Reducing Burnout among Nurses: The role of High-Involvement Work Practices and Colleague Support

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Abstract

Background. The impact of HR practices on nurses' well-being the underlying mechanisms involved and the contextual factors which enhance or impede their success, are not fully clear.

Purpose. This paper examines a moderated mediation model whereby high-involvement work practices are purported to reduce nurses' burnout via psychological empowerment and colleague support is expected to moderate the mediating role of psychological empowerment in the high-involvement work practices-burnout link.

Methodology/Approach. Structural Equation Modeling was employed on cross-sectional survey data collected from a large sample of nurses in Canada (N= 2,174).

Results. The findings revealed that psychological empowerment partially mediated the association between high-involvement work practices and burnout while colleague support was directly associated with lower burnout rather than exerting a moderating effect.

Conclusion. The study identifies the universality of high-involvement work practices in alleviating nurses' burnout and highlights the important role of psychological empowerment as an explanatory variable. In addition, colleague support is an important yet independent predictor of nurses' burnout.

Practical Implications This study identifies a critical strategy, i.e. HIWPs, for hospital and nursing managers, that can be used to help protect against the perennial problem of nurse burnout and offers a more nuanced understanding of the underlying processes involved.

Keywords: HIWPs; psychological empowerment; burnout; colleague support, well-being

Introduction

Nurses are currently experiencing very high rates of burnout (National Academies of Sciences, Engineering, and Medicine [NASEM], 2019). The Canadian health care sector is marked by multiple and continuous changes, which exacerbates role stressors, and a recent survey in this context highlighted that 40% of nurses reported burnout (McLeod, 2019). Burnout describes a state of mental weariness comprising emotional exhaustion, depersonalization and reduced personal accomplishment. Exhaustion (a state when one is emotionally, physically, and cognitively drained at work) and depersonalization (when one develops a distant attitude toward work) are the two core symptoms of burnout (Maslach, Schaufeli, & Leiter, 2001) and form the focus of the current study. Personal accomplishment is believed to be more reflective of a personality trait rather than a core component of burnout and meta-analytic research has further found that personal accomplishment is weakly correlated with emotional exhaustion and depersonalization (Lee & Ashforth, 1996).

Burnout can occur among nurses largely due to the excessive demands they face on the job. Their role involves working closely with other health care professionals in emotionally and physically demanding situations during taxing shift schedules and experience overwhelming demands including work overload, time pressures, technology challenges and moral and ethical dilemmas (NASEM, 2019). The problems associated with nurse burnout are widespread. For example, there is a worldwide shortage of nurses and burnout is regarded as a key precursor of nurses thinking about leaving their job (Aiken et al., 2002) and even the profession (Jourdain & Chênevert 2010). Burnout is implicated in the detrimental effects of increased workloads on the quality of patient care (for e.g., increased patient mortality) through a vicious cycle, whereby related retention failures stretch staffing ratios, further exhausting the resources of nurses' who remain (Aiken et al., 2002). Given these perennial problems

associated with nurses' burnout, scholars have called for research on particular strategies to reduce it (Boudrias, Morin, & Brodeur, 2012, Holland, Allen, & Cooper, 2013).

High-involvement work practices (HIWPs) are a set of mutually reinforcing and synergistic human resource (HR) practices designed to improve employee and organizational outcomes by increasing employee involvement in key aspects of decision making and increasing their motivation and abilities (Butts, Vandenberg, Dejoy, Schaffer, & Wilson, 2009). Recent work in the strategic human resource management literature highlights that HIWPs may play a key role in reducing burnout among health care employees (Kilroy, Flood, Bosak, & Chênevert, 2016) although evidence for their effectiveness and the underlying process involved, among nurses, is limited. In addition to HIWPs, colleague support is also regarded as an important factor which helps nurses deal with burnout (Gilbert, Laschinger, & Leiter, 2010). However, the role of colleague support in the success or failure of HIWPs in influencing such outcomes is not yet clear. Addressing this question is important since the outcomes of HIWPs (i.e. psychological empowerment) cannot be thoroughly understood without considering the more informal social aspects of work, which may enhance or hinder the effectiveness of outcomes arising from the introduction of HIWPs (Butts et al., 2009).

Against this backdrop, the present study aims to make several contributions to both the nursing and human resource management literature. First, we contribute to the existing literature by identifying and testing one important organizational factor, i.e. HIWPs, as a possible resource capable of lowering the levels of burnout among nurses (e.g., Holland et al., 2013). Second, we investigate the underlying mechanisms through which HIWPs influence employee burnout. Some studies among nurses have revealed how work environment factors impact burnout via psychological empowerment (Hochwälder, 2007). We add to this stream of literature by testing psychological empowerment as a mediator of the link between the unexplored antecedent of HIWPs and its effects on burnout. Doing so also adds to the strategic

human resource management literature, which is still attempting to uncover the processes through which HIWPs impact well-being outcomes (Peccei, Van de Voorde, & Van Veldhoven, 2013). Finally, the present study makes a contribution to the nursing and human resource management field by taking a contingency perspective to investigate what role colleague support plays in established HIWPs-employee outcome relationships (Butts et al., 2009) in the specific case of nurses. In this respect, we highlight the utility of colleague support as an independent resource in the job demands-resources model (JD-R; Demerouti, Bakker, Nachreiner, & Schaufeli, 2001) for predicting nurses' burnout. Figure 1 depicts our proposed conceptual model, of which the links are discussed in the following sections.

INSERT FIGURE 1 ABOUT HERE

Theory

HIWPs and Burnout

The HIWPs approach to workforce management can be traced back to the work of Lawler (1986) who developed the PIRK model. According to this perspective, the focus of HIWPs are to improve employee power (P), information (I), rewards (R) and knowledge (K). By doing so, employees have the capacity to make more and better decisions, enhance the information and knowledge they need to do so, and are rewarded accordingly (Boxall & Macky, 2009). The types of HR practices typically included in the high involvement approach are bottom up information-sharing (P), top down information-sharing (I), non-monetary recognition (R) and training and development practices (K) (Tremblay, Cloutier, Simard, Chênevert, & Vandenberghe, 2010). Bottom up information-sharing involves autonomous practices that enable employees to assume roles and responsibilities and have a voice in decision-making processes (e.g. suggestion schemes, decision latitude over tasks and scheduling of work).

Top town information-sharing focuses on keeping employees informed about the hospitals goals and values as well as information on the hospitals performance and ongoing/new projects (e.g. via meetings and intranet communication). Non-monetary recognition involves formally and informally showing appreciation to employees for quality work and achievements (e.g. informal expressions of appreciation, written memos of congratulations from supervisors, and tangible vouchers for cultural events or restaurants). Training and development practices focus on enhancing employees' competence to do their jobs and signal that the development of employees is valued and encouraged (e.g. provision of training courses, coaching and job rotation possibilities).

The outcomes of HIWPs have received research attention. Scholars have found that HIWPs led to higher levels of performance and improved positive employee outcomes such as commitment and job satisfaction (Butts et al., 2009). For health related well-being outcomes, some studies have found that HIWPs increase burnout thereby supporting the pessimistic or critical management-by-stress perspective (Kroon, Van de Voorde, & Van Veldhoven, 2009). It should be noted, however, that the study of Kroon et al. (2009), which sampled a large spectrum of occupations across 90 organizations included a wide range of HR practices beyond the high involvement paradigm and the practices were rated from the perspective of HR managers (a less reliable source) rather than the employees themselves. The majority of studies that build on the PIRK model and use employee rather than managerial ratings of HIWPs demonstrate that HIWPs alleviate burnout (e.g., Bartram, Casimir, Djurkovic, Leggat, & Stanton, 2012) thereby supporting the optimistic or mainstream perspective of HRM (Harley, Allen, & Sargent, 2007). These optimistic findings are also underpinned by influential theoretical models in the literature. Consistent with the predictions of the JD-R model (Demerouti et al., 2001), resources such as HIWPs, are both (1) functional in achieving work goals; and (2) help employees deal with their job demands, that is, stressful situations, thereby mitigating burnout (Schaufeli & Taris 2014). Indeed, autonomy, information, rewards and

training create a more humanistic work environment for nurses and are regarded as key resources for them that can reduce the negative impact of demands on burnout (Bartram et al., 2012).

One of the growing features of the work environment for nurses is the copious protocols aimed at standardization in the quest to reduce errors and improve the overall quality of patient care (Vardaman, Cornell, Gondo, Amis, Townsend-Gervis, & Thetford, 2012). One such example of this is the situation-background-assessment-recommendation (SBAR) which despite improving information flow and accuracy, may also create a new administrative burden conducive to burnout (Cornell, Townsend-Gervis, Yates, & Vardaman, 2014). Indeed, such protocols, which are widespread in health care, "support the shift in nursing from a logic of individual autonomy to one of standardization and formalization in the profession" (Vardaman et al., 2012, p. 18). In the context of this paradigm shift, it is likely that perceptions of psychological empowerment and the availability of HIWPs are especially valued by nurses. Indeed, having HIWPs may enable nurses to capitalize on existing protocols but simultaneously have the flexibility to take important decisions requiring immediate action thereby further assisting them achieve their central purpose i.e. delivering optimal patient care (Kilroy et al., 2016).

Having autonomy/power, that is, choice around scheduling of their tasks and the capability to make decisions themselves without going through all the specific layers of bureaucracy, enables nurses to overcome demands related to the delivery of patient care and may therefore be also paramount in burnout prevention (Holland et al., 2013). Practices such as information-sharing ensure that nurses have the information they need to make decisions quickly, as well as to pass information onto other nurses to accomplish more (Gilbert et al., 2010), thereby reducing their own burnout. The encouragement of open information transmission among nurses may allow for the information conveyed to one another about

patients through existing protocols to be further contextualized thereby ensuring a more collaborative and comprehensive approach to patient care (Cornell et al., 2014). Training and development practices ensure nurses possess the requisite competence to do their job, thus making the best possible decisions while also improving their coping mechanisms for dealing with burnout (Bartram et al., 2012). Feedback and recognition practices signal and reinforce the hospital values to nurses, thereby clarifying what is expected of them, which in return can be instrumental in reducing uncertainty and anxieties associated with burnout (Bartram et al., 2012). Based on the above context specific rationale and well established JD-R model, we propose the following hypothesis:

Hypothesis 1: Positive perceptions of HIWPs are negatively related to burnout, i.e. (a) emotional exhaustion, and (b) depersonalization.

HIWPs, Psychological Empowerment and Burnout

Psychological empowerment is a form of intrinsic task motivation reflecting a sense of control and active orientation in one's work that is manifest in four cognitions: meaning, self-determination, competence, and impact (Spreitzer, 1995). Meaning refers to the alignment between the work demands placed on employees and their own values and beliefs. Self-determination reflects employees' sense of choice regarding their actions on the job. Competence refers to employees' confidence in their ability to successfully perform work activities (Bandura, 1989). Finally, impact is defined by employees' beliefs that they can influence activities and outcomes in work. Meta-analytical research has revealed that psychological empowerment has been linked to many positive outcomes for individuals such as job satisfaction, organizational commitment and lower strain as well as positive outcomes for organizations such as task performance, organizational citizenship behavior and innovation (Seibert, Wang, & Courtright, 2011). Prior research has also revealed that psychological

empowerment is linked to lower burnout among nurses even when controlling for many work environmental factors (Hochwälder, 2007).

In the HR field, research has found that HIWPs are significantly and positively associated with psychological empowerment (Bonias, Bartram, Leggat, & Stanton, 2010). HIWPs are used to provide an open environment for employees, which enhances their initiative and innovation. For example, autonomy and information sharing are practices which stimulate an environment conducive to enhanced perceptions of impact and meaning while practices associated with training and development opportunities enhance employees' perceptions of competence (Seibert et al., 2011). Reward practices further enhance employees' perceptions of autonomy, meaning and competence by reinforcing empowering behaviours.

Overall, HIWPs focus on enhancing employees' discretion and participation (Butts et al., 2009). This creates a less constrained work environment, which is necessary for psychological empowerment to develop. Psychological empowerment is central to the identity of a professional nurse and to enhance its various cognitions, work environments that provide them with access to resources such as information, support and opportunities to develop, are critical (Bonias et al., 2010). Therefore, we propose the following hypothesis:

Hypothesis 2: Positive perceptions of HIWPs are positively related to psychological empowerment.

Although the mediating role of psychological empowerment has been studied in the HIWPs-outcome relationship (Butts et al., 2009), the focus given to health related outcomes and in particular burnout, is limited. Given the pervasiveness of burnout among nurses, understanding if and how organizational interventions such as HIWPs can transmit their effects on burnout is an important question for nursing management (Holland et al., 2013). Previous research in the context of health care has revealed that HIWPs have an important role in

alleviating burnout both directly and indirectly by reducing the job demands of role overload and role conflict (Kilroy et al., 2016). However, there may be additional processes and mechanisms underlying the HIWPs-well-being link (Peccei et al., 2013). According to the cognitive approach of Thomas and Velthouse (1990), psychological empowerment is not only the consequence of the perceptual evaluation made by the individual of their task, but also depends on management interventions (Bandura 1986). These interventions, such as HIWP, can modify employees' attitudes and burnout if they influence, initially, the cognitive state of employees (Spreitzer, 1997). As it is psychological empowerment which enables nurses to contribute to their goals of delivering high quality health care and help them deal with burnout (Sabiston & Laschinger, 1995), we position psychological empowerment as an important mediating variable in the HIWPs-burnout link. Formally stated, we predict the following hypothesis:

Hypothesis 3: Psychological empowerment will mediate the relationship between HIWPs and burnout, i.e. emotional exhaustion (H3a) and depersonalization (H3b) respectively.

Moderating Role of Colleague Support

The work of nurses relies on effective teamwork and they usually collaborate and support each other in multiple forms throughout tasks involving discharge planning, continuity of care planning, and interdisciplinary rounds (Cornell et al., 2014). Given such task interdependency, colleague support is regarded as a pivotal source of support for nurses and the provision of support to each other can help protect against burnout (Gilbert et al., 2010). Indeed, support from other nursing colleagues in particular represents a vital source of support for nurses who, usually rely on it before seeking out any other source of support (Spooner-Lane, 2004). Resource theories such as the JD-R model and conservation resources theory (COR) recognize the prominent role of colleague support in reducing burnout (Halbesleben,

2006). Colleague support is instrumental in reducing burnout as it may involve directly assisting co-workers with their job demands (Halbesleben, 2006), thus making the situation less threatening and thus less stressful for them. Indeed, colleague support can also provide struggling employees with more coping options by providing a solution to their problem, reducing the importance of the problem or reinforcing the positive aspects of the self which stressful circumstances have led one to lose sight of, thereby reducing burnout (Halbesleben, 2006).

Although empowered employees can better cope with stressful situations, such empowerment may need to be supplemented with support from other nursing colleagues who are often closer to the source of stress and can more directly help with emotional or task conflict they are experiencing (Spooner-Lane, 2004). Indeed, colleague support is believed to be crucial for nurses to effectively adapt in providing care to patients (Le Blanc, Hox, Schaufeli, Taris, & Peeters, 2007). In effect, psychological empowerment may be rendered ineffectual for performing one's job without the appropriate support. Empowerment may further enable nurses to actively seek out and avail of the appropriate support from colleagues. Therefore, the proposed negative relationship between HIWPs and burnout via psychological empowerment is likely to be stronger under conditions of high colleague support as support of this kind "widen(s) one's pool of available resources" (Halbesleben, 2006, p.1134). Therefore, on the basis that psychological empowerment and colleague support can go hand in hand for reducing burnout among nurses, we advance the following hypothesis:

Hypothesis 4: Colleague support will moderate the strength of the relationship between HIWPs and burnout - i.e. (a) emotional exhaustion and (b) depersonalization, via psychological empowerment - such that the mediated relationship will be stronger under high rather than low levels of colleague support.

Method

Participants

The population for this study was 45,000 unionized registered nurses working in the Canadian public health care sector. The characteristics of the nursing population were provided by the Quebec Registration Board of Nurses and they solicited 6,546 participants across 105 hospitals stratified by mission and size of the institutions to ensure representativeness for this independent study. An envelope containing a letter describing the research objectives, a 12-page survey, and a prepaid return envelope was sent to the home addresses of potential respondents. From the 6,546 nurses solicited, 2,174 returned a completed questionnaire, yielding a response rate of 33.2%. The nurses had an average age of 41 years (SD = 1.06), were mostly female (92.2%), and had an average tenure of about 15 years (SD = 10.6). [1] The vast majority (50.3%) held a college diploma, which is a three-year technical nursing diploma before the university bachelor's degree, while 33.3% held a bachelor's degree. According to the ethical research committee at HEC Montréal, the data collection method linked to this study fulfills the ethical norms for research with human beings.

Instrumentation

The HIWPs scale comprising the practices of bottom up information-sharing, top down information-sharing, non-monetary recognition and training and development), was measured on the basis of previously validated and reputable scales developed by Lawler, Mohrman, and Ledford (1995), Jourdain & Chênevert (2010) and Tremblay and colleagues (2010). The HIWPs scale was treated as a second order latent factor in this study (Cronbach's $\alpha = .92$). A sample item is "The organization usually asks for employees' opinion when it considers adopting new rules, procedures or methods related to the organization of work".

[1] The distribution of the nurses across the various clinical fields is as follows: 9.8% in psychiatric nursing, 13.9% in emergency, 6.8% in long term care, 7.9% in the operating room, 13.8% in surgery, 5.3% in maternity, 2.6% in obstetrics, 11.8% in intensive care, 6.7% in the ambulatory care centre, 11.8% in general medicine, and 9.8% in various teams (floating team).

Psychological empowerment was measured with the twelve item psychological empowerment scale by Spreitzer (1995) (Cronbach's α = .90). A sample item is "I can decide on my own how I go about doing my work".

To measure colleague support, three items from the organizational support scale of Eisenberger, Stinglhamber, Vandenberghe, Sucharski, and Rhoades (2002) was used. We replaced the word 'organization' with 'colleague' for these items (Cronbach's α = .86). A sample item is "I know I can count on my colleagues if I have a problem".

The two core dimensions of burnout (4 items each) were taken from the Maslach Burnout Inventory-Human Services Survey (MBI-HSS; Maslach & Jackson, 1986). Employees were asked on a 7 point scale from never (1) to daily (7) how frequently these statements corresponded to their situation in the last 12 months. The reliability of the scales for emotional exhaustion (Cronbach's α = .88) and depersonalization (Cronbach's α = .70) were good. A sample item for emotional exhaustion is "I feel burned out from my work". A sample item for depersonalization is "I feel little enthusiasm for the work that I do".

Unless otherwise specified, all constructs were measured on a Likert scale ranging from Strongly Disagree (1) to Strongly Agree (7).

Control variables

Burnout is expected to be higher among younger workers, those early in their career, and there is mixed evidence for gender (Maslach et al., 2001). We therefore controlled for age, tenure and gender. We also controlled for job status, supervisory responsibilities, clinical field and shift work, which could also explain variance in burnout as evidenced in prior studies on nurse burnout (Jourdain & Chênevert 2010). For example, it is expected that those nurses with a less secure contract, having greater supervisory responsibilities, working on night shifts and rotating shifts (compared to those who work during the day), and those in more demanding fields such as emergency medicine, will be more prone to burnout.

Data Analysis

To test the hypotheses, we conducted structural equation modelling (SEM) in Mplus version 7.0. To confirm the five factor structure for the measurement model, a confirmatory factor analysis (CFA) using latent variables was carried out firstly. The theoretical model with structural paths was tested secondly. To test the mediating hypotheses, we compared the fit of a fully mediated model with that of a partially mediated model. In addition, bootstrapping was used to test the significance of the indirect effect. The moderating hypotheses were tested by including the moderation effects into the final model resulting from the first stage of tests.

Results

Descriptive Statistics

Table 1 presents the means, standard deviations and correlations of the study variables. The mean score on emotional exhaustion was 3.74 and 1.83 for depersonalization. These scores are higher than those reported in another study across two hospitals in the Quebec region with scores of 2.35 and 1.26 for emotional exhaustion and depersonalization respectively (Boudrias et al., 2012). Our findings with a large representative sample of nurses in hospitals indicates that the prevalence of nurse burnout is relatively high for emotional exhaustion although not for depersonalization.

Measurement Models

Our hypothesized CFA model including five factors yielded a very good fit to the data and was a better fit to the data than any other parsimonious model (see Table 2). To test for the potential risk of common method bias, we used the unmeasured latent method factor technique which involves adding a first order-method factor whose only measures are the indicators of the theoretical constructs of interest that share a common method (see Podsakoff, MacKenzie, & Podsakoff, 2012). The results show that none of the conclusions regarding the relationships

between factors change with the addition of the common measurement factor. Therefore, common method bias is not believed to be source of bias in this study's data.

INSERT TABLE 1 AND 2 ABOUT HERE

Structural Model: Mediation Hypotheses

As shown in Table 2, the partially mediated model fitted the data the best and explained 21% of the variation in emotional exhaustion and 28% of the variation in depersonalization. Therefore, the partially mediated model was retained when testing whether colleague support is a covariate or a moderator in the relationship between psychological empowerment and burnout. The results of the final model show that HIWPs were associated with lower levels of emotional exhaustion (b = -.19, p < .001) and depersonalization (b = -.06, p < .001) supporting Hypotheses 1a and 1b. HIWPs were associated with higher psychological empowerment (b = .20, p < .001), thus supporting Hypothesis 2. Hypotheses 3a and 3b proposed that psychological empowerment would mediate the relationship between HIWPs and burnout. Bootstrapping analysis with 10,000 bootstrap samples confirmed the significance of the indirect effect of psychological empowerment between HIWPs and emotional exhaustion with an estimated indirect effect αβ of psychological empowerment on change in exhaustion of -.058. The significance of the indirect effect of psychological empowerment between HIWPs and depersonalization was also confirmed with an estimated indirect effect αβ of psychological empowerment on change in depersonalization of -.079. As the 95% bias-corrected confidence interval did not contain zero for emotional exhaustion [- .082, - .038] and depersonalization [-.106, - .057], mediation was supported. Overall, HIWPs had a partial indirect effect on emotional exhaustion (b = -.058, p < .001), and depersonalization (b = -.07, p < .001) through psychological empowerment thereby supporting Hypotheses 3a and 3b.

The Interactive Effects of Colleague Support

Using the final model supported for the mediation effects, the moderation hypotheses were subsequently tested. As depicted in Table 2, two models were fit to assess the hypothesis of moderated mediation: one model containing colleague support as a covariate predicting burnout dimensions, and a second model that included an interaction between colleague support and empowerment as predictors of burnout dimensions. The model with interactions between latent variables could not be estimated using maximum likelihood, and numerical integration in Mplus version 7 had to be used. This estimator does not allow for the computation of fit indices available with maximum likelihood, and thus the two models for evaluating moderation had to be compared using the Akaike Information Criterion (AIC), the Bayesian Information Criterion (BIC), and the sample-size adjusted Bayesian Information Criterion (aBIC). For these indices, the model with lower values fits better.

The model without the interaction term as a predictor of the outcomes fit the data better. The moderation model explained 20.5% of the variance in emotional exhaustion and 27.4% of the variance in depersonalization. However, the results of the moderation model suggest that the paths between psychological empowerment and the burnout dimensions of emotional exhaustion and depersonalization are not moderated by colleague support. Thus, the model where colleague support is a covariate was retained as the final model. Colleague support had a significant negative effect on depersonalization ($b = -.059$, $p < .05$), and a significant negative effect on emotional exhaustion ($b = -.14$, $p < .001$).

INSERT FIGURE 2 ABOUT HERE

Discussion

Identifying the solutions to alleviate burnout among nurses is of significant interest to academics and practitioners alike (Boudrias et al., 2012). Control, social support and psychological empowerment (Hochwälder, 2007), as well as direct voice and managerial responsiveness (Holland et al., 2013) have been investigated in prior research. The present study adds to this growing stream of literature by demonstrating how HIWPs (bottom up and top down information-sharing, non-monetary recognition and training and development) are also associated with lower burnout among nurses. By investigating this issue, we also add to the central debate in the strategic HRM literature by revealing that HIWPs yield positive (mainstream/optimistic view) rather than negative outcomes (pessimistic view) for nurses working in a hospital setting (Harley et al., 2007). In the context of a paradigm shift towards greater standardization, HIWPs may indeed be especially pertinent as a resource to help nurses accomplish their goals and overcome demands related to patient care that can aggravate burnout. Having the decision-making authority inherent to HIWPs ensures that nurses can make decisions without going through every layer of bureaucracy because they have greater control over resources and an enhanced capacity to make timely decisions based on their expert judgement (Bonias et al., 2010).

Going beyond examining the direct association between HIWPs and burnout, this study also examines the underlying processes involved. Doing so directly responds to calls from scholars to explore the relevant mechanisms by which environmental factors influence burnout among nurses (Boudrias et al., 2012). Previous studies have found that HIWPs result in lower levels of burnout by increasing employees' autonomy and reducing demands (Castanheira & Chambel, 2010). We further open this 'black box' by drawing on the cognitive model of Thomas and Velthouse (1990) and identifying psychological empowerment as another important yet partial pathway which explains how HIWPs improve employee's health. HIWPs give rise to psychological empowerment because they enable nurses to better think for

themselves, develop stronger meaning in their jobs while enhancing their competency levels, all essential components of what it is to be a nurse (Bonias et al., 2010).

In addition to the mediating role of psychological empowerment, this study also proposed that colleague support would moderate the relationship between psychological empowerment and burnout. This proposition was not borne out by our results thereby suggesting that a central outcome of HIWPs i.e. psychological empowerment, universally predicts burnout irrespective of the level of colleague support. This finding therefore extends the parsimony and generalizability of HIWPs and psychological empowerment theory (Seibert et al., 2011) since it rules out the potential inhibiting role of low levels of colleague support in the nursing context. Although the moderating role of support variables has been tested in previous research (e.g., see Halbesleben, 2006), this is the first study to examine the interactive effects between psychological empowerment and colleague support. It should be noted, however, that the role of colleague support is not inconsequential. The results instead revealed that colleague support has an independent role in reducing nurses' burnout, with a stronger effect on emotional exhaustion than depersonalization. Our study therefore highlights colleague support as a pivotal resource that should be considered in the JD-R model. The JD-R model recognizes the importance of social support as a valuable resource that can reduce burnout although envisages a stronger effect for depersonalization than emotional exhaustion. A possible explanation for our findings is that support from nursing colleagues is particularly useful for helping nurses deal with the demands on the job (e.g. by helping with or taking over tasks), and such demands are considered to be the key precursors of emotional exhaustion rather than depersonalization. In addition, compassion for patients is built into the professional identify of a nurse, which is likely to mitigate experiences of depersonalization (Nijboer, & Margreet, 2019). The low mean score on depersonalization reported in the present study lends credence to the plausibility of this argument. Another interpretation is that colleague support

is vital only at the first stage of burnout i.e. emotional exhaustion, and is therefore enough to circumvent much of the subsequent damaging effects on depersonalization (Halbesleben, 2006).

Given that the mediating effect of psychological empowerment in the HIWPs-burnout relationship was only of a partial nature and given the moderating effect for colleague support was non-significant, we encourage future research to investigate additional mediators and also directly test other sources of support e.g. organizational, physician, and non-work related sources of support, that might enhance or undermine the effects of psychological empowerment on pertinent outcomes (Butts et al., 2009).

Practical Implications

The results highlight that implementing HIWPs is a potent strategy for nursing managers to pursue in order to help alleviate burnout in nurses. This has profound practical implications given the current nursing shortage and given their accelerating departure from the profession because of burnout (NASEM, 2019). The findings also reveal how HIWPs may be associated with lower levels of burnout, that is, by increasing psychological empowerment. On a practical level, this suggests that further eliminating barriers to psychological empowerment will enable HIWPs to exert a more profound impact on nurses' health. Research on magnet status hospitals, which are 'employer of choice' hospitals in the US, have attributes such as flat organizational structures, decision making decentralized to the unit level, having nurses on the executive decision-making team and greater autonomy and control over patient-care decisions (Roundeau & Wagar, 2006). This particular style of management is imperative to enhancing the psychological well-being of nurses and reducing their burnout. In a similar vein, HIWPs will likely exert even stronger effects to the extent that additional targeted interventions are employed, with these interventions aiming to enhance the four dimensions of psychological empowerment- namely, autonomy, competence, meaning and impact (Butts et al., 2009). In

summary, HIWPs represent the structural aspects of work design, which function to create a less constrained work environment so that psychological empowerment can be developed.

The present study also demonstrates that formal strategies that may increase psychological empowerment can achieve their intended objective even in the context of an impoverished social context, as least as it relates to colleague support. However, colleague support still has an important instrumental role in its own right in lowering nurses' burnout and therefore the informal aspects of organizational life should be taken into account by managers looking to further reduce burnout independent of HIWPs. To achieve this aim, more systematic organizing of regular meetings between nurses themselves as well as other medical professionals including managers and administrators has been suggested as a useful practical initiative since it provides a viable platform where nurses have the opportunity to give and receive support as well as feedback (Holland et al., 2013). Such staff support groups, in which nurses receive empathetic care from coworkers and share experiences and problems with one another in a non-threatening environment, have been linked to lower burnout in an intervention study (Le Blanc et al, 2007). The specific team based intervention called 'take care', which combines staff support groups with a participatory action approach, emphasizes the importance of peer interaction for solving work-related problems and diffusing general stressors and interprofessional tension conducive to burnout. Training and career development of nurses should therefore be geared towards enhancing empathetic concern and emotional intelligence competencies while monetary and nonmonetary rewards should further signify the importance of teamwork, collaboration across shift scheduling and social support display for aiding coworkers to cope with stressors and solve work-related problems.

Limitations

The present paper studied Canadian nurses only, which limits the generalizability of our results. Therefore, we encourage scholars to include other countries and other occupational

groups in future research. As the data is cross-sectional, reverse causality between variables cannot be ruled out. However, meta-analytic research supports the association between psychological empowerment and burnout (Seibert et al., 2011) and between social support and burnout (Halbesleben, 2006) consistent with the causal ordering of the focal variables in the current study. Another limitation might pertain to our narrow operationalization of colleague support, which centres on support from other nursing colleagues. Indeed, colleague support may be much broader in nature and encompass support from physicians and other health care providers, which may also help explain variance in burnout. As our study did not discern between the different foci of colleague support, we cannot rule out the fact that these other sources of support may also be at play and consequently influence our results.

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TABLE 1: Means, standard deviations, reliability coefficients and correlations.

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Gender	1.9	1.06	-												
2.Age	41.6	10.7	-.08***	-											
3.Education	1.86	.94	.00	.04*	-										
4.Job Status	1.82	1.02	.01	-.19***	-.11***	-									
5.Tenure	15.1	10.6	-.02	.68***	-.06**	-.26***	-								
6. ShiftWork	1.97	1.26	-.00	-.32***	-.11***	.14***	-.27***	-							
7. Clinical Field	5.88	3.34	.09**	-.11***	-.01	.08**	-.09**	.05*	-						
8. Supervisory role	1.45	.49	-.00	-.18***	.00	.17***	-.17***	.04*	.07**	-					
9. HIWPs	3.55	1.18	-.03	-.05	.07**	.00	-.08***	.01	.03	-.05	α = .92				
10. Empowerment	5.70	.80	-.01	.09***	.03	-.08***	.09***	-.03	.02	-.11***	.29***	α = .90			
11. Colleague Support	5.53	1.11	-.00	-.06**	-.03	-.00	-.02	.02	.041	-.00	.25***	.38***	α = .86		
12. Exhaustion	3.74	1.36	.04*	.00	-.08***	.00	.02	.01	.05*	-.05*	-.29***	-.24***	-.23***	α = .88	
13. Depersonalization	1.83	.89	-.04*	-.05*	-.06**	.01	-.02	.07***	.02	.04	-.22***	-.32***	-.18***	.41***	α = .70

p < 0.05; ** p < 0.01; ***p<.001

N=2,174

TABLE 2: Comparison of Model Fit Indices

Model	χ^2	*df*	*Δ χ2*	*CFI*	*TLI*	*RMSEA*	*SRMR*
Measurement Model							
1. Hypothesized Five Factor Model	4407.233	647	-	.931	.925	.052	.056
2. Four Factor Model: Burnout Combining exhaustion and depersonalization	5540.034	651	1132.081 ***	.910	.903	.059	.064
3. One Factor Model	35675.108	664	31267.875***	.357	.319	.156	.153
Structural model: Mediation effects							
1. HIWPs Partial Mediation	5823.207	1620	-	.916	.910	.036	.047
2. Fully Mediated Model	5891.435	1622	68.228***	.914	.909	.037	.050

Moderation effects	*AIC*	*BIC*	*aBIC*
1. COLS Covariate	215223.342	216256.337	215668.585
2. COLS Moderator	215225.262	216269.424	215675.318

Final Model	χ^2	*df*	*Δ χ2*	*CFI*	*TLI*	*RMSEA*	*SRMR*
Partial Mediated Model with COLS as Covariate	5823.207	1620	-	.916	.910	.036	.047

[2]

[2] N= 1966; χ2 = Chi-square discrepancy, df = degrees of freedom; Δ χ2= difference in chi-square; CFI = Comparative Fit Index; TLI = Tucker Lewis Index; RMSEA = Root Mean-Square Error of Approximation; SRMR = Standardized Root Mean Square Residual; AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion; aBIC = sample-size adjusted Bayesian Information Criterion.

Figure 1: Proposed relationships between HIWPs and burnout (i.e. exhaustion and depersonalization) via psychological empowerment and the moderating role of colleague support.

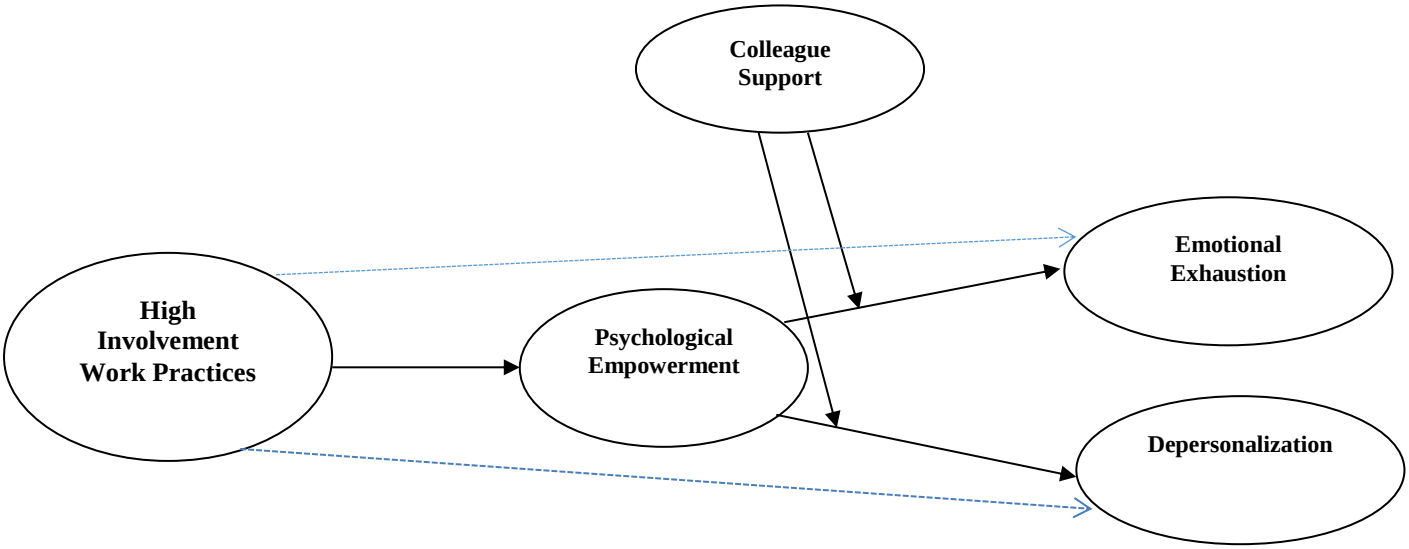
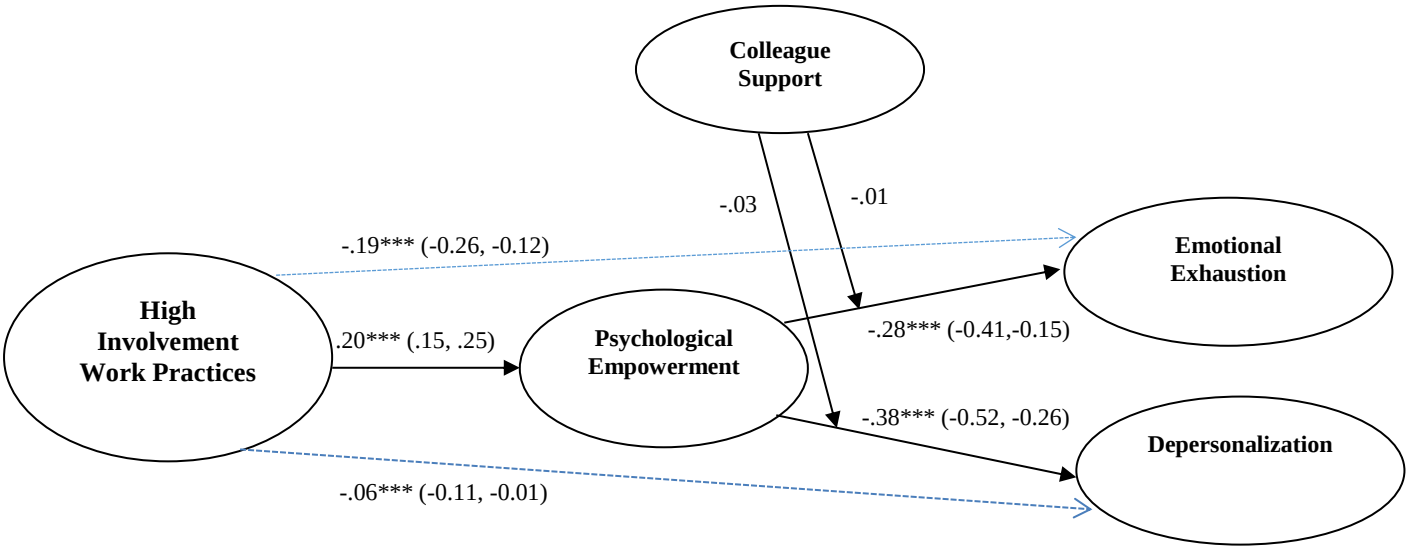


Figure 2: Final model exploring the relationship between HIWPs and burnout (i.e. exhaustion and depersonalization) via psychological empowerment and the moderating role of colleague support.



Notes:

p < 0.05; ** p < 0.01; ***p<.001

Numbers in the parentheses reflect the 5% lower and 5% upper confidence intervals

Unstandardized Coefficients are reported