rates for benchmarking variations in rates across systems or organizations (Buchan, 2010). Bae et al. (2010) calculated turnover rate as a fraction, where the numerator is the total number of RNs who left a nursing unit during a given period and the denominator is the average number of RNs on staff in the unit over the same period. Similarly, Kash et al. (2006) measured staff turnover by dividing the number of employees who are no longer employed by the number of employees at the end of the reporting period for each category of direct care staff. While turnover rate reflects an organization’s ability to retain its existing employees, the related measure of
vacancy rate is more a marker depicting the overall success or failure of an organization in attracting potential employees (Rondeau et al., 2008).

4. Theoretical perspectives of nurse turnover

Turnover theory continues to evolve in nursing studies with ongoing examination of the turnover process, relationships among determinants, and the impact of turnover behavior on the individual, the organization and the system. In a pan-Canadian study of causes and consequences of nursing turnover in hospitals, O’Brien-Pallas et al. (2010) conceptualized nursing turnover as a throughput factor, an intermediate variable that has a mediating effect between system inputs and outputs. Guiding the study, the Patient Care System and Nurse Turnover Model posits that system inputs (i.e. characteristics of patients, nurses, the nursing unit and the organization) interact with throughput (environmental complexity, staff utilization and turnover rate) to produce system outputs (the patient, nurse and organizational outcomes) which feed back into the entire patient care system.

Based on a concept analysis, Takase (2010) described turnover intention as a multi-stage process consisting of psychological, cognitive, and behavioral components. Turnover intent is claimed to start with psychological responses to negative aspects of organizations or jobs. The core of the process included the cognitive component involving decision to leave, and withdrawal behavior which may be categorized as withdrawal from the current job or actions oriented to future opportunities (Takase, 2010). Recent work also considers the overall forces that act to keep a person on the job in addition to the negative attitudes that influence one to leave. For example, Crossley et al. (2007) suggested that job embeddedness may prohibit decision processes that often precede voluntary separation and can be meaningfully integrated into models of turnover. Job embeddedness was shown to predict turnover after job satisfaction, perceived job alternatives, and intentions to search and to quit were controlled.

5. Investigation of nurse turnover determinants

There is a myriad of relationships and mediating effects among variables related to turnover. Researchers continue to emphasize the importance of job satisfaction in nurse turnover intent, showing greater significance than other predictors such as age, working evening shift and career advancement (Applebaum et al., 2010; Ma et al., 2009; Zurmehly et al., 2009). Job satisfaction has been shown to mediate the effect of heavy workload (Zeytinoglu et al., 2007) and quality of leadership on staff turnover (Han and Jekel, 2011; Sellgren et al., 2007).

5.1. Organizational factors and nurse turnover

The impact of organizational characteristics on practice settings and nurse turnover has been examined further in recent work. The literature highlights the importance of the psychosocial work environment (Li et al., 2010) and organizational climate (Stone et al., 2006, 2007), with turnover being less likely in healthcare organizations perceived to be strong employers-of-choice (Rondeau et al., 2008) or characterized as having ‘workgroup friendliness and warmth’ (Hwang and Chang, 2009).

5.1.1. Workload, stress and burnout

The influence of workload, stress and burnout on turnover intention continues to be widely researched. In a study examining nursing turnover from a generational perspective, nearly half of the nurses in each of the three generations identified excess workloads and issues in interpersonal relationships as the reasons to consider leaving their jobs (Takase et al., 2009). Gardner et al. (2007) found that nurses who disagreed that staffing and resources in the unit were adequate for patient care were more likely to leave their job. While excessive workload has been shown to be a factor in nursing turnover, a high-demand work situation does not necessarily lead to turnover intent unless other conditions also exist. Turnover is more likely when work demands are combined with low job control (Chiu et al., 2009), lack of team support and other resources (Estryn-Behar et al., 2007), and when work becomes so demanding both physically and mentally that they perceive they are too busy to provide good quality care (Flinkman et al., 2008). The association between increased work complexity and higher turnover rate suggests that complexity creates conditions of decreased control arising from frequent changes in patient orders, increased patient acuity, and frequent transfers, admissions and discharges (Baerholdt and Mark, 2009). Duffield et al. (2009b) found that delayed tasks and involuntary overtime was associated with greater likelihood to leave, and that nurses working on wards with allied health staff were less likely to leave.

If excessive work demands and lack of support cause deteriorated emotional and mental health of nurses, the resultant stress and burnout lead to greater turnover intent (Flinkman et al., 2008; Leiter and Maslach, 2009; Meeusen et al., 2011). A number of work-related job stressors have a negative influence. Baseline and six-month follow-up surveys of newly graduate nurses showed that lack of job readiness and coworker support consistently led to increased intentions to leave, while a lack of supervisor support had a greater impact at Time 1 (Tei-Tominaga and Miki, 2010). In another study, the social withdrawal of quitting a job was influenced by the psychological withdrawal of cynicism which, in turn, was associated with exhaustion, value conflicts and unfairness, and inadequate reward systems (Leiter and Maslach, 2009).

5.1.2. Management style

Research findings continue to support the importance of effective management in creating a positive work environment. Anticipated staff nurse turnover or turnover trends have been correlated with participative governance (Gormley, 2011) and transformational leadership style (Raup, 2008). Some research suggests that turnover intention is influenced more by supervisors or managers than by co-workers (Delobelle et al., 2011; Leiter et al.,
2010; Zurmehly et al., 2009). It is important for nursing administrators to understand what is valued the most by their nurses. Gormley (2011) reported that nurse managers viewed the work environment more positively than staff nurses did. In another study, O’Brien-Pallas et al. (2006a) contrasted factors indicated by nurses as important in their decision to leave the profession with factors determined by nurse executives to be important in retaining staff. Nurses who had left ranked Professional practice items (e.g. quality care, autonomous decision-making, skill utilization, policy influence, workload and uncompaid overtime) as most important. Nurse executives ranked External values and beliefs about nursing items (e.g. society's depiction of nurses, relationships with physicians, equality with other professional careers, being treated as a valued health professional, career development and promotion and salary levels) as most important (O’Brien-Pallas et al., 2006a).

Nursing managers should be good leaders, visible, consult with staff, and provide praise and recognition (Duffield et al., 2011). Supportive management also involves the promotion of communication and being part of a team. In a hospital based study, Aker et al. (2009) found that nurses are less likely to leave their jobs or organization if they are members of patient-care teams in which nurses engage in synergistic communication. Similarly, in a study of hospital-based nurses from ten European countries, Estryn-Beher et al. (2007) reported that low quality teamwork was associated with increased intent to leave across the countries, career development possibilities, quality of interpersonal relations, uncertainty regarding treatment, and influence at work. These findings are consistent with another study in which nurses that planned to leave reported higher disagreement with subscales of Nurse Participation in Dialysis Provider Affairs; Nurse Manager Ability, Leadership, and Support of Nurses; and Staffing and Resource Adequacy, compared to nurses who did not plan to leave (Gardner et al., 2007).

5.1.3. Empowerment

Nurses' perceptions of empowerment have been shown to influence turnover intent. Certain structural determinants within an organization are theorized to promote growth of empowerment, including having access to information, support, necessary resources and the opportunity to learn and grow (Kanter, 1993). Nurses who were 50–60 years of age with high levels of empowerment were less likely to leave their positions which have implications for late-career strategies (Zurmehly et al., 2009). Similarly, Hauck et al. (2011) reported an inverse relationship between structural empowerment and anticipated turnover in critical care nurses. However, Spreitzer (1995) suggests that structurally empowering conditions cannot be fully realized unless the individual is psychologically receptive. According to Menon (2001), psychological empowerment contains components of perceived control, perceived competence and goal internalization. Based on a sample of new graduate nurses, Rheuma et al. (2011) reported that intention to leave was predicted by the work environment component's foundations for quality nursing care and goal internalization, which implies the importance of being able to practice according to a nursing model and internalize their organization's goals.

5.1.4. Role perceptions

Nurses need clearly defined roles with appropriate and adequate supports in place to enable them to carry out their responsibilities. In a pan-Canadian study, O’Brien-Pallas et al. (2010) reported that higher levels of role ambiguity and role conflict on nursing units were associated with higher turnover rates for nurses. Perceived role discrepancy in nurses and their task delegation needs, are also associated with turnover intention. With commonly occurring heavy workloads, inability to delegate some tasks may cause frustration and stress, leading to a greater turnover intention. For example, Tschannen et al. (2010) found that missed care was associated with intention to leave. However, too much task delegation might lead to a smaller workload and less contact with patients than nurses want. Takase et al. (2006) reported that when nurses perceive their degree of task delegation need is met in their practice, they tend to exhibit low turnover intention, and when they perceive a greater discrepancy between their task delegation need and the actual task delegation practice, they displayed stronger turnover intention.

5.2. Individual factors and turnover

Study findings relating individual factors to nurse turnover have been fairly consistent over time. An inverse relationship between age and turnover intention is reported in recent work (Chan et al., 2009; Delobelle et al., 2011; Ma et al., 2009; Tschannen et al., 2010; Zurmehly et al., 2009). Younger nurses may wish to pursue further qualifications and older nurses tend to be more committed to their organization (Camerino et al., 2008). Camerino et al. (2006) reported that the association between low work ability and intention to leave nursing was found to be stronger in younger nurses, suggesting that they probably have more opportunities than their older colleagues to find more congenial employment, and older nurses may be more resistant to change. Generational differences have been explored in recent turnover research with four cohorts described: Veteran nurses born between 1922 and 1946; Baby Boomers born between 1947 and 1964, representing the largest cohort; Generation Xers born between 1965 and 1978; and the Millennials or Generation Y born between 1979 and 2000, that is the second largest cohort (LeVasseur et al., 2009; Sherman, 2008; Takase et al., 2009), Sherman (2006) indicates that each generational cohort spans roughly 15–20 years, and shares common experiences that shape its values, attitudes, expectations, career aspirations, and work ethic.

Other personal factors may to be associated with turnover intention. Greater likelihood of turnover intention was noted in nurses with no kinship responsibilities, such as dependent children or relatives (Estryn-Beher et al., 2007; McCarthy et al., 2007; Stewart et al., 2011). Zeytinoglu et al. (2006) found that nurses are less likely to
leave as importance of earnings for the family increases, but it is particularly important for part-time nurses. Early retirement, considered a turnover issue, is influenced by both work and individual-related factors. Zurmehly et al. (2009) reported factors influencing the decision whether or not to retire early, including, the work situation (e.g., work climate), health problems, a positive attitude towards retirement, and personal circumstances (e.g., having a sick partner). In another study, Boumans et al. (2008) found that nurses have a greater propensity for early retirement if they are female, living with a partner, and experience a lack of challenge and development opportunities in the workplace and a high workload.

Recent studies demonstrate that turnover intention is negatively correlated with years of nursing experience (Chan et al., 2009; Delobelle et al., 2011; Tschannen et al., 2010) and length of time in one’s position (Stewart et al., 2011; Tschannen et al., 2010). New nurses may be influenced to leave if they experience lack of challenge in the workplace (Lavoie-Tremblay et al., 2008). However, the odds of turnover intent decrease in new graduates if they are satisfied with their jobs and pay and feel committed to the organization (Beecroft et al., 2008). One might believe that new nurses in comparison to experienced nurses have less invested in their position and are more likely to leave their job if dissatisfied. Ma et al. (2009) reported contrasting findings in that nurses who had greater than five years of nursing experience were more likely to report intention to leave their current job. In the case of older new graduates (>30), Beecroft et al. (2008) reported a greater likelihood of turnover intent if they do not get their ward of choice, implying they may be more likely than younger graduates to have fixed career goals and resign when their goals are not on track.

Inconsistent study findings are reported in terms of level of education and nurse turnover intention. In some studies, higher levels of education were positively related to turnover intention (Brewer et al., 2009; Delobelle et al., 2011; Stewart et al., 2011). Contrasting findings suggest that higher levels of nursing education such as having a master’s degree may be associated with higher level of professional commitment and a decreased likelihood of intent to leave the profession (Borkowski et al., 2007; Noguera, 2006). Chan et al. (2009) found no statistically significant associations between intention to leave/stay and nurses’ educational level. Research findings also suggest that nurses not currently enrolled in an education program were more likely to leave than if they were currently studying (Ma et al., 2009; Zurmehly et al., 2009).

5.3. Career advancement and pay/benefits

Not all reasons for turnover are related to the organization or the individual if there are external factors at play, such as perceived availability of other opportunities (Brewer et al., 2009; Camerino et al., 2008). LeVasseur et al. (2009) found that GenXMs (Generation Xers and Millennials combined as one group) ranked the reason of advancement as second highest in why nurses left positions. Reasons relating to relocation, to advance or further education, and improve pay were seen in Veterans, Baby Boomers, and GenXMs. Zeytinoglu et al. (2006) found that unpaid & longer than agreed hours increased likelihood of leaving the profession, particularly in part-time nurses. Pay and/or benefits tend to be a more important factor for males compared to females when considering leaving the nursing profession (Borkowski et al., 2007; Rajapaksa and Rothstein, 2009). While job satisfaction with pay and benefits influences turnover intent (Chan et al., 2009; Estryn-Behar et al., 2007), Frijters et al. (2007) found that the predicted impact of an increase in nurses’ pay on retention rates was small, which implied that retention issues are unlikely to be eliminated through increased pay alone.

6. Consequences of nurse turnover

In contrast to a number of studies which investigated the antecedents of turnover intention, only a small number of studies explored its consequences (Takase, 2010). From a management perspective, potential benefits of some level of turnover include reductions in salaries and benefits for newly hired nurses, savings from bonuses not paid to outgoing nurses, new knowledge and innovation from replacement nurses, and elimination of poor performers (Buchan, 2010). However, Jones and Gates (2007) indicate that controlling nurse turnover is a higher priority than quantifying its benefits, and that it is too difficult to calculate turnover benefits such as gain in productivity.

6.1. Economic impact

While there continues to be a lack of published information on turnover costs in the health sector, it is known that nurse turnover is costly in the form of productivity losses and organizational inefficiencies due to staff instability (Jones, 2008). North and Hughes (2006) indicate that nurse productivity is lost when experienced nurses act as ‘preceptors’ to recently appointed nurses, and must take time to provide a new recruit with suitable orientation and support until they reach full productivity. Buchan (2010) explains that most studies determine cost per individual staff member turnover, and then calculate a total organisational cost per annum. Turnover cost components include separation costs incurred by the staff member leaving, temporary replacement costs such as use of overtime and agency staff, recruitment costs, and induction costs which include “lost” productivity until the replacement reaches the same level of productivity as the staff member who had left (Buchan, 2010; Jones, 2004; O’Brien-Pallas et al., 2008). Direct costs are more obvious or tangible, and indirect costs such as the loss of productivity and organizational knowledge may be hidden or inappreciable (Jones and Gates, 2007). Buchan (2010) points out that actual turnover costs may vary significantly between individual employees depending on the grade and experience of the worker, and on the replacement strategy used by the employer.

A consortium of researchers designed an international pilot study to refine a methodology, using a common approach, to examine the costs associated with nurse
turnover (North and Hughes, 2006; O’Brien-Pallas et al., 2006b). In the Canadian study, O’Brien-Pallas et al. (2006b) found the mean turnover rate was 9.49%, and the average cost of turnover per nurse was $21,514 CAD with the highest mean direct cost incurred through temporary replacements, and the highest indirect cost decreased initial productivity of the new hires. Results of the New Zealand study showed a turnover rate of 10.2% and turnover cost of just under $29,000 NZD with the largest contributor to cost being temporary replacement, followed by orientation and training (North and Hughes, 2006). Difficulties were experienced in accessing human resources, and isolating direct costs per hire associated with training and loss of productivity. North and Hughes (2006) identified a particular challenge of data availability as the study hospital did not maintain a central database about nursing turnover and its costs. Overall, the literature analysis allowed the identification of data availability and where further refinement of data definition of variables is needed. In the subsequent longitudinal Canadian turnover study, the key drivers of the average turnover cost of $25,000 to temporary replacement costs and initial decreased productivity of new hires (O’Brien-Pallas et al., 2008).

6.2. Nursing care outcomes

High nursing turnover at the unit level can threaten the well-being of individual nurses, as it was found to be associated with deterioration in nurse’s mental health status and lower job satisfaction (O’Brien-Pallas et al., 2010). Nurse turnover compromises care if staffing shortages force high nurse-to-patient ratios resulting in decreased quality of care (Castle and Engberg, 2006; Castle et al., 2007; Jones, 2008). In one study, the rate of medication errors, falling incidents and adverse event incidents showed improvement when compared to the prior year when there was a higher rate of nurse turnover (Lee et al., 2009). Similarly, O’Brien-Pallas et al. (2010) reported that higher nurse turnover and higher role ambiguity on the unit were associated with increase in the likelihood of medical error. In another study, turnover was shown to have an adverse impact on learning in the workplace which can threaten quality of nursing care (Bae et al., 2010).

Castle and Lin (2010) examined how nurse turnover in nursing homes affects quality of care through nurse staffing levels and use of agency staff. The results showed that high nursing home administrator (NHA) turnover is significantly associated with poor quality, and that high director of nursing (DON) turnover was associated with better quality. Given the different roles of NHA’s and DONs in nursing homes, the authors speculated that new DONs may be motivated to improve clinical quality, while new NHA’s may become caught up in operational concerns. Similarly, Jones et al. (2009) reported findings that Chief Nursing Officer (CNO) turnover did not really impact the efficiency and effectiveness of patient care delivery, nurse job satisfaction and security, and nurse productivity. The researchers suggested that at the level of the CNO turnover may have more of an operational impact that is not always obvious to staff nurses or nurse managers on a day-to-day basis.

6.3. Patient outcomes

In the literature review by Hayes et al. (2006), only a few studies were reported that linked nurse staffing with quality of patient care (Shortell et al., 1994; Leiter et al., 1998) but no studies that substantiated the effect of nurse turnover on quality of care delivery. Based on the more recent literature, turnover of nursing home administrators was associated with poorer outcomes related to pain, pressure sores and physical restraint use, suggesting that administrators might focus less on quality when they are new to a facility and caught up in operational concerns (Castle and Lin, 2010). Gardner et al. (2007) reported that as nurse turnover increased, the percentage of patients that were satisfied with their care decreased. Additionally, the “churn” (changes in staffing numbers and mix) created by excessive turnover and the resulting number of newly hired staff, part-time staff, and temporary (agency) staff has also been identified as a detriment to organizations and patients (Ulrich et al., 2010). Duffield et al. (2009a) found downstream effects of churn included adverse outcomes for patients, lack of continuity of care, additional time required to manage employees, and loss in staff productivity. Skill mix changes in proportions of full-time, agency and temporary staff present challenges to scheduling, performance management and providing clinical supervision.

7. Discussion

7.1. Advances in research

There is a growing dialogue that organizational recruitment and retention plans should take generational needs into account (LeVasseur et al., 2009). Factors that influence nurses to consider leaving their jobs appear to differ according to generation, therefore countermeasures of nurse turnover that are age-specific could be more effective. Reasons to consider leaving included imbalance between work and life for Generation X and Y nurses; excess workload for Baby Boomer nurses; and professional privilege such as autonomy, recognition and intellectual stimulation for Generation X nurses (Takase et al., 2009). Leiter et al. (2009) reported that Generation X nurses experience more symptoms of job burnout and are more inclined to change their jobs than their colleagues of the Baby Boomer generation. Focusing on intent to leave among new nurses, Lavoie-Tremblay et al. (2008) highlighted the important issues of lack of social support and the imbalance between effort and rewards such as money, recognition and career opportunities. Interventions to improve the work environment as a whole by addressing the specific needs of new nurses regardless of their ages was advocated for the retention of Generations Y and X nurses (Lavoie-Tremblay et al., 2011).

Most turnover studies examined voluntary turnover by considering only factors inside the organization, with
little consideration as to how external market factors are related to turnover and vacancy rates of nurses. Based on data from a large sample of Canadian hospitals, Rondeau et al. (2008) reported that labor mobility (degree of ease of moving from one job to the next) is associated with both higher turnover and vacancy, in that nurses are less likely to leave in markets where there are fewer employment alternatives. Brewer et al. (2009) adapted a model that explained satisfaction, desire to quit, and turnover in organizations and extended it by including extensive variables related to family conflict, environmental context, and the work setting. Based on their findings, small MSA size (metropolitan statistical area, or region), ease of finding an outside job (movement opportunity), holding an “other” position (that is, a position not in a usual health care setting or a non-nursing position), and work–family conflict were positively related to the desire to quit.

7.2. Methodological limitations and implications

Several study limitations continue to challenge the advancements in turnover research and discovery of new evidence that could potentially inform policy direction in addressing nursing workforce issues. Takase (2010) suggests a clear set of definitions on turnover intention in order to improve the communication of study findings among readers. Rondeau et al. (2008, 2009) report that conceptualization and measurement of organizational turnover is problematic with little consensus in the literature on how turnover should be operationalized – some healthcare organizations actively measure and manage their nursing turnover while others do not, and some jurisdictions collect turnover data at the facility-level while others assemble it at the regional level.

Although turnover intention is one of the best predictors of actual turnover, there is a lack of longitudinal data on actual turnover (Meeusen et al., 2011). Cross-sectional research designs reflect a snapshot in time and cannot examine trends (Leiter et al., 2009; Ma et al., 2009), demonstrate causality between variables of interest (Liou, 2009; Rondeau et al., 2008, 2009), or determine causal direction (Castle and Engberg, 2006). Examination of relationships among variables in conceptual models should involve the use of structural equations because of the complexity of data (Beecroft et al., 2008). Bae et al. (2010) suggested that future turnover researchers consider the use of moderators, a concept distinct from a mediator, which affect the direction and strength of the turnover-outcomes relationship and could be used to explore the turnover-outcomes relationship and provide insight into characteristics of the most at-risk nursing units.

As in previous research reviews, the need for larger sample sizes is identified, given the limitations for generalization with smaller samples (Baernholdt and Mark, 2009; Flinkman et al., 2008). Lavoie-Tremblay et al. (2011) suggested larger samples that include nurses from different academic backgrounds and geographical jurisdictions. Generalizability was reported to be limited to hospitals of similar size, type and geographic location (Lee et al., 2009; Ma et al., 2009; Tschan nen et al., 2010), and is of particular concern in large national studies (Castle and Engberg, 2006). A non-randomized sampling methodology (Chiu et al., 2009), use of a convenience sample (Crossley et al., 2007) and low response rates (Lavoie-Tremblay et al., 2011; Rheaume et al., 2011; Takase et al., 2008) were also reported to be problematic, limiting the ability to generalize study findings. However, when focusing on specific nurse groups (e.g. new graduates), increased homogeneity of the sample would allow for more in-depth analysis related to the unique needs of a particular group (Beecroft et al., 2008).

In several studies, the use of self-reported measures was identified as a limitation threatening validity of the data (Chiu et al., 2009; Crossley et al., 2007). The possibility of skewing of the results due to recall bias or under-reporting was identified (LeVasseur et al., 2009; Ma et al., 2009). Researchers suggest that data based on single source or on perceptions should be examined in association with other sources that include objective data (Ma et al., 2009; Tschan nen et al., 2010). For example, in research by Rondeau et al. (2008, 2009), the data reflected subjective opinions of nurse managers and because the dataset was assembled from a single source, common method variance could potentially confound the results. In another study, Lee et al. (2009) reported that uncontrolled variables, such as personal job satisfaction, organizational commitment and quality management perception may have accounted for turnover rates and indicators of nursing quality.

Response bias can occur where there is a potential for socially desirable responses that are influenced by the nature of recruitment methods to participate. Gardner et al. (2007) reported that nurses were recruited by nurse managers, recommending use of survey distribution strategies that minimize the potential for responses that could be socially desirable was recommended for future studies (e.g., mail surveys to participants’ homes). In the study of new graduates, Rheaume et al. (2011) identified the self-selected sample as a limitation as the survey respondents could have particular characteristics not shared by all new graduates. Based on a quasi-experimental design, Lee et al. (2009) identified a concern as being the Hawthorne effect, in that participants may improve or modify aspects of their behaviour in response to the fact that they are being studied, not in response to any particular experimental manipulation.

7.3. Implications for future research

Longitudinal research is recommended to explore the values that influenced both the decision to quit and their choice of subsequent position/career (Leiter et al., 2010) and to gain a better insight of values and concerns related to different generation cohorts and tenure (Leiter et al., 2009). Such research would include both qualitative and quantitative approaches to identify priorities in the career decision-making process, challenges and behaviors (e.g. high job mobility), variables that influence diminished enjoyment in their jobs, and thoughts about experiences when they begin to think about leaving (Beecroft et al.,
In order to identify a timeframe in which to act on turnover intention, Takase (2010) proposes future study to investigate factors that influence the progress of turnover intention and determine how quickly employees’ psychological responses turn into withdrawal cognitions, behaviours (such as lateness and absenteeism) and actual turnover. LeVasseur et al. (2009) indicates the need for comparative research to examine nurses’ length of employment, attitudes to job, and organizational commitment by generational cohorts at similar stages of the career trajectory. For new graduates, Rheaueme et al. (2011) suggested pre-post test research designs to evaluate effectiveness of transition programs.

As nurse managers influence nurse satisfaction and retention, it is suggested that future research take into consideration the role of the nurse manager, the context in which management turnover occurs, and costs of nurse manager turnover (Bae et al., 2010; Castle and Lin, 2010; Jones and Gates, 2007). As the development and testing of interventions to reduce turnover intention is either still in its infancy or under-reported, future studies should examine specific nurse-retention strategies that are implemented and how those interventions influence work environments and nurses’ intention to remain or leave the organization (Gormley, 2011; Lavoie-Tremblay et al., 2011; Takase, 2010).

The predominance of nurse turnover research continues to take place in acute care settings and does not consider factors external to the organization. Therefore, further efforts are needed to examine turnover of different types of nurses across different settings, as well as the impact of external factors such as labor market opportunities to arrive at a better understanding of societal effects of nurse turnover (Castle and Engberg, 2006; Estryn-Behar et al., 2007; Jones and Gates, 2007). Rondeau et al. (2008) points out that studies that include variables relating to labor market characteristics would be multilevel and involve data collection from health care organizations (e.g. vacancy and turnover rates), individual employees (e.g. satisfaction and commitment), and employee workgroups as well as census or provincial labor market data.

Several researchers emphasize the need to examine the complex interactions between staff turnover and organizational performance in terms of being able to respond to healthcare demands, quality of care, and patient safety costs (Buchan, 2010; Gormley, 2011; Jones and Gates, 2007). Tschannen et al. (2010) states that further work is needed to determine the point at which missed care affects patient and professional outcomes such as intention to leave, and to understand the impact of missed care on patient outcomes and nurse job satisfaction.

Jones and Gates (2007) suggest that a next step could be the quantification of turnover benefits which is necessary in a benefit-cost analysis of nurse turnover; however, a more immediate need is the quantification of nurse retention costs and benefits that include human capital and productivity costs and benefits that relate to retention.

8. Conclusion

Advancements in the nursing turnover research are indicative of ongoing concern about staffing instability in health care organizations. A comprehensive search of recently published studies about nursing turnover was conducted as a follow-up to a previous literature review to examine its determinants and impact on patient, nurse and system outcomes. Research continues to be hindered by methodological challenges, and studies mostly focus on determinants of nurse turnover with evidence lacking as to the impact of actual turnover behavior. Recent studies offer insight into generational factors that should be considered in strategies to promote stable staffing in healthcare organizations. Nursing turnover continues to present serious challenges at all levels of health care. Longitudinal research is needed to produce new evidence of the relationships between nurse turnover and related costs, and the impact on patients and the health care team.

A better understanding of nurse turnover costs and interventions needed to alleviate nursing shortages would ultimately lead to increased organizational capacity for delivery of nursing services.

Appendix A. Studies of nurse turnover determinants

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Purpose</th>
<th>Methods</th>
<th>Key findings</th>
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<tbody>
<tr>
<td>Apker et al. (2009)</td>
<td>Examine relationships among nurse-team communication, identification (organizational and team), and intent to leave.</td>
<td>Hospital nurses (n = 201) completed surveys measuring 3 nurse-team communication processes: promoting team synergy, ensuring quality decisions, and individualizing communication.</td>
<td>Promoting team synergy a significant predictor of intent to leave, partially mediated by team identification or by organizational identification. Further analyses on communication practices for promoting team synergy showed mentoring as only significant predictor of intent to leave; however, mediated by organizational identification or partially mediated by team identification.</td>
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<tr>
<td>Author(s)</td>
<td>Purpose</td>
<td>Methods</td>
<td>Key findings</td>
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<tr>
<td>Baernholdt and Mark (2009)</td>
<td>Determine differences in hospital &amp; nursing unit characteristics, work environment, job satisfaction and turnover rates in rural and urban units.</td>
<td>Rural and urban nursing units were compared in a national random sample of 97 United States hospitals (194 nursing units) with between 99 and 450 beds.</td>
<td>Significant differences between hospital and nursing unit characteristics and the nurse work environment in rural &amp; urban nursing units. Nursing unit characteristics and the work environment were found to have a significant influence on nurse job satisfaction and turnover rates.</td>
</tr>
<tr>
<td>Beecroft et al. (2008)</td>
<td>Determine relationship of new nurse turnover intent with individual characteristics, work environment variables and organizational factors and compare new nurse turnover with actual turnover in 18 months in job following completion of a residency.</td>
<td>Prospective data collection from 1999 to 2006 with 889 new pediatric nurses who completed same residency. Scores on study instruments were related to likelihood of turnover intent using logistic regression analysis models. Relationships between turnover intent and actual turnover were compared using Kaplan–Meier survivorship.</td>
<td>Older respondents more likely to have turnover intent if they did not get ward choice. Higher scores on work environment and organizational characteristics contributed to likelihood that new nurses would not be in the turnover intent group. These factors distinguished new nurses with turnover intent from one without 79% of the time. Increased seeking of social support was related to turnover intent and older nurses more likely to be in the turnover intent group if they did not get their ward choice.</td>
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<tr>
<td>Borkowski et al. (2007)</td>
<td>Identify and evaluate variables that contribute to nurses' intent to leave their profession and the relationships of gender, ethnicity, and educational levels to this intent.</td>
<td>Data from 284 nurses, of which 46% considering leaving profession. Multiple regression analysis to test if certain groups (gender, ethnicity, and education levels) had greater intent to leave, and factors related to subgroup's intent to leave.</td>
<td>Nurses who are male, are White-non-Hispanic, or have less than a master's degree are more inclined to consider leaving the nursing profession. Benefits were a more important consideration for male and White-non-Hispanic nurses regarding their intent to leave the nursing profession.</td>
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<tr>
<td>Boumans et al. (2008)</td>
<td>To establish factors determining early retirement intention.</td>
<td>Cross-sectional study in one Belgian hospital. Questionnaire of 100 nurses aged 45 or older. Response rate 69.9%.</td>
<td>No fewer than 77% wanted to stop working before age 65. The following contributed to intention to retire early: perceived health, marital status, gender, opportunities for change and development, workload, and negative stereotyping of older employees.</td>
</tr>
<tr>
<td>Brewer et al. (2009)</td>
<td>Determine: (1) how do demographics, region (metropolitan statistical area: MSA), movement opportunities, and work setting affect RN intent to work and desire to quit; and (2) how do demographics, MSA, movement opportunities, and work setting affect RNs' work behavior at time 2?</td>
<td>Randomly selected national cluster sample from 40 urban geographic regions (MSAs) in 29 states of the United States. 4000 surveys were sent – 1907 female RNs under 65 (48% response rate) from year 1 of which 1348 responded at year 2 (70% response rate).</td>
<td>The first analyses used desire to quit (explained 65% of variance) and intent to work from year 1 as dependent variables. Satisfaction and organizational commitment significant negative predictors of desire to quit. In logistic regression on intent to work, work motivation and work–family conflict were positive and significant as well as wages (negative) and three benefit variables. In year 2, dependent variable was working or not and if working, full-time or not. For this bivariate probit regression no attitudes influenced the work/not work decision, but MSA level variables, wages (positive) and benefits (positive) did.</td>
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<td>Author(s)</td>
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<td>Camerino et al. (2006)</td>
<td>Explore nurses' perceived work ability and its associations with age and intention to leave nursing in a representative sample of Registered Nurses in 10 European countries.</td>
<td>Cross-sectional design. Questionnaire data from 25,976 nurses in 10 member states of European Union. Overall response rate 52.9% and varied 32.4% to 76.9%. Analysis of covariance and adjusted logistic regression used.</td>
<td>In all 10 countries, scores on Work Ability Index lower among older nurses (≥ 45 years). Low Work Ability Index was associated with intention to leave nursing, especially in younger nurses. Association between work ability and intention to leave most for items which explored subjective rather than objective aspects of work ability.</td>
</tr>
<tr>
<td>Camerino et al. (2008)</td>
<td>Investigate whether perceived work ability is a predictor for different types of thinking of quitting and for actual exit from the workplace.</td>
<td>Prospective study of 3329 nurses responding to both measurements of Nurses' Early-Exit Study. Stratified sample of organizations, from which all 7447 nurses recruited. Baseline survey 5504 nurses. Follow-up response rate 63.4%. 255 nurses left job during study.</td>
<td>Nurses &lt; 45 years, work ability predictor of thinking of quitting, but not exit: lower perceived work ability associated with higher desire for further education and/or change workplace or profession. In contrast, among nurses &gt; 45, only actual exit predicted by lower work ability scores, along with perception of larger availability of free nursing posts in the region.</td>
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<tr>
<td>Castle and Engberg (2006)</td>
<td>Examine association between certified nurse aide, licensed practical nurse, and registered nurse turnover and organizational characteristics.</td>
<td>Hypothesis examined for 8 organization characteristics. Online Survey, Certification and Reporting data. Turnover information from 854 nursing homes in 6 states.</td>
<td>1-year turnover rates 56.4%, 39.7%, and 35.8% for certified nurse aides, licensed practical nurses, and registered nurses. For all caregivers, lower staffing levels, lower quality, for-profit ownership, and higher bed size associated with higher turnover.</td>
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<tr>
<td>Chan et al. (2009)</td>
<td>To investigate factors associated with nurses’ intention to leave employment in Macao.</td>
<td>Descriptive, self-report questionnaire. Nurses recruited in one private hospital.</td>
<td>Of 426 nurses, 166 (39.0%) indicated intention to leave employment. Age, work experience, workplace &amp; job satisfaction: pay and benefits risk factors to predict nurses’ intention to leave.</td>
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<td>Chiu et al. (2009)</td>
<td>Examine influence of job demand, job control, and social support on nurse turnover intent.</td>
<td>373 hospital clinical nurses in northern, central, and southern Taiwan surveyed.</td>
<td>Nurses in high job demand and low-control work situations reveal highest turnover intention. Job-related social support may decrease this turnover rate.</td>
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<td>Delobelle et al. (2011)</td>
<td>Correlational study of the relationships between demographic variables, job satisfaction, and turnover intent among primary healthcare nurses in a rural area of South Africa.</td>
<td>Cross-sectional survey in all local primary healthcare clinics, including nurses on duty (n = 143). Scale development, ANOVA, Spearman’s rank correlation, and logistic regression were applied.</td>
<td>Half considered turnover within 2 years, of which 3 in 10 considered moving overseas. Job satisfaction associated with unit tenure, professional rank and turnover intent. Turnover intent more likely in younger and higher educated. Satisfaction with supervision explained turnover intent when controlling for age, education, years of nursing and tenure.</td>
</tr>
<tr>
<td>Duffield et al. (2009b)</td>
<td>To discusses factors impacting on nurses' job satisfaction, satisfaction with nursing and intention to leave in public sector hospitals in New South Wales (NSW), Australia.</td>
<td>Staffing and patient data collected on 80 medical and surgical units. Included individual nurse data from a Nurse Survey; staffing data including skill mix; patient characteristics; workload data; a profile of the ward's characteristics; and adverse event patient data.</td>
<td>More likely to indicate intent to leave if bachelor degree or higher; if expected to lose job. More likely to leave the greater the proportion of shifts where tasks delayed, and more involuntary overtime. Nurses less likely to leave were more likely to be satisfied with job, older, have dependents and good leadership. Nurses working on wards with allied health staff were less likely to leave.</td>
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## Appendix A (Continued)

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<th>Author(s) (year)</th>
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<tr>
<td>Duffield et al. (2011)</td>
<td>To examine impact of leadership characteristics of nursing unit managers, as perceived by staff nurses, on staff satisfaction and retention.</td>
<td>Secondary analysis of data from 94 randomly selected wards in 21 public hospitals across two Australian states. All nurses (n = 2488, 80.3% response rate) on the selected wards asked to complete a survey. Wards were divided into those reporting either positive or negative leadership.</td>
<td>Less than 1/3 intended to leave in next 12 months. Influences of intent to leave were “Praise and recognition for a job well done” and “A nurse manager or immediate supervisor who is a good manager and leader”. Nursing managers perceived to be good leaders, visible, consulted with staff, provided praise and recognition, and flexible work schedules distinguished the positive and negative wards. To be rated as positive overall, nurse leaders need to perform well on all the leadership items.</td>
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<tr>
<td>Estryn-Behar et al. (2007)</td>
<td>To clarify association of social work environment, teamwork characteristics, burnout, and personal factors with nurses’ intent to leave (ITL).</td>
<td>28,561 hospital nurses from 10 European countries: registered nurses (n = 18,594), specialized nurses (n = 3957), head nurses (n = 3256), and nursing aides and ancillary staff (n = 2754).</td>
<td>Quality of teamwork, interpersonal relationships, career possibilities, uncertainty regarding treatment, and influence at work associated with decision to leave profession. Lack of teamwork – 5 fold risk of ITL in 7 countries. High burnout – 3 times risk of ITL in 5 countries.</td>
</tr>
<tr>
<td>Flinkman et al. (2008)</td>
<td>To discover what proportion of young nurses intends to leave the profession in Finland and what the reasons behind this are?</td>
<td>Quantitative survey in 6 hospital districts in Finland. 147 Registered Nurses &lt; 30 years working mainly in hospitals. Data was collected as part of the NEXT (Nurses Early Exit) – Study. Analysis using χ², the Fisher exact-test and Mann–Whitney U-test.</td>
<td>In past year, 26% often thought leaving nursing, associated with personal burnout, poor development opportunities, lack of affective professional commitment, low job satisfaction, work–family conflicts and higher quantitative work demands. Reasons for considering leaving included dissatisfaction with salary, demands of work, shift work/working hours and uncertain work status.</td>
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<tr>
<td>Frijters et al. (2007)</td>
<td>To estimate duration models of quitting decision of NHS nurses: identify their characteristics; establish importance of wages in quitting decision; and document their labour market destinations.</td>
<td>Sample from Quarterly Labour Force Survey, each household five surveys. Single &amp; competing risks duration models to establish characteristics of nurses who leave public sector, distinguish importance of pay and document their destinations.</td>
<td>Hourly wage of nurses outside of the NHS is around 20% lower than in the NHS, and hours of work are about the same. However, while effect of wages statistically significant, the predicted impact of an increase in nurses’ pay on retention rates is small. Current nurse retention problem in the NHS unlikely to be eliminated through substantially increased pay.</td>
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<tr>
<td>Gardner et al. (2007)</td>
<td>Examine relationships between nurses’ perceptions of dialysis work environments, intent to leave jobs, nurse turnover, patient satisfaction, &amp; patient hospitalization rates.</td>
<td>Descriptive, correlational design. 199 registered nurses in 56 facilities. Correlation coefficients and independent t-tests.</td>
<td>Nurses who expressed intention to leave their jobs rated work environment more negatively compared to nurses who intended to stay. Significant correlations between nurses’ perceptions of dialysis work environment, intention to leave jobs, nurse turnover rates, and patient hospitalizations.</td>
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<tr>
<td>Gormley (2011)</td>
<td>Examine differences in perceptions of work environment &amp; quality of care between nurse managers and staff nurses, &amp; relationship between perceptions of work environment and intention to leave.</td>
<td>Cross-sectional, non-experimental design. 336 nurses and managers from two hospitals. Data were analyzed for descriptive statistics, Analysis of Variance, and Pearson’s correlation.</td>
<td>Significant differences found between nurses and managers on perceptions of work environment. Managers rated work environment higher than staff on all subscales. Work environment related to anticipated turnover.</td>
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<tr>
<td>Hauck et al. (2011)</td>
<td>Examine relationship between perceptions of structural empowerment and anticipated turnover among critical care nurses.</td>
<td>Sample of 257 nurses completed questionnaire, the Conditions of Work Effectiveness Questionnaire-II (CWEQ-II) and the Anticipated Turnover Scale (ATS).</td>
<td>Nurses in five critical care units perceived themselves to be moderately empowered. Structural empowerment was inversely related to anticipated turnover; those who were more empowered had a lower anticipated turnover score.</td>
</tr>
<tr>
<td>Hwang and Chang (2009)</td>
<td>To examine the impact of work climate perception (WCP) on turnover intention among public hospital personnel in Korea.</td>
<td>Cross-sectional survey conducted of employees (n = 852) in 4 public hospitals in Korea: WCP, intention to leave and demographics. For each occupation, logistic regression analyses performed to determine significant factors of WCP that influenced turnover intention.</td>
<td>Positive WCP inversely influenced turnover intent. For all occupations, most significant factor 'workgroup friendliness and warmth'. For nursing, an additional factor was 'adherence to job standard'. Different significant factors for other staff: 'workgroup esprit de corps' and 'role clarity' for physicians, 'adherence to job standard' and 'role adaptation' for para-medicals, and 'flexibility and innovation' and 'interdepartmental cooperation' for administrators.</td>
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<tr>
<td>Lavoie-Tremblay et al. (2008)</td>
<td>To investigate the relationship between dimensions of the psychosocial work environment and the intent to quit among a new generation of nurses.</td>
<td>A self-administered questionnaire was distributed to 1002 nurses.</td>
<td>The nurses who intended to quit their positions perceived a significant effort/reward imbalance as well as a lack of social support. The nurses who intended to quit the profession perceived a significant effort/reward imbalance, high psychological demands and elevated job strain.</td>
</tr>
<tr>
<td>Lavoie-Tremblay et al. (2011)</td>
<td>Correlational descriptive study to investigate which domains of the nursing practice work environment influence the intent to leave a job among Generation Y new nurses.</td>
<td>Of the 145 participants, majority women (n = 124; 85.5%). 86 participants were 24 years or younger (58.3%), the Generation Y. Fifty-nine between 25 and 44 years old (40.7%), the Generation X.</td>
<td>Significant correlations between low scores on the subscales of PES-NWI (&quot;nurse participation in hospital affairs,&quot; &quot;nursing foundations for quality care,&quot; and &quot;collegial nurse physician relations&quot;) and intention to quit the current nursing position. Significant results obtained for all five subscales when they were associated with the intent to quit the profession.</td>
</tr>
<tr>
<td>Leiter and Maslach (2009)</td>
<td>Tested whether the mediation model of burnout could predict nurses' turnover intentions.</td>
<td>Data on areas of worklife, burnout, and turnover intentions collected by surveying 867 Canadian nurses in Atlantic Provinces.</td>
<td>Findings supported mediation model of burnout; areas of worklife predicted burnout, which in turn predicted turnover intentions. Cynicism the key burnout dimension for turnover, and the critical areas of worklife were value conflicts and inadequate rewards.</td>
</tr>
<tr>
<td>Leiter et al. (2009)</td>
<td>Examines contrasting role of work values for nurses from two generations: Baby Boomers and Generation X</td>
<td>Survey of Generation X (n = 255) and Baby Boomer (n = 193) nurses, contrasted responses on job burnout, areas of work life, knowledge transfer and intention to quit.</td>
<td>Analysis identified greater person/organization value mismatch for Generation X nurses than for Baby Boomer nurses. Their greater value mismatch associated with a greater susceptibility to burnout and a stronger intention to quit for Generation X nurses.</td>
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<th>Author(s)</th>
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<tr>
<td>Leiter et al. (2010)</td>
<td>Replicate finding of Leiter et al. [(2008) <em>Journal of Nursing Management</em>, 16, 100–109.] of Gen X (n = 338) reporting higher distress than Baby Boomer (n = 139) nurses. Test whether Generation X nurses report more negative social environments at work than Baby Boomer nurses.</td>
<td>Survey of nurses organized by generation. Analyses of variance contrasted the scores on burnout, turnover intention, physical symptoms, supervisor incivility, coworker incivility and team civility.</td>
<td>Results confirmed hypotheses of Generation X nurses reporting more negative experiences than Baby Boomer nurses on all measures. The negative social encounters at work contribute to nurses' experience of distress and suggest conflicts of values with the dominant culture of their workplaces.</td>
</tr>
<tr>
<td>LeVasseur et al. (2009)</td>
<td>Identify reasons of registered nurse turnover by generational cohort (Veterans, Baby Boomers, and GenXMs) and to compare the length of time nurses were employed in their first five nursing positions by generational cohort.</td>
<td>Starting with most recent position, nurses asked to provide information on year started, type of position, type of work setting, length of time to obtain position, length of time employed in the position, and reason for leaving the position (open ended). 3015 survey respondents represented 19% of the RNs licensed by the State of Hawaii Board of Nursing in June 2005. ANOVAs</td>
<td>Relocation highest ranked reason of leaving by three cohorts, with Veterans highest frequency in first job. Changing positions to advance second highest ranked reason why left, with GenXMs highest frequency in first job. Veterans reported least dissatisfaction of three cohorts. GenXMs higher frequency of dissatisfaction in first two positions. Baby Boomers greater dissatisfaction with each subsequent change. All cohorts similar pattern of leaving to improve condition/pay in first three positions. Greater percent of GenXMs left 4th and 5th jobs to improve condition/pay. Frequency that left to further education low in cohorts, most common during the first two nursing positions. Greater proportion of Baby Boomers left 3rd, 4th and 5th positions to pursue education.</td>
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<tr>
<td>Li et al. (2010)</td>
<td>Hypothesis is that unfavorable psychosocial work environment could predict nurses' intention to leave (ITL).</td>
<td>Collaborating with NEXT study, longitudinal study in China, psychosocial work environment measured. 3088 hospital nurses at baseline, multivariate logistic regression; 1521 one-year later, multivariate Poisson regression.</td>
<td>Increased emotional demands, decreased meaning of work, decreased commitment to the workplace, and decreased job satisfaction associated with ITL in both baseline analyses and prospective analyses after adjusting for confounders.</td>
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<tr>
<td>Ma et al. (2009)</td>
<td>Compare nurse characteristics, level of job satisfaction, and perception of quality of patient care between those who intended to stay and those who intended to leave their current job and to identify the factors that predicted intention to leave their current job.</td>
<td>Cross-sectional survey in a non-profit organization affiliated with the Presbyterian Church in 4 hospitals in Taiwan. A total of 1607 questionnaires administered with 1019 returned, yielding a response rate of 63.4%. Logistic regression analysis.</td>
<td>More than 1/3 of the nurses considered leaving their jobs, factors included wage dissatisfaction and work shift. Nurses with 5-year junior college degrees higher inclination to leave job than if bachelor degrees. Nurses who intended to stay had higher quality of patient care perceptions than if likely to report intention to leave. Nurses who intended to leave greater number of reported incidents than those who did not. Age, evening shift, and job satisfaction significant in predicting whether or not intended to leave job.</td>
</tr>
<tr>
<td>McCarthy et al. (2007)</td>
<td>Investigate registered nurses 'intent to stay or leave' employment.</td>
<td>Cross-sectional quantitative design. Questionnaire randomly distributed to 352 registered nurses at 10 hospital sites throughout Republic of Ireland.</td>
<td>Almost 60%, comprising young, female, college educated nurses, expressed intent to leave their current post. Most significant predictors of intent to leave were 'kinship responsibilities' and 'job satisfaction'.</td>
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<tr>
<td>Meeusen et al. (2011)</td>
<td>Investigated how work environment characteristics and personality dimensions relate to burnout and job satisfaction and ultimately to turnover intention among.</td>
<td>Online self-reporting survey of Dutch nurse anaesthetists to assess personality dimensions, work climate, work context factors, burnout, job satisfaction, and turnover intention. Structural equation modeling.</td>
<td>923 questionnaires completed (46% response rate). Burnout mediated relationship between personality dimensions and turnover intention; job satisfaction mediated relationship of work climate and work context factors to turnover intention.</td>
</tr>
<tr>
<td>O’Brien-Pallas et al. (2006a)</td>
<td>Compare views of nurse executives with those of nurses who have left the profession on the importance of retention strategies.</td>
<td>Factor analysis to compare responses of nurse executives with those of nurses employed outside of nursing.</td>
<td>Contract requirements represented greatest discrepancy, followed by legal and employer issues; worklife/home-life balance; external values and beliefs about nursing; and professional practice. Disparity between perceptions of nurse executives &amp; nurses who left profession as to most critical retention issues.</td>
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<tr>
<td>Rajapaksa and Rothstein (2009)</td>
<td>Hypothesizes that the different retention rates of men and women explained in part by their different gender roles and careers goals.</td>
<td>Secondary analysis of registered nurses who left nursing for other occupations in the National Sample Survey of Registered Nurses, 2000.</td>
<td>3 reasons cited most by male and female nurses: better salaries in current type of position, hours more convenient in other position, and current position more rewarding professionally. Men 2.5 times more likely than women to cite better salaries as a reason for leaving nursing.</td>
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<tr>
<td>Raup (2008)</td>
<td>Determine what types of leadership styles were used by ED nurse managers in hospitals and examine influence on staff nurse turnover and patient satisfaction.</td>
<td>Multifactor Leadership Questionnaire. Completed surveys (15 managers and 30 staff nurses) representing 15 out of 98 possible U.S. academic health centers.</td>
<td>A trend of lower staff nurse turnover with transformational leadership style compared to non-transformational leadership styles was identified. However, the type of leadership style did not appear to have an effect on patient satisfaction.</td>
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<tr>
<td>Rheaume et al. (2011)</td>
<td>Examine proportion of new graduate nurses' intent to leave current position and examine the relationship between transition programs, empowerment, work environment and intent to leave.</td>
<td>Survey data was collected with new graduate nurses over a 5-year period, beginning in 2004 and ending in 2008. A total of 348 new graduate nurses were surveyed in eastern Canada.</td>
<td>49.6% of the new graduate nurses did not intend to leave employer, 4.9% planned to leave and 45.5% expressed different levels of uncertainty. Regression analysis indicated that a component of the work environment, foundations for quality nursing care, and a component of psychological empowerment, goal internalization explained, 24% of the variance of intent to leave.</td>
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<tr>
<td>Rondeau et al. (2008)</td>
<td>Test a model showing the relationships of organization-market fit and 3 local labor market factors with turnover and vacancy.</td>
<td>The model is tested using ordinary least squares regression with data collected from 713 Canadian hospitals and nursing homes.</td>
<td>Results suggest that, although modest in their impact, labor market and the organization-market fit factors do make significant yet differential contributions to turnover and vacancy rates for registered nurses.</td>
</tr>
<tr>
<td>Rondeau et al. (2009)</td>
<td>Investigate the impact that increasing human capital through staff training makes on the voluntary turnover of registered nurses.</td>
<td>Questionnaire of chief nursing officers of 2208 hospitals and long-term care facilities in every province and territory of Canada. Response rate 32.3%. Three-step hierarchical regression with two sets of control variables.</td>
<td>After controlling for establishment demographics and local labour market conditions, perceptions of nursing human capital and the level of staff training provided were modestly associated with lower levels of establishment turnover.</td>
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<tr>
<td>Sellgren et al. (2007)</td>
<td>Study relationship between leadership of nursing managers and staff turnover with respect to the intervening variables “work climate” and “job satisfaction.”</td>
<td>Three questionnaires to assess perceived leadership behaviour, work climate and job satisfaction. Data on turnover from computerized system. Correlation, regression analyses and analyses of variance.</td>
<td>Strong correlation between leadership behaviour, work climate and job satisfaction. No significant direct relation between leadership behavior and staff turnover. Staff turnover correlated with the job satisfaction variable “feeling”, and work climate variables “challenge” and “playfulness”.</td>
</tr>
<tr>
<td>Stewart et al. (2011)</td>
<td>Explored predictors of intent to leave (ITL) a nursing position in all rural and remote practice settings in Canada.</td>
<td>National cross-sectional mail survey of RNs in rural and remote Canada provided the data (n = 3051) for the logistic regression analysis of predictors of ITL.</td>
<td>RNs more likely to leave position in next 12 months if: were male, higher stress, no dependent children or relatives, had higher education, employed by primary agency for shorter time, lower community satisfaction, dissatisfaction with job scheduling, lower satisfaction with autonomy, required to be on call, performed advanced decisions or practice, and worked in a remote setting.</td>
</tr>
<tr>
<td>Stone et al. (2006)</td>
<td>To estimate the incidence of intensive care units nurses’ intention to leave due to working conditions; and identify factors predicting this phenomenon.</td>
<td>Cross-sectional design. 2323 RNs from 66 hospitals and 110 critical care units surveyed across the nation.</td>
<td>On average, the RN was 39.5 yrs old, had 15.6 yrs experience in healthcare, worked in current position 8.0 yrs. 17% (n = 391) indicated intent to leave position in next year. Of those, 52% (n = 202) due to working conditions. Organizational climate factors with independent effect on intention to leave due to working conditions were professional practice, nurse competence, and tenure.</td>
</tr>
<tr>
<td>Stone et al. (2007)</td>
<td>To investigate causes of nurse intention to leave (ITL), also considering organizational climate (OC) in intensive care units (ICUs) and policy implications.</td>
<td>Nurse surveys, hospital administrative data, public use, and Medicare files. Survey of 837 nurses in 39 adult ICUs from 23 hospitals located in 20 separate metropolitan statistical areas.</td>
<td>15% indicated ITL in coming year. Based on the structural model, nurses’ ITL contributed little if anything directly to OC, but that OC and the tightness of the labor market had significant roles in determining ITL. OC affected by average regionally adjusted ICU wages, hospital profitability, teaching, and Magnet status.</td>
</tr>
<tr>
<td>Takase et al. (2006)</td>
<td>Investigate the impact of role discrepancy on nurses' intention to quit their jobs.</td>
<td>Correlational design. 346 Australian nurses completed questionnaire. Results were analyzed by r-test, polynomial regression and response surface analysis.</td>
<td>Increased intention to quit when low desire to engage in nursing roles and when only performed a few roles. Role discrepancy in use of nursing skills (ex. decision making, patient education and emotional support) little impact on turnover intention. Role discrepancy in task delegation showed significant association with intention to leave jobs.</td>
</tr>
<tr>
<td>Takase et al. (2008)</td>
<td>Investigate how work values, perceptions of environmental characteristics, and organizational commitment related to nurse intent to leave.</td>
<td>Convenience sample of 849 Registered Nurses from 3 hospitals in Japan during 2006, 319 returned (response rate 39%). Data analyzed using regression analysis.</td>
<td>When match between importance of being able to challenge clinical practices and number of opportunities to do so, leaving intentions low. When mismatch, intention to quit stronger. Organizational commitment intervened between match in clinical challenges and leaving intent.</td>
</tr>
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</table>
### Appendix A (Continued)

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Purpose</th>
<th>Methods</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tei-Tominaga and Miki (2010)</td>
<td>Examine factors associated with intentions to leave among newly graduated nurses (NGNs), using a longitudinal design.</td>
<td>Surveys of NGNs (n = 567) in 9 hospitals on 2 occasions 6 months apart: employment &amp; organization factors, subjective health, Job Content Questionnaire, intentions to leave and job readiness scale. Data from 301 NGNs who did both surveys used, hierarchical multiple regression analysis.</td>
<td>While psychological distress more important predictor than cumulative fatigue at Time 1, cumulative fatigue more important at Time 2. Lack of co-worker support led to increased intentions to leave, while lack of supervisor support greater impact on intentions to leave at Time 1. “Being personally suited for nursing work”, a job-readiness subscale, influence intentions to leave.</td>
</tr>
<tr>
<td>Tschannen et al. (2010)</td>
<td>Examine relationship between missed nursing care, nurse turnover, and intention to leave.</td>
<td>Cross-sectional study, MISSCARE Survey in 110 patient units in 10 hospitals. Staffing data, turnover rates, and unit-level Case Mix Index from hospitals.</td>
<td>Higher % females on unit associated with lower turnover. Units with higher rates missed care and absenteeism had more staff with intention to leave. Units with staff working overtime and &gt;35 years old less likely to have intention to leave.</td>
</tr>
<tr>
<td>Zeytinoglu et al. (2006)</td>
<td>To examine effects of job preference, unpaid overtime, importance of earnings, and stress in retaining nurses in their employing hospitals and in the profession.</td>
<td>Data come from our survey of 1396 nurses employed in three teaching hospitals in Southern Ontario, Canada. Data are analyzed first for all nurses, then separately for full-time, part-time, and casual nurses.</td>
<td>With regards to retention, preferred type of job important, particularly for part-time. Unpaid &amp; longer than agreed hours increased likelihood of part-time nurses leaving profession. All nurses less likely to leave as importance of earnings for the family increases, but it is particularly important for part-time nurses.</td>
</tr>
<tr>
<td>Zeytinoglu et al. (2007)</td>
<td>Examine associations between deteriorated external work environment, heavy workload and nurses’ job satisfaction and turnover intention.</td>
<td>Surveys of 1396 nurses employed in 3 hospitals in Ontario. Data analyzed first for all nurses, then separately for full-time, part-time, and casual nurses. External work environment refers to decisions outside hospital, limited resources and budget cuts.</td>
<td>When perceive deteriorated external work environment and heavy workload, have low job satisfaction. Low job satisfaction and heavy workload, in turn, associated with turnover intent. When deteriorated external work environment, more inclined to stay. When examined separately, effect of external work environment and workload different on intent for full-time, part-time and casual.</td>
</tr>
<tr>
<td>Zurmehly et al. (2009)</td>
<td>Explore relationship between nurse empowerment and intent to leave job and/or profession.</td>
<td>Web-based survey of 1355 registered nurses.</td>
<td>Relationships found between empowerment and intent to leave the current position and intent to leave the profession.</td>
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</table>

### Appendix B. Studies of nurse turnover consequences

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Purpose</th>
<th>Methods</th>
<th>Key findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Castle et al. (2007)</td>
<td>Used data from a large sample of nursing homes to examine the association between staff turnover and quality.</td>
<td>Staff turnover measures from primary data from 2840 nursing homes (71% response rate). 14 indicators of care quality from Nursing Home Compare Web site.</td>
<td>Reducing turnover from high to medium levels associated with increased quality, but the evidence mixed regarding quality improvements from further lowering turnover to low levels.</td>
</tr>
<tr>
<td>Author(s) and Year</td>
<td>Study Title</td>
<td>Methodology</td>
<td>Findings/Conclusion</td>
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<tr>
<td>Castle and Lin (2010)</td>
<td>Relationships examined among top management turnover (administrators &amp; directors of nursing), staff number &amp; types, and quality indicators.</td>
<td>Primary data from 2940 nursing homes, and 14 quality indicators from the Nursing Home Compare. Structural equation modeling to model direct &amp; indirect relationships.</td>
<td>High nursing home administrator turnover for four quality indicators are significantly associated with poor quality. Contrast with those for director of nursing turnover, with high director of nursing turnover for three quality indicators associated with better quality.</td>
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<tr>
<td>Duffield et al. (2009a)</td>
<td>Potential outcomes of churn for patients and staff, and strategies to manage units faced with this staffing instability, discussed.</td>
<td>40 wards surveyed on two occasions from 4 to 17 months apart. All staff surveyed on round one and only those new to unit surveyed on round two.</td>
<td>Changes to skill mix and the proportions of full-time, agency, and temporary staff present challenges in providing clinical leadership, scheduling staff, performance management, and supervision.</td>
</tr>
<tr>
<td>Jones et al. (2009)</td>
<td>Examine perceptions of nurses, managers, and nurses in other roles to understand how nurse executive turnover affects work environment and patient care.</td>
<td>An online survey to gather participants' views. 1277 hospital nurses responded to survey.</td>
<td>Reported that their CNO listened and responded to staff and backed up staff in decision making, even when doing so involved conflicts with physicians. Also perceived that CNO not always visible on units and accessible to staff and had less power and authority than other top-level hospital executives in the organization.</td>
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<tr>
<td>Lee et al. (2009)</td>
<td>Design preceptorship program and evaluate effects on turnover rate, turnover cost, quality of care and professional development.</td>
<td>Quasi-experimental design. Preceptorship program to establish preceptor role &amp; responsibilities. Measured new nurse turnover, cost, care quality, satisfaction of preceptor teaching.</td>
<td>After preceptorship program, turnover rate was 46.5% less than previous year. Turnover cost decreased by US$186,102. New nurse medication error rates dropped from 50 to 0%, and rates of adverse events and falls decreased. New nurses satisfied with preceptor guidance.</td>
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<tr>
<td>Kash et al. (2006)</td>
<td>Examine effects of facility and market-level characteristics on staffing levels and turnover rates for direct care staff, and effect of staff turnover on staffing levels.</td>
<td>Cross-sectional data from 1014 nursing homes. After examining factors associated with staff turnover, tested significance and impact of staff turnover on staffing levels for registered nurses (RNs), licensed vocational nurses (LVNs) and certified nursing assistants (CNAs).</td>
<td>With three staff types, strong dependency on resources, such as reimbursement rates and facility pay or mix. Ratio contracted to employed nursing staff as well as RN turnover increased LVN turnover rates. CNA turnover reduced by higher administrative expenditures and higher CNA wages. Turnover rates significantly reduced staffing levels for RNs and CNAs. LVN staffing levels not affected by LVN turnover but influenced by market factors such as availability of LVNs and women in the labor force.</td>
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<tr>
<td>North and Hughes (2006)</td>
<td>Report on availability and usability of New Zealand public hospital data to calculate registered nurse turnover and its costs.</td>
<td>Pilot study, retrospective design to test an instrument for measurement of nursing turnover and to refine methodology for use in a national longitudinal study. Setting was two nursing units in one public hospital, with six-month period of data collection.</td>
<td>Data varied between and within hospitals, difficult to identify and disaggregate from other data, sometimes unavailable. RN turnover rate 10.2% (lower than the 18.2% for all health professional staff; excess of new appointments suggested that data collection began with vacancies). Turnover cost just under $29,000, with largest contributor to cost temporary replacement, followed by orientation and training.</td>
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<tr>
<td>O’Brien-Pallas et al. (2006b)</td>
<td>An international pilot study to refine a methodology to examine the costs associated with nurse turnover.</td>
<td>Survey of medical and surgical unit managers, with items relating to budgeted full-time equivalents, new hires, and turnover, as well as direct and indirect costs.</td>
<td>Average cost of turnover per nurse was $21,514 and mean turnover rate was 9.49%. Highest mean direct cost incurred through temporary replacements, while the highest indirect cost was decreased initial productivity of the new hire.</td>
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</table>
O’Brien-Pallas et al. (2010) examines the impact and key determinants of nurse turnover in Canadian hospitals and implications for management strategies in nursing units. Data sources included the nurse survey, unit managers, medical records and human resources databases. A broad sample of hospitals was represented with nine different types of nursing units included. Mean turnover rate of 19.9%. Higher levels of role ambiguity and role conflict associated with higher turnover rates. Increased role conflict and higher turnover rates associated with deteriorated mental health. Higher turnover associated with lower job satisfaction. Higher turnover and higher level of role ambiguity associated with increased likelihood of medical error.

References


