

NEW GRADUATE NURSE BURNOUT DEVELOPMENT

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IMPACT STATEMENT

Our results highlight the need for authentic leadership and empowering, supportive working conditions with adequate staffing in order to help mitigate work-life interference and subsequent burnout development and its negative effects. This study showed that short-staffing and work-life interference are related work-life factors that influence new graduate nurse burnout leading to job dissatisfaction and lower patient care quality. Given the importance of staffing levels on new graduate nurse work-life interference and burnout development over the first year of practice, managers must work closely with staff and senior management to develop strategies to address nurse staffing and scheduling conflicts in advance.

Factors influencing new graduate nurse burnout development, job satisfaction, and patient care quality: A time-lagged study

Abstract

Aim: To test a hypothesized model linking new graduate nurses' perceptions of their manager's authentic leadership behaviours to structural empowerment, short-staffing, and work-life interference, and subsequent burnout, job satisfaction, and patient care quality.

Background: Authentic leadership and structural empowerment have been shown to reduce early career burnout among nurses. Short-staffing and work-life interference are also linked to burnout and may help explain the impact of positive, empowering leadership on burnout, which in turn influences job satisfaction and patient care quality.

Design: A time-lagged study of Canadian new graduate nurses was conducted.

Methods: At Time 1, surveys were sent to 3,743 nurses (November 2012 to March 2013) and 1,020 were returned (27.3% response rate). At Time 2 (May to July 2014), 406 nurses who responded at Time 1 completed surveys (39.8% response rate). Descriptive analysis was conducted in SPSS. Structural equation modeling in Mplus was used to test the hypothesized model.

Results: The hypothesized model was supported. Authentic leadership had a significant positive effect on structural empowerment, which in turn, decreased both short-staffing and work-life interference. Short-staffing and work-life imbalance subsequently resulted in nurse burnout, lower job satisfaction, and lower patient care quality one year later.

Conclusion: The findings suggest that short-staffing and work-life interference are important factors influencing new graduate nurse burnout. Developing nurse managers' authentic leadership behaviours and working with them to create and sustain empowering work

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environments may help reduce burnout, increase nurse job satisfaction and improve patient care quality.

Keywords: Authentic Leadership, Burnout, Job Satisfaction, New Graduate Nurses, Nursing, Patient Care Quality, Short-staffing, Structural Empowerment, Work-life Interference

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SUMMARY STATEMENT

Why is this research needed?

- Given the damaging effects of burnout on nurses and patients and new graduate nurses' high risk of developing burnout early in their career, every effort must be made to understand how burnout develops and can be prevented among this important employee group.
- Authentic leadership and structural empowerment have been shown to reduce early career burnout among nurses. New graduate nurses consistently report high levels of stress and difficulty finding work-life balance due to heavy workloads, which are often exasperated by short-staffing. Thus, staffing adequacy and work-life interference are additional work-life factors that may help explain the impact of positive, empowering leadership on burnout and subsequent outcomes.

What are the key findings?

- New graduate nurses' perceptions of authentic leadership were positively linked to structurally empowering working conditions, which, in turn, negatively influenced short-staffing and work-life interference.
- Short-staffing and work-life interference predicted burnout development one year later, with short-staffing increasing burnout both directly and indirectly, through its effect on work-life interference.
- Burnout amongst new graduate nurses negatively affects job satisfaction and patient care quality, while job satisfaction positively influences patient care quality.
- Short-staffing and work-life interference were significant mediators of the relationship between authentic leadership, structural empowerment, and new graduate nurse burnout.

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How should the findings be used to influence policy/practice/research/education?

- Providing leadership development and mentorship opportunities that focus on building managers' authentic leadership abilities and skills should be an important priority for healthcare organizations
- Managers should work to understand the needs of their employees in order to create structurally empowering work environments that provide new graduate nurses with access to information, support, resources, and opportunities to learn and develop that will empower them to accomplish their work in meaningful ways.
- Managers need to recognize the link between inadequate staffing, work-life interference, and new graduate nurse burnout. Furthermore, organizational support is needed to provide managers with the resources and discretion to staff their units adequately.
- Where possible, implementing flexible work schedules such as self-scheduling may minimize work-life interference and promote work-life balance for new graduate nurses.

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INTRODUCTION

In healthcare, the negative effects of job burnout are far-reaching, affecting employees and organizations, and threatening patient care quality and patient safety. New graduate nurses experience high levels of job stress (Cheng *et al.* 2015, Parker *et al.* 2014) and are especially vulnerable to burnout early on in their careers when they are learning to cope with the demands of their new professional role (Rudman & Gustavsson 2011, Laschinger *et al.* 2015). Early career burnout in nursing has been linked to poor personal and organizational outcomes for nurses including job and career dissatisfaction (Laschinger 2012), reduced mental and physical health (Aiken *et al.* 2002), and increased turnover intentions (Boamah & Laschinger 2015, Leiter & Maslach 2009). Nurse burnout also negatively affects patient outcomes including healthcare-related infections (Galletta *et al.* 2016) and quality of care and adverse events (van Bogaert *et al.* 2014). Given the damaging effects of burnout on nurses and patients, and new graduate nurses' high risk of developing burnout early in their career, every effort must be made to understand how burnout develops and can be prevented among this important employee group.

Work environment characteristics, such as positive leadership and structural empowerment, have been identified as important factors influencing burnout development among new graduate nurses (Laschinger & Fida 2014, Laschinger *et al.* 2013, Wong & Laschinger 2013). In addition, nurses' perceptions of transformational leadership and structurally empowering working conditions have been associated with nurse staffing adequacy (Manojlovich & Laschinger 2007, Pineau-Stam *et al.* 2015) and work-life interference (Munir *et al.* 2011), two important factors thought to contribute to burnout development. Aiken *et al.* (2002, 2012) identified staffing inadequacy as an important characteristic of healthcare work environments that contributes to burnout among nurses and negatively impacts patient care

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outcomes. Inadequate staffing and unrealistic workloads have also been linked to increased burnout among new graduate nurses and are believed to have detrimental effects on patient care quality (Laschinger & Fida 2015), as well as nurses' job satisfaction and retention (Pineau-Stam *et al.* 2015). Furthermore, inadequate nurse staffing levels result in longer working hours, excessive workloads, irregular work schedules, and even mandatory overtime (Aiken *et al.* 2002, Duffield *et al.* 2011). High job demands, such as work overload and insufficient resources, increase job stress, which in turn, elevate burnout risk (Burke & Greenglass 2001, Leineweber *et al.* 2014), and work-family conflict (Grzywacz *et al.* 2006, Van der Herijden *et al.* 2008). New graduate nurses consistently report high levels of stress and difficulty finding work-life balance due to heavy workloads, which are often exasperated by short-staffing (Maddalena *et al.* 2012). Thus, inadequate staffing may increase burnout risk, both directly, and indirectly by increasing work-life interference, which has been linked to burnout among service employees (Montgomery *et al.* 2006) and new graduate nurses (Boamah & Laschinger 2015).

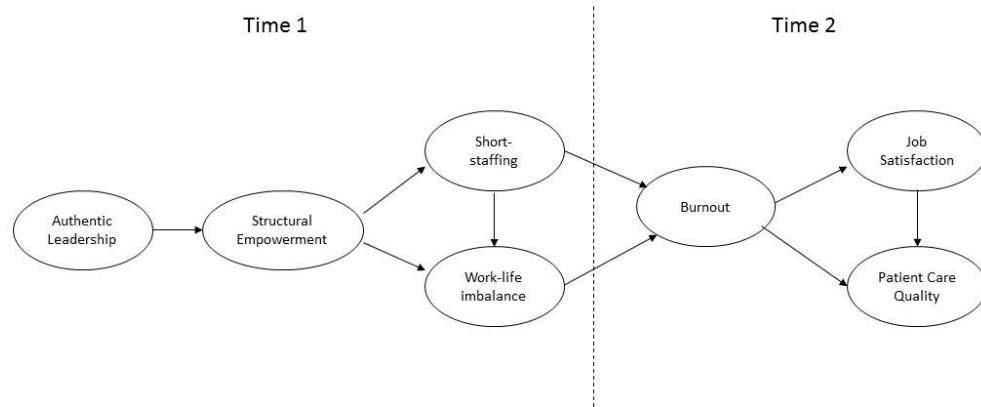
The aim of this study was to better understand how work environment and personal factors influence burnout development and, ultimately, nurse and patient outcomes. This was accomplished by testing a hypothesized model investigating the effect of authentic leadership and structural empowerment on staffing adequacy and work-life interference and, subsequently, burnout, job satisfaction, and patient care quality one year later.

Background

Avolio and Gardner's (2005) theory of authentic leadership, Kanter's (1993) theory of structural empowerment and Maslach and Leiter's (1997) theory of burnout provided the foundation for the theoretical model tested in this study (Figure 1).

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Figure 1. Hypothesized model



Authentic Leadership

Authentic leadership theory describes four key behaviours that exemplify honest, ethical leaders who treat others with integrity and respect (Avolio & Gardner 2005). These include high levels of *self-awareness* (accurate knowledge of strengths, weaknesses, and impact on others), *balanced processing* (seeking information and insights from a variety of sources while making decisions), an *internalised moral perspective* (behaving in congruence with one's personal moral and ethical standards), and *transparency* (presenting oneself honestly to others) (Avolio & Gardner 2005). Authentic leaders are also thought to value relationships and seek out opportunities to help others develop their best selves (George 2003). In nursing, authentic leadership has been associated with positive patient outcomes such as lower rates of adverse events (Wong & Giallonardo 2013), and job-related outcomes among new graduate nurses including job satisfaction and performance (Read & Laschinger 2015), and burnout (Laschinger *et al.* 2012).

Structural Empowerment

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Kanter's (1993) theory of structural empowerment explains how leaders can influence employees' power to accomplish their work by providing access to four key organizational structures: information, support, resources, and opportunities. *Access to information* means having knowledge of the goals, values, and policies of the organization and the expertise and technical knowledge required to be effective at work. *Support* includes guidance and feedback provided by peers, subordinates and supervisors, as well as social and emotional support and assistance from colleagues. *Resources* refer to access to materials, supplies, money, time, and equipment needed to accomplish one's job effectively. Finally, *access to opportunities* for mobility and growth involves professional development opportunities and new challenges that enhance knowledge and skills, as well as rewards and recognitions.

Several studies have demonstrated strong ties between authentic leadership and structural empowerment (Read & Laschinger 2015, Wong & Laschinger 2013), supporting the idea that authentic leaders work to understand and meet the needs of employees by providing supportive, empowering work environments that enable nurses to meet the demands of their jobs and deliver safe, high-quality care. It is reasonable to expect that leaders who develop genuine relationships with followers would provide access to specific information, support, resources, and opportunities that are valued in the workplace.

Hypothesis 1: Nurses' perceptions of their supervisor's authentic leadership behaviors will have a positive effect on perceived structural empowerment.

Short-staffing

Adequate nurse staffing is important in delivering high-quality patient care (Aiken *et al.* 2002, 2014, Duffield *et al.* 2011). Inadequate or short-staffing in nursing refers to situations

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where there are fewer nurses working than should be scheduled during a shift to ensure patient care quality and safety. Inadequate staffing levels contribute to excessive workloads and high stress, which leads to negative nurse outcomes such as burnout, job dissatisfaction, turnover intentions (Aiken *et al.* 2002, Pineau-Stam *et al.* 2015), and lower quality patient care (Lu *et al.* 2005). Aiken *et al.* (2002) found that nurses working short-staffed were more than twice as likely to experience burnout and job dissatisfaction, which ultimately increased nurses' intention to leave their jobs within a year. Similarly, McHugh and Ma (2014) found that short-staffing and poor work environments were significantly associated with job dissatisfaction and job turnover intentions among nurses.

Structural empowerment has been identified as a protective factor against early career burnout, which may threaten retention of new nurses in the workforce (Cho *et al.* 2006). We proposed that structural empowerment reduces burnout development among new graduate nurses through its effects on both short-staffing and work-life interference. It is likely that structurally empowering working conditions will result in more committed, productive employees, leading to fewer voluntary absences. In other words, we propose that nurse managers reduce short-staffing by improving working conditions that empower nurses to achieve their work in an effective manner, resulting in less frequent voluntary absences.

Hypothesis 2a: Structural empowerment will have a negative effect on short-staffing, such that higher levels of empowerment will lead to less frequent short-staffing.

Inadequate staffing also predisposes nurses to longer work hours and mandatory overtime, which contributes to both job stress and work-family conflict. We hypothesized that

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short-staffing would increase work-life interference because new graduate nurses would be more likely to get called for extra shifts during their scheduled days off. These requests interrupt personal time, as do taking on extra shifts. If unavailable or too tired to take on extra shifts, new graduate nurses may feel guilty, anxious, or selfish about being unable to help their colleagues and patients, creating internal conflict and stress. In these ways, short-staffing is thought to increase work-life interference.

Hypothesis 3: Short-staffing has a positive effect on work-life interference, such that more frequent short-staffing leads to greater levels of work-life interference.

Work-life Interference

Work-life interference refers to the extent to which role pressures and responsibilities from work and personal life are mutually incompatible (Frone et al., 1997; Greenhaus & Beutell 1985). Work-life interference has been related to negative organizational outcomes among nurses including burnout (Burke & Greenglass 2001), job dissatisfaction (Kovner *et al.* 2006, Yildirim & Aycan 2008), turnover intentions (Simon *et al.* 2004), and decreased capacity to provide quality care (Grzywacz *et al.* 2006). Studies have associated characteristics of nurses' work environments (e.g., heavy workload) with increased work-life interference (Yildirim & Aycan 2008). For example, Grzywacz *et al.* (2006) found that 50% of nurses reported experiencing chronic (one day a week or more) work interference with family life.

Structural empowerment may be an important workplace characteristic that reduces new graduate nurses' perceptions of work-life interference. Research suggests that working conditions and support from supervisors and colleagues are important in maintaining a balance

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between work and personal responsibilities (Kovner *et al.* 2006). Thus, we propose that when new graduate nurses feel supported in their new role and have confidence that their patients are being well cared for during their time off, they are less likely to carry the stresses of their job home with them at the end of their shift.

Hypothesis 2b: Structural empowerment will have a negative effect on work-life interference, such that higher levels of empowerment will lead to less work-life interference.

Burnout

Burnout refers to a psychological syndrome characterized by emotional exhaustion, cynicism, and inefficacy caused by prolonged exposure to chronic stress at work (Leiter & Maslach 2004). Emotional exhaustion is thought to be the core elements of burnout, resulting in cynicism (Maslach *et al.* 2001). In the burnout literature, there has been general disagreement about the 'inefficacy' component of burnout, with some suggesting that it may better reflect the concept of work engagement (Schaufeli & Bakker 2004, Schaufeli & Salanova 2007). Recently, Borgogni *et al.* (2012) reconceptualised the model of burnout to include interpersonal strain as the third component of burnout. Interpersonal strain at work represents the feelings of being uncomfortable and disengaged in relationships with people at work caused by exceeding social requests and pressures. In this study, we used an expanded model of burnout, which consists of emotional exhaustion, cynicism, and interpersonal strain at work.

Burnout has been studied extensively in nursing. It occurs when employees are exposed to stressful working environments including heavy workloads, poor working relationships, low

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control over their work, inadequate rewards and recognition, and incongruence between personal and organizational values (Leiter & Maslach 2004, Maslach & Leiter 1997). Job stress has been identified as an important driver of burnout development across occupational groups (Leiter & Maslach 2009, Maslach & Leiter 1997). The intense exposure to emotionally-charged relationships with one's own work results in a state of emotional exhaustion, which leads to cynicism and feelings of inefficacy, and eventually poor physical and mental health (Leiter & Maslach 2004). In the current study we examined the role that two salient sources of job stress, short-staffing and work-life interference, play in new nurses' career burnout development.

Short-staffing contributes to feelings of overwhelming chaos experienced by new graduate nurses during their transition to practice (Feng & Tsai 2012) and is a likely stressor contributing to the development of burnout. When nurses are short-staffed it limits the amount of time that they spend with each patient resulting in reduced surveillance, patient teaching, continuous assessment and close monitoring of patients. Logically, these constraints increase emotional and physical demands of their job, leading to exhaustion (a core component of burnout), and subsequently, lower quality care for patients despite nurses' best efforts to practice according to their professional standards. Working short-staffed is stressful for everyone, regardless of their experience as a nurse; therefore, it is only logical that new graduate nurses would find it challenging to take on additional patient assignments and an increased workload during these situations. Thus, we proposed:

Hypothesis 4a: Short-staffing will have a positive effect on new graduate nurse burnout one year later, such that more frequent short-staffing will lead to higher levels of burnout.

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Not surprisingly, work-life interference has also been linked to new graduate nurse burnout (Boamah & Laschinger 2015). This is consistent with Meijman and Mulder's (1998) Effort-Recovery Theory which states that workers require rest, relaxation, and leisure to recover from work-associated stress. Psychological detachment from work has been identified as a key aspect of work recovery (Etzion *et al.* 1998) and is difficult to obtain with constant interruptions from work at home. Derks and Bakker (2014) found that employees' work-related Smartphone use at home was positively related to emotional exhaustion, while having a negative effect on relaxation and psychological detachment from work. Similarly, it makes sense that when new graduate nurses' feel that their work is interrupting or constricting their personal life, relaxation and psychological detachment from work is more challenging and burnout is likely to result.

Hypothesis 4b: Work-life interference will have a positive effect on new graduate nurse burnout one year later, such higher levels of work-life interference will lead to higher levels of burnout.

Outcomes

Job satisfaction refers to the degree to which an employee enjoys his/ her job or various facets of their job including workload, scheduling, and relations with co-workers, supervisor and organization (Mueller & McCloskey 1990). Job satisfaction is important because of its relationship to key organizational outcomes such as positive patient outcomes (Aiken *et al.* 2002) and nurse retention (Hayes *et al.* 2010). The quality of the nursing practice work environment such as staffing levels, nurse/ physician relationships and support from co-workers and supervisors greatly influence nurses' satisfaction with their jobs (Laschinger 2008). Studies has

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shown that effective leaders create empowering working conditions by ensuring adequate staffing levels on their units, which may increase nurse job satisfaction and quality of care (Laschinger & Fida 2015). Greco *et al.* (2006) also found that burnout was related to increased absenteeism, heavy workloads, and subsequently, job dissatisfaction and increased turnover intentions among nurses (Greco *et al.* 2006). When nurses experience feelings of emotional exhaustion, cynicism, and interpersonal strain which characterize burnout, it is expected that they become less satisfied with their jobs and feel a diminished capacity to deal with the demands of their daily work with patients. Thus, we proposed:

Hypothesis 5a: Burnout will have a negative effect on new graduate nurse job satisfaction, such that higher burnout will lead to lower job satisfaction.

Past studies have also linked burnout to patient care outcomes. For instance, Cimiotti *et al.* (2012) examined the effect of nurse staffing and burnout on healthcare-related infections and found that higher rates of infections were associated with burnout caused by nurses caring for more patients. Similarly, Aiken *et al.* (2012) found that burnout had a negative effect on patient care and satisfaction across 12 European countries, while van Bogaert and colleagues (2013, 2014) found links between nurse burnout and patient care quality and adverse events in Belgium. Burnout reduces nurses' capacity to deal effectively with heavy workloads, therefore the following was proposed:

Hypothesis 5b: Burnout will have a negative effect on nurse-assessed patient care quality, such that higher burnout will lead to lower patient care quality.

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Nurses' job satisfaction has also been linked to patient care quality (Leggat *et al.* 2010) and clinical patient outcomes, such as patient falls (Choi & Boyle 2013). Nurses who are more satisfied with their jobs are more likely to perform extra-role behaviors at work (Tsai & Wu 2010) and be highly committed to their organization (Chang 2015). As a result, more satisfied nurses may demonstrate more buy-in with and adherence to policies and procedures implemented by management that influence patient care. Job satisfaction may also influence the amount of effort and time that nurses exert during work hours. Thus, we proposed:

Hypothesis 6: Job satisfaction will have a positive effect on nurse-assessed patient care quality.

Mediation

In addition to the direct relationships outlined above, we hypothesized that empowerment, short-staffing, and work-life interference would mediate the relationship between authentic leadership and burnout, while short-staffing, and work-life interference would mediate the relationship between empowerment and burnout. Finally, we hypothesized that job satisfaction would mediate the relationship between burnout and patient care quality.

THE STUDY

Aim

Based on the theoretical and empirical evidence described above, this study tested a model examining the effects of authentic leadership on structural empowerment, short-staffing,

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and work-life interference on new graduate nurses' burnout, job satisfaction, and perceptions of patient care quality one year later.

Design

Matched data from Time 1 and Time 2 of a national study of new graduate nurses across Canada (Laschinger *et al.* 2016) were used to test the hypothesized model.

Participants

Random samples of approximately 400 Registered Nurses were selected from the nursing registry database of each of the 10 Canadian provinces (total n = 3,743). Only nurses with less than three years of nursing work experience currently working in direct patient care roles were eligible to participate. Completed surveys were returned by 1,020 new graduate nurses at Time 1 (27.3% response rate) and 406 of Time 1 responders returned a survey at Time 2 (39.8% response rate).

Data Collection

To improve response rates, the Dillman method (Dillman *et al.* 2014) was used. At Time 1 (November, 2012-March, 2013), eligible nurses were mailed a survey package to their home address including a letter of information, a questionnaire, and pre-paid, addressed envelope. Reminder letters were sent to non-responders four weeks later, followed by a second survey package four weeks after that. At Time 2 (May-July, 2014), the same procedure was followed. Only nurses who responded at Time 1 were sent a Time 2 questionnaire.

Ethical Considerations

Approval for this study was obtained from The University of Western Ontario Health Sciences Research Ethics Board prior to commencing the study.

Data Analysis

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Descriptive statistics were conducted using SPSS (IBM 2014). The hypothesized model was analyzed using structural equation modeling with maximum likelihood estimation in *Mplus* (Muthén & Muthén 2010). To examine mediation, indirect effects and their 95% confidence intervals were estimated using bootstrapping with 1,000 iterations (MacKinnon *et al.* 2004). This approach is commonly used to assess the significance of indirect effects and compare their magnitude (Preacher & Hayes 2008). Authentic leadership, structural empowerment, and burnout were modeled as latent variables with subscales as reflective indicators, while work-life interference and job satisfaction were modeled as latent variables with items as reflective indicators. Short-staffing and patient care quality were single items modeled as manifest variables.

The following fit indices were used to assess the model fit: Chi-square (χ^2), the Comparative Fit Index (CFI) (Bentler & Bonett 1980), the Tucker-Lewis Index (TLI) (Tucker & Lewis 1973), the Root Mean Square Error of Approximation (RMSEA) (Browne & Cudeck 1989), and the Standardized Root Mean Square Residual (SRMR) (Bentler 1995). The generally agreed upon critical value for CFI and TFI is .90 or higher, representing the degree to which the correlation matrix of the data fits with that of the hypothesized model, whereas RMSEA and SRMR assess the degree to which the models don't fit (i.e., badness-of-fit), therefore values less than .06 indicate a good fitting model (Hu & Bentler 1999).

Validity, Reliability and Rigour

Study variables were measured using questionnaires with acceptable reliability (Cronbach's α) and validity. Nurses' perceptions of their manager's authentic leadership behaviours were measured using the *Authentic Leadership Questionnaire* (ALQ) (Walumbwa *et al.* 2008), a 16-item questionnaire comprised of four subscales: self-awareness (4 items),

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relational transparency (5 items), balanced processing (3 items), and internalized moral perspective (4 items). Participants rated items on a 5-point Likert scale ranging from 0 = not at all to 4 = frequently, if not always. Sample items include, “My manager makes difficult decisions based on high standards of ethical conduct”, and “My manager seeks feedback to improve interactions with others”. Items from each subscale were averaged to create subscale scores. Confirmatory factor analyses (CFA) have supported the four-factor structure of the ALQ (Walumbwa *et al.* 2008) and its reliability and validity has been supported among new graduate nurses (Cronbach’s $\alpha = 0.96$) (Laschinger *et al.* 2015). In the current study, Cronbach’s α was .93.

Structural empowerment was measured using the *Conditions of Work Effectiveness-II* (CWEQ-II) (Laschinger *et al.* 2001). The CWEQ-II consists of four subscales (information, support, resources and opportunity) reflecting dimensions of work empowerment structures. Each subscale consists of three items rated on a 5-point scale ranging from 1 = none to 5 = a lot, averaged to create subscale scores. The construct validity of this scale was established using CFA (Laschinger *et al.* 2001) and supported the reliability of the measure. Cronbach’s α in the present study was .85.

The *Work Interference with Personal Life* (WIPL) (Fisher-McAuley *et al.* 2003) measures the balance between employees’ professional and personal life. It consists of seven items rated on a 7-point Likert scale ranging from 1 = not at all to 7 = all the time. Cronbach’s α of 0.92 has been reported for the WIPL among new graduate nurses (Boamah & Laschinger 2015) and was .85 in the current study.

Short staffing was measured using a single-item which assesses how often working short-staffed affects nurses’ ability to provide quality patient care: “In the last month how often has

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short-staffing affected your ability to meet your patients'/ clients' needs?" rated on a 5-point Likert scale ranging from 1 = never to 5 = daily. This scale was recently used in a sample of new graduate nurses (Pineau Stam *et al.* 2015).

Burnout was measured using the emotional exhaustion and cynicism subscales of the Maslach Burnout Inventory-General Survey (MBI-GS) (Schaufeli *et al.* 1996), and the interpersonal strain at work subscale developed by Borgogni *et al.* (2012). Items for each subscale were scored on a 7-point Likert scale ranging from 0 = never to 6 = daily. Higher scores on each of these subscales represent higher levels of burnout (Maslach *et al.* 2008). Past studies (see Borgogni *et al.* 2012, Laschinger *et al.* 2015) have shown acceptable reliability and validity for each of the scales among new graduate nurses. Laschinger *et al.* (2015) reported Cronbach's α of .92 for both emotional exhaustion and cynicism, and .82 for interpersonal strain. In the current study Cronbach's α was .92 for emotional exhaustion, .91 for cynicism, and .81 for interpersonal strain.

Job satisfaction was measured using three items adapted from Cammann *et al.*'s (1983) Michigan Assessment of Organizations Questionnaire. Items were rated on a five-point Likert scale from 1 = strongly disagree to 5 = strongly agree and one item was reverse-scored. This scale has demonstrated acceptable internal consistency (Cronbach's α = .77) (Laschinger & Fida 2015). In the present study, Cronbach's α was .86.

Nurse-assessed quality of care was measured using one item from Aiken and Patrician (2000): "In general, how would you describe the quality of nursing care delivered to patients on your unit?" rated on a five-point Likert scale from 1= poor to 4 = excellent.

RESULTS

Participant Characteristics

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A total of 405 Registered Nurses were included in the current study. On average, nurses were 27.67 years old with 1.17 years of nursing experience. Most were female (92%) and about 94% held a baccalaureate nursing degree. Fifty-two percent worked on medical-surgical units and 16.3% on critical care units. Demographic characteristics of the sample are presented in Table 1.

Table 1. Participant characteristics (at Time 1)

		M	SD
Age		27.67	6.88
Years of Experience as RN		1.17	0.52
		n	%
Gender	Female	373	91.9
	Male	33	8.1
Highest Degree Received	BScN	373	94.1
	MScN	1	0.2
	College Diploma	23	5.7
Employment Status	Full Time	234	57.5
	Part Time	132	32.5
	Casual	40	9.9
Unit Specialty	Medical-Surgical	212	52.0
	Critical Care	66	16.3
	Maternal-Child	47	11.6
	Mental Health	22	5.4
	Other Hospital Unit	59	14.5

Descriptive Results

Table 2 displays the means, standard deviations (SD) and Cronbach's α reliabilities for Time 1 and Time 2 study variables.

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Table 2. Means, standard deviations, and Pearson’s correlations between main study variables

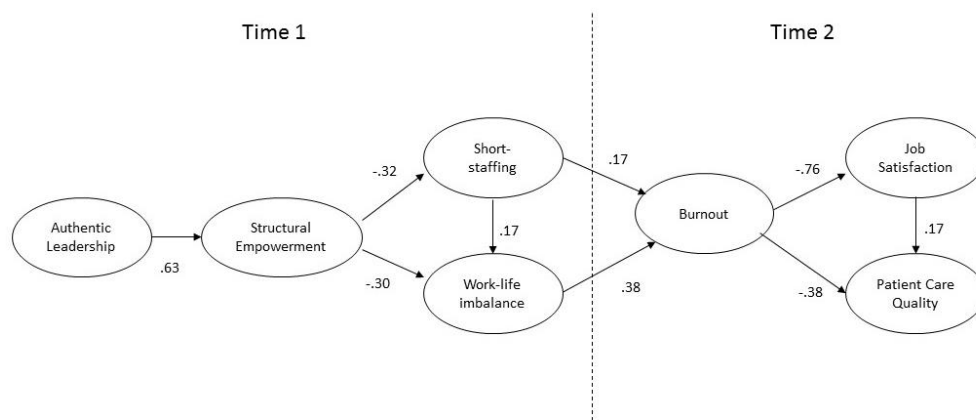
Time 1 Variables	Mean	SD	α	1	2	3	4	5	6	7	8
1. Authentic Leadership	2.64	0.86	.93	-							
2. Structural Empowerment	13.73	2.43	.66	.50	-						
3. Short-staffing	2.86	1.10	NA	-.16	-.27	-					
4. Work-Life Interference	3.66	1.40	.85	-.17	-.27	.26	-				
Time 2 Variables											
5. Emotional Exhaustion	3.30	1.48	.92	-.09	-.18	.26	.42	-			
6. Cynicism	1.80	1.55	.94	-.15	-.20	.19	.35	.70	-		
7. Interpersonal Strain	1.43	1.06	.81	-.18	-.20	.18	.31	.48	.57	-	
8. Job Satisfaction	3.98	0.83	.86	.22	.24	-.19	-.24	-.55	-.73	-.43	-
9. Patient Care Quality	3.27	0.68	NA	.10	.17	-.16	-.14	-.29	-.35	-.26	.43

All correlations significant, $p < .05$

Testing the Hypothesized Model

The results supported the hypothesized model: $\chi^2(223) = 600.085$, $p = 0.001$, CFI = .93, TLI = .92, RMSEA = .05, SRMR = .061. All paths were significant and in the hypothesized direction (Figure 2). The hypothesized indirect effects of authentic leadership and structural empowerment on burnout and burnout on patient care quality were significant (see Table 3).

Figure 2. Path coefficients between study variables



Model Fit: $\chi^2(223) = 600.085$, $p = .000$; CFI = .935; TLI = .926; RMSEA = .065; SRMR = .061

Table 3. Total indirect effects of authentic leadership and structural empowerment on burnout

Indirect effects	Standardized Estimate	95% Confidence Interval	
		Lower Bound	Upper Bound
AL → SE → SRTSTF → WRKLF → T2BO	-.112*	-.161	-.063
SE → SRTSTF → WRKLF → T2BO	-.177*	-.250	-.104
T2BO → Job Satisfaction → Quality of Care	-.363*	-.584	-.143

Note: AL = authentic leadership; SE = structural empowerment; SRTSTF = short-staffing; WRKLF = work-life interference; T2BO = burnout
 All estimates are significant ($p < .05$).

DISCUSSION

The results of this study supported the hypothesized relationships between authentic leadership, structural empowerment, work-life interference, and short-staffing, and burnout, job satisfaction, and patient care quality. In line with previous studies, new graduate nurses' perceptions of their manager's authentic leadership behaviours were directly related to their perceptions of structural empowerment in the workplace. Novel findings were that empowerment was negatively related to short-staffing and work-life interference, with short-staffing increasing work-life interference, and both of these work-life factors were associated with increased burnout one year later. In addition, burnout had significant negative direct effects on both job satisfaction and quality of care, while job satisfaction also had a direct effect on quality of care.

Our findings add further support for theoretical and empirical links between authentic leadership and structural empowerment. Luthans and Avolio (2003) suggested that in addition to demonstrating the key behaviours of self-awareness, transparency, high moral standards, and balanced decision making, authentic leaders are also concerned with developing genuine

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relationships with others and bringing out the best in them. Thus, it is logical that nurse managers who lead authentically are in touch with the needs of their followers, allowing them to create empowering work environments that ensure new graduates have access to adequate resources, support, information, and opportunities to learn and develop their knowledge and skills. Previous studies found that by providing access to these empowering work structures for employees, authentic leaders establish a practice environment that promotes job satisfaction and performance, lower burnout (emotional exhaustion and cynicism), and fewer mental health symptoms among new graduate nurses (Laschinger *et al.* 2012, Read & Laschinger 2015, Wong & Laschinger 2013).

The link between authentic leadership, empowerment, and burnout in our study was not surprising, however, to our knowledge, this is one of the first studies to link authentic leadership and empowerment to newly graduated nurses' work-life interference and short-staffing and subsequent burnout across a one-year timeframe. Our results demonstrating significant indirect effects between authentic leadership and empowerment and burnout add to current knowledge by demonstrating that short-staffing and work-life interference are additional mechanisms through which leadership and structurally empowering working conditions influence burnout among new graduate nurses. We found that new graduate nurses who reported higher levels of work interference with personal life and inadequate staffing experienced greater levels of burnout one year later. These findings suggest that adequate nurse staffing is an important work characteristic that managers can address to reduce both work-life interference and burnout development among new graduate nurses.

Overall, our results provide additional support for authentic leadership theory, which suggests that authentic leaders create inclusive, ethical, and caring work environments that

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fosters positive organizational outcomes. Managers who are self-aware engage with their employees, build trusting working relationships with employees by being open, honest and transparent and solicit the perspectives of their employees in their decision making (Gardner *et al.* 2005). Authentic leaders build honest and transparent relationships with their staff by involving them in the decision making and encouraging them to share their perspective in improving care processes on their units (Avolio & Gardner 2005). In doing so, managers gain unique perspectives from staff regarding the day-to-day operations on their unit and thus are able to provide support and resources needed to work efficiently. For instance, managers may revise staffing guidelines and provide appropriate resources to support their staff during high demands.

Our findings linking authentic leadership to short-staffing and work-life interference through structural empowerment highlight the important role managers play in creating positive work environments that reduce employee burnout and foster positive outcomes for new graduate nurses and patients. Past studies have found that characteristics of the work environment, such as staffing, heavy workload and job strain contributes to inefficiencies and stress among nurses, limiting the time nurses are able to spend in providing direct patient care (Clarke & Aiken 2006). In a recent study, Aiken *et al.* (2012) examined hospital-level data and found that improved work environments and adequate nursing staffing ratios were associated with better quality of care and patient satisfaction. It was evident in this study that by creating empowering workplaces and addressing staffing issues on the unit, managers can contribute to new graduate nurses' sense of work-life balance and job satisfaction, which leads to improved patient outcomes and may ultimately, improve nurse retention.

In this study, short-staffing and work-life interference were related to each other and to sources of job stress that contributed to new graduate nurse burnout one year later. This

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corroborates past research showing that work interference with personal life has detrimental effects on employee wellbeing and satisfaction with their work (Van de Heijden *et al.* 2008). We add to the current knowledge by showing that short-staffing is an important organizational factor that contributes to burnout development among new graduate nurses, both directly, and through its effect on work-life interference. This finding is important because it suggests that up-front investment in adequate nurse staffing is an important strategy for creating supportive working conditions for new graduate nurses. Our results are consistent with a cross-sectional study by Boamah and Laschinger (2015) showing that new graduate nurses' perceptions of work-life interference had a direct positive effect on burnout, which in turn, decreased job satisfaction and patient care quality, as well as past studies linking burnout to new graduate nurses' job dissatisfaction (Laschinger & Fida 2014, Laschinger *et al.* 2012) and lower patient care quality (Van Bogaert *et al.* 2014).

Interestingly, the effect of burnout on job satisfaction was almost three times greater than on quality of care. One explanation for this may be that nurses care greatly about their patients and the quality of care that they provide (Aiken *et al.* 2012, Laschinger & Fida 2015), and will work hard to ensure that patients receive the care they deserve, even when experiencing burnout. To minimize burnout among new nurses it is important for managers to create empowering work environments that promote nurses' ability to accomplish their work goals, and ensure staffing-resource adequacy and flexible work schedules that promote work-life balance for new nurses, and ultimately, improve nurses' workplace well-being and satisfaction with the quality of patient care in their units.

The link between burnout and job satisfaction is also important because of the subsequent effects on patient care quality. Our results align with those of past studies (Choi & Boyle 2013,

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Leggat *et al.* 2010) and support the idea that nurses who are more satisfied with their jobs are more likely to engage in organizational citizenship behaviours at work (Tsai & Wu 2010) and have high levels of organizational commitment (Chang 2015). Preventing new graduate nurse burnout by ensuring adequate staffing and reducing work-life interference is thus an important strategy to improve patient care quality, both directly, and through its effect on job satisfaction.

Limitations

The main limitations of this study are the use of self-report questionnaires and the low response rates. The use of self-report measures in organizational behavior research has been scrutinized primarily because they are liable to several response biases, as well as the dispositional characteristics of respondents and contextual/situational influences (Donaldson & Grant-Vallone 2002, Podsakoff & Organ 1986). Having nurses anonymously complete the study questionnaire on their own time in the privacy of their own home may have reduced bias by providing confidentiality and reducing fear of reprisal (Podsakoff & Organ 1986). Common method bias may also be a concern for single method self-report questionnaires. Collecting data at different time points and using well-established measures to capture the major study variables provide an advantage for our study (Podsakoff *et al.* 2003). Spector (2006) suggested that common method bias may not be as pervasive as once thought and that having strong measures may help reduce this threat to internal study validity. Another limitation is that short-staffing and patient care quality were both single-item measures, which makes them more vulnerable to random measurement errors and biases in meaning and interpretation. Nevertheless, there are advantages associated with the use of single-item measures, as they reduce the chance of common method variance, where “spurious correlations are observed due to the use of the same response format rather than the content of items” (Hoeppner *et al.* 2011). Finally, low survey

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response rates may introduce response bias and are a growing concern in research of healthcare professionals (Cho *et al.* 2013), thus the generalizability of the results must be considered with caution. In anticipation of the lower response rates, measures were taken to promote responses (Dillman *et al.* 2014). Lastly, employment status and specialty areas in which nurses worked may influence the level of burnout reported in this study.

CONCLUSION

Our results highlight the need for authentic leadership and empowering, supportive working conditions with adequate staffing in order to help mitigate work-life interference and subsequent burnout development and its negative effects. This study showed that short-staffing and work-life interference are related work-life factors that influence new graduate nurse burnout leading to job dissatisfaction and lower patient care quality. Given the importance of staffing levels on new graduate nurse work-life interference and burnout development over the first year of practice, managers must work closely with staff and senior management to develop strategies to address nurse staffing and scheduling conflicts in advance.

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