

Understanding the Mediating Role of Symptoms of Stress on the Perceived Access to Training and Job Satisfaction Relationship

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Abstract

The purpose of this study is to examine the mediating role of symptoms of stress on the relationship between perceived access to training and job satisfaction. The changing nature of work (i.e. workplace and job complexity) has implications for stress and job satisfaction outcomes. Concerns about stress and job satisfaction levels and their link to performance have created interest in training interventions to improve the adequacy of knowledge and skills. A cross-sectional questionnaire survey of 1396 nurses was collected from three large teaching hospitals. The positive relationship between employees' perceived access to training and job satisfaction is increased by the partial mediation of symptoms of stress. Based on the evidence of this study, we recommend human resource staff and managers focus on training as a factor enhancing job satisfaction and mitigating stress.

Keywords: perceived access to training, job satisfaction, symptoms of stress, nurses

1. Introduction

1.1 *Introducing Study Objectives*

The increasing pace of globalization and technological innovation are generally leading to greater workplace and job complexity, and these are a source of stress for employees (Cappelli et al., 1997). The negative effects of stress on employee outcomes, such as reduced employee performance (i.e. reduced productivity and quality of output) and lower job satisfaction have an established relationship (Tetrick & Larocco, 1987). However, the interventions that can be taken to mitigate the potential harmful effects are less well established. Interventions, such as training, have been suggested (Cooper & Cartwright, 1994; Sullivan & Bhagat, 1992), however, no study has comprehensively explored the path between training, stress, and job satisfaction. Employers in their pursuit of improving their workers' job satisfaction levels often focus on levers within the workplace directly under their control, we suggest that the provision of training is an important practice to consider. Some studies have explored the relationship between training and job satisfaction and found a positive relationship (Georgellis & Lange, 2007; Jones, Jones, Latreille, & Sloane, 2009). Nonetheless, the mediating factors affecting the training and job satisfaction relationship are not entirely understood, and in particular, the role of stress as a mediator.

When studying stress and job satisfaction, consideration of workplace and specific job contexts have been advocated for as a way to aid in a better understanding of the theoretical relationships (Fairbrother & Warn, 2003; Sparks & Cooper, 1999). The current study adopts this suggestion by focusing on one particular occupation group--nurses. Further, the current study draws on the nursing literature to support the development of a conceptual framework that is more situation specific, both in terms of the workplace and job contexts.

The importance of training in keeping nurses' knowledge and skills up to date, and the positive relationship between training and improvements in patient care is continuing to gain awareness (West, Mays, Rafferty, Rowan, & Sanderson, 2009). The link between training and performance is particularly important in the field of health care where up-to-date clinical procedures are essential for providing quality patient care. Recently, evidence has been found for a link between both professional development and the availability of information provided to nurses and their satisfaction with the care provided to patients (Roulin, Boul'ch, & Merlani, 2012), and for a link between competency satisfaction and job performance satisfaction (Tzeng, 2004).

Job satisfaction is important because of its positive and moderate association with employee job performance (Judge,

Thoresen, Bono, & Patton, 2001). In the context of nurses, job satisfaction is important because job performance includes patient care (Tzeng, Ketefian, & Redman, 2002). The need to maintain a high standard of care for patients creates the potential for on-going stress because deficiencies in knowledge and skill due to a lack of training can have serious consequences for patients (Paige, 2010). Adverse events for patients have been linked to increasing stress levels among health care workers (Wrenn, Lorenzen, Jones, Zhou, & Aronsky, 2010). Thus, it is important to understand factors that can help mitigate stress and improve job satisfaction. This relationship is important for nurses but it also applies generally for all employees; however, research has tended to focus on higher stress occupations (Fairbrother & Warn, 2003; Sparks & Cooper, 1999).

The effects of perceived access to training on job satisfaction and the possible mediating effect of stress on this relationship has not been explored in the training and development, human resource management, or nursing literatures. The objective of this study is to examine the association between employees' perceived access to training and job satisfaction, and whether or not stress mediates the perceived access to training and job satisfaction relationship.

This topic is important for both managers and human resource managers because training enables employees to maintain and enhance their knowledge and skills within a workplace that is becoming increasingly complex. This is particularly the case in the nursing profession; thus, training is imperative for nurses to adequately perform the tasks of their jobs. Nurses deal with sick and potentially vulnerable individuals who need care, and the patients look upon nurses to receive the good quality care they need. Nurses know that the knowledge they gain through training is essential for patient care and any deficiencies in their training may have serious consequences for patients' health. Thus, a perceived lack of access to training can affect their stress levels contributing to lowered job satisfaction. Exploring these relationships within the situational-context of the nursing occupation contributes to knowledge by identifying the nuances of these relationships within a particular workplace and job specific context. Findings from our study can assist managers and human resource managers by informing and contributing to human resource policy development in organizations. Findings can also inform decision-makers at national and intergovernmental organizations on the importance of access to training for employees' stress and job satisfaction. More generally, the findings can inform the decisions of managers whose employees operate in similar situational contexts and environments as nurses and that may have similar stress levels.

1.2 Conceptual Model

Job satisfaction is often thought of as an attitudinal concept that captures how people feel about their job and aspects of their job (Spector, 1997). Spector identifies workload, job control, perspective of roles, job stress, pay, work schedules, and support as common job characteristic and environmental factors that affect job satisfaction. Many of these factors are among the most frequently identified factors associated with nurses' job satisfaction, including stress, supervisor and co-worker support, and control over their job (Blegen, 1993). Recent studies focusing on nurses' job satisfaction have included many additional factors (i.e. workload, shifts and scheduling, job demands, professional training, and remuneration) that have contributed to greater understanding of the key relationships (Lu, Barriball, Zhang, & While, 2012; Zeytinoglu et al., 2007).

The present study builds on this growing literature by developing a conceptual model for understanding the relationship between perceived access to training, symptoms of stress, and job satisfaction--with symptoms of stress examined as a mediator. Further, we include the key antecedents of job satisfaction identified in the human resource management and nursing literatures to allow for alternate explanations in the analyses.

We suggest that training is essential for employees, and in particular nurses, to adequately perform their duties. As a regular part of their tasks and work, nurses care for individuals, by providing services that range from health promotion to caring for those with illness, disease, or disability. Families and patients expect good quality care from nurses when they need it. Nurses know that the skills and expertise they acquire through training is vital for patient care. The importance of training for performance is well established in the human resource management literature (Dysvik & Kuvaas, 2008; Jones et al., 2009). Further, nurses understand that any gaps in their training may have grave consequences for patients. Thus, we argue that a perceived lack of access to training can affect nurses' stress levels, and that higher stress levels are contributors to lowered job satisfaction. The conceptual model of the interrelationships between these factors is schematically presented in Figure 1. In the remainder of this section some key concepts are defined, then support from the literature for each of the key relationships are presented.

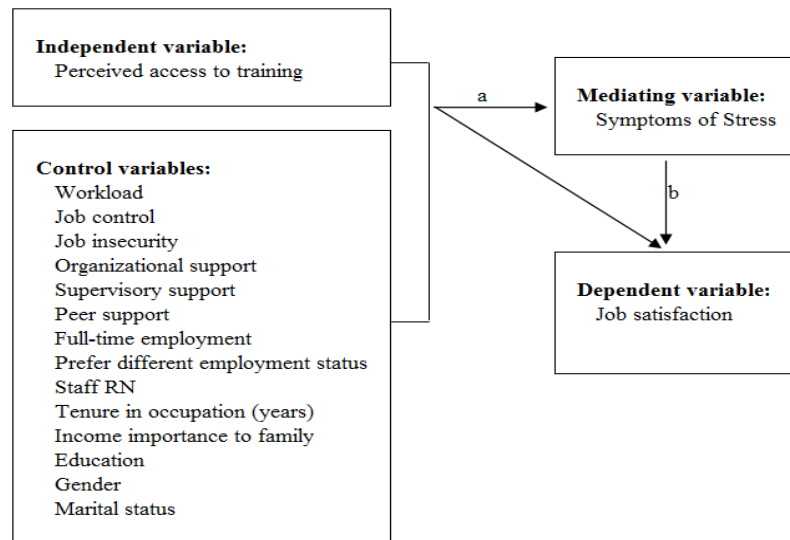


Figure 1. The conceptual model of the associations between perceived access to training, symptoms of stress, and job satisfaction.

1.3 Definitions

We focus on the concept of perceived access to training because unlike traditional conceptualizations of training in the human resource literature--that focus on objective measures of incident (whether training was received) or intensity (number of courses, number of hours, number of days of training, or number of years (Cooke, Chowhan, & Brown, 2011; Georgellis & Lange, 2007; Jones et al., 2009), for example)--the perceived access to training scale measures perceived employer-support and employee need for training and avoids implicitly assuming these exist because training was observed. In one study that looks at perceived access to training, Bartlett (2001, p. 339) identifies two main elements: 1) employees' belief that they have access to needed job-related knowledge and skills training, and 2) employees' perception that there are limited organizational constraints on employee participation in training. We contribute to the training and development sub-field of the human resource management literature by adopting Bartlett's definition and these two elements for our study. Further, we argue that these are critical elements of training that have not been addressed sufficiently in earlier studies.

Many studies, when investigating stress, do not clearly distinguish the dimensions of stress. For the current study, we make a distinction between sources of stress and types of stress (such as symptoms of stress) (Denton, Zeytinoglu, Davies, & Lian, 2002; Zeytinoglu, Denton, Plenderleith, & Chowhan, 2015), and focus on symptoms of stress conceptually and empirically (definitions for the main variables of interest are discussed in more detail in the methods section below). Thus, in the current study, the focus is not on job stressors (i.e. an event or workplace condition that requires an adaptive response, such as workload, job control, job insecurity, pay, and work schedules--although we control for these relevant variables in the analysis), but on the response to stressors (i.e. job strain) and specifically physical and psychological reactions, which we refer to as symptoms of stress (Denton et al., 2002; Fairbrother & Warn, 2003; Spector, 1997).

1.4 Key Relationships

The empirical relationship between objective measures of training and job satisfaction shows that employer-sponsored training has a significant positive relationship with job satisfaction (Georgellis & Lange, 2007; Jones et al., 2009). This relationship is not only robust in the human resource management literature, which tends to use national samples in these types of analyses, but it persists in the nursing literature (Chen, Chen, Tsai, & Lo, 2007; Ramirez, Graham, Richards, Cull, & Gregory, 1996). There is one study in the human resource development literature, that the authors are aware of, that finds a positive significant correlation between perceived access to training and job satisfaction (Bartlett, 2001); however, this relationship was not explored in a multivariate analyses. A related vein of human resource training and development literature looks at perceived access to training's positive effect on employee outcomes including commitment, intrinsic motivation, task performance, organizational citizenship, and turnover intention (Bartlett, 2001; Dysvik & Kuvaas, 2008). This literature suggests that employee beliefs about the employment relationship and real or perceived entitlements contribute to shaping reciprocal attitudes and behaviors; and that perceived access to training has significant moderate positive correlations with employee outcomes (Bartlett, 2001;

Dysvik & Kuvaas, 2008). These consistent findings across the various measures of training, and in particular for perceived access to training, leads to the expectation that perceived access to training will be positively associated with job satisfaction. In our analyses below, we first establish this well-known association between perceived access to training and job satisfaction before continuing with the test for mediation.

The beneficial effect of training on stress has received some attention over the last two decades (Cooper & Cartwright, 1994). In particular, a decline in the emphasis by employers on workplace learning and the availability of training opportunities puts increasing stress on employees to “manage their own development and careers” (Cappelli et al., 1997, p. 10). The shift away from an internal labour market focus has made it increasingly difficult for employees to maintain skill levels (Cappelli et al., 1997). Frameworks looking at occupational stress interventions have included career development and training as an important intervention to build knowledge, skill, and occupational competence (Cooper & Cartwright, 1994; Sullivan & Bhagat, 1992). One study that the authors are aware of has looked at the perceived access to training and stress relationship; specifically, Teo and Waters (2002) look at the relationship between human resource practices (including the opportunity for training and development) on both vocational strain and interpersonal strain. These authors found that, other than stress management intervention practices, the opportunity for training was a main significant and substantial contributor to reduce both vocational and interpersonal strain (Teo & Waters, 2002, p. 219).

With regard to health care personnel, some studies identify a link between insufficient or perceived inadequacy of training and stress (Graham, Ramirez, Finlay, Hoy, & Richards, 1996; Ramirez et al., 1996), and also highlight the need for training to mitigate these risks (Graham et al., 1996). A meta-analysis by Ruotsalainen et al. (2008) looked at the effectiveness of interventions on symptoms of stress and found that stress management interventions such as developing knowledge and skills can have positive effects for nurses. These findings, taken together, suggest that when training focuses on job knowledge and skills it has an integral role to play in helping to reduce stress levels. Applying this knowledge, we argue that any gaps in knowledge and skills can affect perceived performance contributing to employee stress, and when employees perceive they have access to training that can assist them, in adequately performing their tasks they will be less stressed. Similarly, but with respect to nurses, competency gaps can affect perceived patient care contributing to nurses’ stress; however, we argue that when nurses perceive they have access to training that enables them to adequately provide patient care, they will be less stressed. In our study, we also establish the well-known association between training and stress, focusing on perceived access to training and symptoms of stress.

The negative relationship between psychological and physical symptoms of stress and job satisfaction has been robust in the human resource management literature (Judge, Ilies, & Zhang, 2012; Sullivan & Bhagat, 1992); however, the relationship is not always significant in all job and environmental contexts (Judge et al., 2012). Thus, the literature supports the negative relationship between stress and job satisfaction, but it suggests an importance in investigating the significance of the relationship across different job and workplace contexts. Different occupations and environments may have salient features that potentially lead to differing stressors and symptoms of stress outcomes (Fairbrother & Warn, 2003; Sparks & Cooper, 1999).

Empirical research that focuses on nurses has also shown a significant negative relationship between stress and job satisfaction (Lu et al., 2012; Ramirez et al., 1996; Tetrick & Larocco, 1987). For example, Zeytinoglu et al. (2005) find that as symptoms of stress increase job satisfaction decreases for nurses. Further, a study by Chen et al. (2007) looking at nurse specialists found that role stress accounted for the majority of the variation in job satisfaction. It is important to note that Chen et al. (2007) also included nurse specialist training in their analyses and found that training is a substantial positive contributor to job satisfaction.

Considering the research on the relationship between training and stress (discussed above) and stress and job satisfaction, the combination of these results suggest that perceived access to training (i.e. belief that they have access to needed job-related training and limited organizational restrictions on training participation) can diminish symptoms of stress and that lower stress levels contribute to higher job satisfaction leads to the following hypothesis (see figure 1):

Hypothesis 1: Symptoms of stress mediates the relationship between perceived access to training and job satisfaction for nurses.

2. Method

2.1 Data and Survey Participant Characteristics

The survey sample was drawn from three large teaching hospitals in Southern Ontario. All nurses employed at the hospitals were included in the study target population. After an initial pilot questionnaire was tested, the survey was sent by mail to 2,684 nurses in the participating hospitals. The total response rate was 52% (individual hospital response rates ranged from 40 to 59%) with a final sample size of 1,396. The survey was conducted between April

2002 and July 2002. For key demographic characteristics, such as age, gender, and occupation (i.e. percentage of registered nurses and registered practical nurses), our data are substantially similar to comparisons between 2003 and 2012 for Ontario (College of Nurses of Ontario, 2012).

2.2 Variables and Measurement

For the measurement model underlying Figure 1, confirmatory factor analysis was conducted using all of the items for the scales used in the path analysis. All items for all scales were measured on a five point Likert scale; for example, 1=strongly disagree, 2=disagree, 3=neither agree nor disagree, 4= agree, and 5=strongly agree. All factor loadings were significant ($p < 0.01$) and the model exhibited an acceptable fit, detailed results are available upon request from the first author. With regard to scale reliability Cronbach's alphas are presented below (see Table 1 diagonal). Further, to test for common method variance (CMV) we added a first-order factor to the measurement model underlying Figure 1—this is equivalent to the single-method-factor approach (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). For the CMV latent factor, none of the factor loadings for all items (for all scales included in the model) were significant. This is an indication that CMV is not likely a concern (additional details are available upon request).

Spector's 1985 Job Satisfaction Survey (JSS) (Spector, 1997, pp. 75-76) was adapted for the dependent variable job satisfaction measure. The questions assess nine facets of job satisfaction including pay, benefits, contingent rewards, promotion opportunities, immediate supervisor, rules and procedures, co-workers, type of work, and communication within the organization. The overall job satisfaction scale includes all 36 items summed. The overall *job satisfaction* scale had a Cronbach's alpha of .89 indicating a high reliability (and mean = 110.3, standard deviation = 15.3, and a range from 36 to 180 indicating a moderate level of satisfaction).

Perceived access to training was measured with items developed by Zeytinoglu, Denton, Davies, Higgins, Blythe, and Baumann (2002). Exploratory factor analysis, using an iterated principal factors extraction method, resulted in one single factor being revealed consisting of eight items and that accounted for 86% of the variance. The items used are as follows: "a) my schedule prevents me from taking courses/furthering my education, b) access to education varies across units in this hospital, c) support for education is subject to favouritism, d) support for education is inequitable, f) there is a lack of funding for education in my unit, g) there is a lack of funding for education in this hospital, h) there is not sufficient training for new technologies and procedures, and i) I don't feel I am adequately trained in some technologies and procedures" (Zeytinoglu et al., 2002, p. 20). These items all had acceptably high factor loadings. The item "e) I would like to further my education" is not included because of its low communality below the commonly used 0.2 threshold. The perceived access to training scale can be described as a measure of an employees' perception of employer-support and employee need for training. The retrospective nature of this variable also provides some support for its use in a mediation model. The *perceived access to training* scale has a Cronbach's alpha of .77 indicating an adequate internal consistency reliability, and the mean was 22.0 (std. dev. = 4.7 and range 8 to 40) indicating moderate feelings with regard to levels of training access.

Stress measures vary from focusing on sources of stress (stressors such as work intensification, workload, feeling overloaded, dealing with suffering, having managerial responsibilities, and feeling poorly managed and resourced) (Graham et al., 1996; Zeytinoglu et al., 2007), role stress (including dimensions such as role conflict, ambiguity, overload, incompetence, over-qualification, and incongruity) (Chen et al., 2007; Tetrick & Larocco, 1987) to overall measures of stress ("overall how stressful do you find your work?") (Ramirez et al., 1996, p. 726). The present study focuses on symptoms of stress, and we clearly delineate the dimensions of stress by separately measuring the dimensions of sources and types of stress (i.e. we include workload, job control, and job insecurity in the models, see details below).

The *symptoms of stress scale* is a 14-item symptom measure based on previous work by Denton, Zeytinoglu, Webb, and Lian (2002). Items were used to collect reflections on each statement about how often they felt in the past month: (1) exhausted at the end of the day, (2) headaches or migraines, (3) unable to sleep through the night, (4) felt like crying, (5) lack of energy on the job, (6) burnt out, (7) felt like yelling at people, (8) felt like there is nothing more to give, (9) difficulty concentrating, (10) angry, (11) helpless, (12) not in control of my life, (13) irritable and tense, and (14) dizzy (Denton et al., 2002). Because these items are retrospective over the past month their use in a cause and effect mediation model has some support. The aggregate *symptoms of stress* scale had a Cronbach's alpha of .87 indicating high internal reliability and a mean of 32.4 (std. dev. = 7.9 and range from 14 to 70) indicating moderate levels of stress symptoms being felt by nurses.

In addition to demographic variables, control variables related to the employee's job and employment relationships have been included in the analysis to account for alternative explanations of job satisfaction outcomes identified in the literature (Lu et al., 2012). Six items measuring work demands were used to create a *workload* scale (alpha = .85), see Denton, Zeytinoglu, Davies, and Lian for details (2002, p. 337). A seven item *job insecurity* scale (alpha = .88) was

adopted from Zeytinoglu et al. (2007, p. 210). For brevity items from previously validated scales are not listed here and their source has been referenced.

Exploratory factor analysis was used to develop a *job control* scale for inclusion in the path analysis regression. A series of eight items covering job decision latitude and discretion were included in the exploration, detailed output are available from the first author upon request. The Cronbach's alpha for the job control scale indicates an acceptable reliability ($\alpha = .70$). Workload and job control are included in the path analysis regression to account for the long established relationship with symptoms of mental strain (i.e. psychological strain including exhaustion and depression) and subsequent job satisfaction (Schmidt & Diestel, 2011; Tetrick & Larocco, 1987). Finally, *organizational support*, *supervisory support*, and *peer support* were also included (alphas equal to .74, .94, .80, respectively). Organizational support has six items, supervisory support has six items and peer support has four items. These variables are discussed in more detail in Zeytinoglu et al. (2007). Organizational, supervisory, and peer support have been identified as having moderate positive correlations with job satisfaction in the literature (Blegen, 1993; Utriainen & Kyngas, 2009).

Several variables measuring employment characteristics are included: type of employment, nursing position, and importance of income. There were three types of employment status measured: *Full-time employment* status is coded full-time (59%) equal to one and zero otherwise; and part-time (33%) and casual employees (8%) are combined to comprise the reference group. The *prefer different employment status* variable is coded as equal to one if nurses preferred a different employment status than the one they are currently in and zero otherwise. Nurses were asked to indicate their primary position in nursing at the hospital, the variable *Staff RN* was coded as equal to one if the nurse's primary position was as a Staff Registered Nurse and zero otherwise--84% were Staff RNs. The *tenure in occupation* variable is the number of years in the nursing profession. The average tenure was 18 years ($SD = 10.3$). Age is not included in the analysis to avoid collinearity with tenure; however, the average age is 42 years ($SD = 9.5$). Nurses were asked to rate the importance of income to the family's economic well-being (*income importance to family*), 59% rated their income as very important on the scale "1 = not at all important to 5 = very important", very important responses were coded as equal to one and all other responses were coded as zero. Additional demographic control variables include gender (female), education, and marital status. For the education variable, *University degree* (22%) is coded as equal to one if the nurse had completed a Bachelor's degree, post-graduate degree MA, or PhD and all other levels of education were coded as zero. *Gender* is coded as female equal to one and male equal to zero. Most of the survey participants (96%) were female. With regard to marital status, 72% were *married or living with a partner*, coded as equal to one if the nurse was married or living with a partner and zero otherwise. Missing values were imputed for all variables included in the analysis and as a result the final sample used in the analysis was $n=1396$.

2.3 Statistical Analysis

All scale variables were standardized (z-scores) for the path analysis regression, with the exception of tenure in occupation measured in years, so that all multivariate analysis generally uses only standardized continuous variables or binary variables. Standardizing scale variables aids in the interpretability of the output. For example, the regression coefficients represent the amount the standardized dependent variable will change in units of its own standard deviation with respect to a one standard deviation change in the standardized independent variable. This is very useful because the results can be understood in the context of the distribution of the variables of interest (i.e. units of standard deviation). In contrast, unstandardized results are difficult to interpret given scales' ranges vary and no context for comparison across scales exists in unstandardized measures for a one unit change.

Stata 13 was used for all analyses. With regard to the path analysis regression (using maximum likelihood), the equivalent of Baron and Kenny's (1986) three-stage regression analysis was used to test for mediation: (1) the independent variable needs to affect the mediator when the mediator is regressed on the independent variable (Model 1), (2) the independent variable needs to also affect the dependent variable (Model 2), and (3) in a fully specified regression the mediator needs to affect the dependent variable and the independent variable's effect should be less (Model 3), where "less", in the case of strong mediation, implies a non-significant zero parameter estimate (Baron & Kenny, 1986). If all of the above models have significant relationships then it can be said that the linkages of the mediational model have been confirmed. Adjusted R-squared was used to show the additional variance explained while moving toward the full mediation model. It is important to note that the mediation relationship being empirically tested is not causal, but rather the modelled paths suggest associations. Our cross-section data do not enable a proper test of cause and effect.

3. Results

Mean and standard deviation estimates for all variables used in the analyses are presented in Table 1. For each of the scale variables, the Cronbach's alpha reliability estimate is above the commonly accepted 0.70 threshold, see Table 1. For the correlations, all relationships are in the expected direction. It is important to note that the correlation

relationships necessary for mediation are present. The correlation between perceived access to training and symptoms of stress is $r = -0.31$ ($p < 0.01$). Further the correlations between job satisfaction and symptoms of stress and job satisfaction and perceived access to training are $r = -0.49$ ($p < 0.01$) and $r = 0.54$ ($p < 0.01$), respectively.

Table 1. Descriptive, Reliability and Correlation Estimates of Scale Variables ^a

| | Mean | Std. Dev. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------------------------|-------|-----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1 Job satisfaction | 110.3 | 15.33 | <i>0.89</i> | | | | | | | | |
| 2 Perceived access to training | 22.0 | 4.74 | 0.54 | <i>0.77</i> | | | | | | | |
| 3 Symptoms of stress | 32.4 | 7.93 | -0.49 | -0.31 | <i>0.87</i> | | | | | | |
| 4 Workload | 20.6 | 4.44 | -0.47 | -0.27 | 0.41 | <i>0.85</i> | | | | | |
| 5 Job control | 14.4 | 3.24 | 0.52 | 0.34 | -0.31 | -0.30 | <i>0.70</i> | | | | |
| 6 Job insecurity | 15.5 | 4.96 | -0.20 | -0.17 | 0.13 | 0.00 | -0.07 | <i>0.88</i> | | | |
| 7 Organizational support | 16.5 | 3.83 | 0.65 | 0.58 | -0.38 | -0.32 | 0.52 | -0.20 | <i>0.74</i> | | |
| 8 Supervisory support | 19.1 | 5.55 | 0.60 | 0.39 | -0.25 | -0.18 | 0.42 | -0.11 | 0.53 | <i>0.94</i> | |
| 9 Peer support | 15.5 | 2.49 | 0.31 | 0.18 | -0.19 | -0.14 | 0.25 | -0.18 | 0.22 | 0.26 | <i>0.80</i> |

^a n = 1396, the diagonal reports each scale's Cronbach's alpha to aid in the assessment of reliability (in italics). All variables are continuous. Correlations whose absolute values are greater than .03 are significant at the 0.05 level (2-tailed).

Table 2 presents the path analysis regression models for all the steps of the mediation analysis. The continuous variable coefficients are in standard deviation units, so a one standard deviation change, in for example Model 1's perceived access to training variable decreases stress by .08 standard deviations. Model 1 presents the first step of the mediation test of perceived access to training on stress. Models 2 and 3 test the second and third steps of the mediation. F-tests indicate that all models are significant at the 1% level of significance. Further, the mediation models (2 to 3) show that a significant incremental amount of variance is explained from the addition of the mediator variable symptoms of stress--the adjusted R-squared increased about 2% from $R^2 = 0.638$ ($F = 164.8$, $p < 0.001$) to $R^2 = 0.654$ ($F = 166.1$, $p < 0.001$).

Table 2. Perceived Access to Training and Control Factors Associated with Job Satisfaction, with Symptoms of Stress as a Mediator ^a

| Dependent Variable | Model 1 Symptoms of Stress | | Model 2 Job Satisfaction | | Model 3 Job Satisfaction with stress included | | | | | |
|------------------------------------|-------------------------------|-------|-----------------------------|-------|---|-------|-------|-------|-------|-----|
| | B | S.E. | B | S.E. | B | S.E. | | | | |
| Constant | -0.19 | 0.152 | -0.43 | *** | 0.107 | -0.46 | *** | 0.105 | | |
| Independent variable | | | | | | | | | | |
| Perceived access to training | -0.08 | ** | 0.029 | 0.15 | *** | 0.020 | 0.14 | *** | 0.020 | |
| Control variables | | | | | | | | | | |
| Workload | 0.29 | *** | 0.025 | -0.24 | *** | 0.018 | -0.19 | *** | 0.018 | |
| Job control | -0.08 | ** | 0.028 | 0.13 | *** | 0.020 | 0.11 | *** | 0.019 | |
| Job insecurity | 0.07 | ** | 0.024 | -0.05 | ** | 0.017 | -0.04 | * | 0.017 | |
| Organizational support | -0.15 | *** | 0.033 | 0.23 | *** | 0.024 | 0.21 | *** | 0.023 | |
| Supervisory support | -0.03 | | 0.028 | 0.28 | *** | 0.020 | 0.28 | *** | 0.019 | |
| Peer support | -0.06 | * | 0.024 | 0.09 | *** | 0.017 | 0.08 | *** | 0.017 | |
| Full-time employment | 0.18 | *** | 0.049 | -0.03 | | 0.034 | 0.00 | | 0.034 | |
| Prefer different employment status | 0.15 | ** | 0.057 | -0.07 | | 0.040 | -0.05 | | 0.039 | |
| Staff RN | -0.02 | | 0.065 | 0.23 | *** | 0.046 | 0.23 | *** | 0.045 | |
| Tenure in occupation (years) | -0.01 | *** | 0.002 | 0.01 | *** | 0.002 | 0.01 | *** | 0.002 | |
| Income importance to family | 0.08 | | 0.049 | -0.06 | | 0.035 | -0.05 | | 0.034 | |
| University | -0.01 | | 0.056 | 0.01 | | 0.039 | 0.01 | | 0.039 | |
| Gender (female) | 0.18 | | 0.122 | 0.15 | | 0.086 | 0.17 | * | 0.084 | |
| Married or living with a partner | -0.01 | | 0.053 | 0.04 | | 0.037 | 0.04 | | 0.036 | |
| Mediation variable | | | | | | | | | | |
| Symptoms of Stress | -- | -- | -- | | -- | -0.15 | *** | | 0.019 | |
| F | 36.0 | *** | | | 164.8 | *** | | | 166.1 | *** |
| Adjusted R-Square | 0.274 | | | | 0.638 | | | | 0.654 | |

^a n = 1396, standardized regression coefficients are presented for all continuous variables because the z-score standardized variables are used in the analysis, except tenure in occupation.

* $p < .05$, ** $p < .01$, *** $p < .001$

Model 2 shows strong support that perceived access to training positively affects job satisfaction. Perceived access to training has one of the largest positive effects ($B = 0.15$, $p < 0.001$) preceded by organizational support ($B = 0.23$, $p < 0.001$) and supervisory support ($B = 0.28$, $p < 0.001$), and staff RN ($B = 0.23$, $p < 0.001$). Tenure in nursing occupation also had a substantive positive significant effect. For example, for every one year increase in occupation tenure the job satisfaction coefficient increased by .01 standard deviations (or .1 for every ten years). Workload and job insecurity have significant negative effects on job satisfaction.

The analysis in Model 1 shows perceived access to training is significantly and negatively related to symptoms of stress ($B = -0.08$, $p < 0.01$). Job control, organizational support, peer support and occupational tenure also had significant negative associations with symptoms of stress, whereas workload, job insecurity, having full-time employment, and preferring different employment status were all positively and significantly related to symptoms of stress.

Model 3, shows the third stage in the mediation test, both the mediator symptoms of stress ($B = -0.15$, $p < 0.001$) and the independent variable perceived access to training ($B = 0.14$, $p < 0.001$) have substantial significant effects on job satisfaction. The positive effect of perceived access to training is partially mediated by the negative effect of stress in that the perceived access to training effect is smaller. Thus, there is support for Hypothesis 1. Further, the indirect effect, the product of the effects of perceived access to training on stress (path a, in model 1, $B = -.08$, $p < 0.01$) and the effect of symptoms of stress on job satisfaction (path b in model 3, $B = -.15$, $p < 0.01$) is $B = 0.012$ and significant at the 1% level. Both the Sobel z-value test ($z\text{-value} = a*b/\text{SQRT}(b^2*s_a^2 + a^2*s_b^2)$) and the Baron and Kenny (1986) modified Sobel test equation, which is equivalent to the Aroian test ($z\text{-value} = a*b/\text{SQRT}(b^2*s_a^2 + a^2*s_b^2 + s_a^2*s_b^2)$) are used to calculate the standard errors, where the z test statistics are 2.75 and 2.73, respectively, and where a and b are path coefficients and s_a and s_b are their standard errors, see figure 1 for the paths. This indicates that perceived access to training has a positive effect on job satisfaction via reduced symptoms of stress--accounting for 8% of the total effect (i.e. $8\% = 0.012/0.15$, where the total effect equals the direct plus the indirect effects, $0.14+0.012=0.15$). The magnitude of this mediation relationship can be described as relatively weak. This implies symptoms of stress is not a dominant mediator, and that there may be multiple factors mediating the perceived access to training and job satisfaction relationship.

4. Discussion

The findings for mediation indicated that symptoms of stress is a mediator, though weak, accounting for only 8% of the total relationship between perceived access to training and job satisfaction. This suggests that most of the benefits from higher perceived access to training on job satisfaction come from the direct association rather than indirect relationship through symptoms of stress. The level of variance explained by our models is at the higher end of the range of models looking at a similar set of variables (Bartlett, 2001; Lu et al., 2012).

We contribute to the literature by showing the partial mediating role of symptoms of stress in the relationship between perceived access to training and job satisfaction, while controlling for alternative explanations. Our findings extend previous studies that only looked at components of the comprehensive model we present. In particular, previous studies have found that training is negatively related to stress (Ruotsalainen et al., 2008) and perceived access to training is positively related to job satisfaction (Bartlett, 2001; Chen et al., 2007; Gazioglu & Tansel, 2006); and symptoms of stress is negatively associated with job satisfaction (Denton et al., 2002; Zeytinoglu et al., 2005). Further, with regard to our conceptualizations of training and stress, we argue that our emphasis on perceived access to training and symptoms of stress focus on dimensions (of training and stress respectively) that have not been given adequate attention in the human resource management literature. When studying stress, we believe it is important to clearly delineate and separate the dimensions of stress being explored. For training, we argue that the use of a measure of perceived access to training, which encompasses employer-support and employee need, includes two critical elements of training that have not been addressed sufficiently in previous studies.

Similar to Teo and Waters' (2002) findings, our results suggest that among the possible human resource practices employers can choose from, access to training and development have an important role to play in contributing to employee outcomes. Thus, in addition to being concerned with human resource practices that contribute to workload, job control, job insecurity, and support for employees, managers need to be concerned with the access of training and development for all workers. From a strategic human resource management perspective, access to training can be seen as a workplace practice that reduces stress and increases job satisfaction. Training opportunities enable employees to adjust to changes, including not just the learning of tasks and skills in their current job, but also learning that focuses on broadening the employee's view of the organization (i.e. cross-training and development) (Traut, Larsen, & Feimer, 2000, p. 348).

In the context of health staff, our results suggest that hospital administrators and nurse managers need to be concerned with nurses' access to training and development because it can reduce stress and increase job satisfaction. By

prioritizing and promoting access to training, nurse managers can attain training outcomes that include nurses receiving appropriate training and development, and being able to maintain and update their skills and knowledge. Training is one of the key levers available to hospital administrators and nurse managers to improve upon the state of current outcomes. Training opportunities enable nurses to adjust to changes in evidence-based practice and clinical procedures. Thus, when nurses have the knowledge and skills to be able to adequately perform the tasks of their jobs (i.e. dealing with sick patients in need of care), they are more likely to be able to provide a high level of patient care free from deficiencies and lacking serious consequences for patients.

With regard to organization level effects, if the improvements in reduced symptoms of stress and higher job satisfaction at the individual level can be generalized to the unit or organization level then training may contribute to managing stress levels and improving job satisfaction across the organization. In other words, in the context of health staff, hospital level outcomes can be improved through the demonstration of (additional) hospital management support and enabling nurses to satisfy their training needs. The benefits of training should not be overlooked or under-appreciated.

4.1 Limitations and Future Research Directions

The current study is not without limitations. With regard to generalizability, the sample only focused on three large hospitals, so the degree to which the nurses in these hospitals are representative of the nursing occupation, or the health care industry more generally, impacts the generalizability of the results. Beyond nursing as an occupation, Sparks and Cooper's (1999) finding of similar magnitude correlations between mental and physical health and occupational stressors (such as workload, pay, hours of work, control, support, and opportunities for personal development) across a variety of occupations (from civil servants, manual workers, telecommunications engineers to nursing staff) indicates that these findings may extend to other occupations.

The relationships found in the current study cannot be considered causal. The use of data from a single time period (i.e. a cross-sectional research design and not a longitudinal design) implies the data will not be able to assess directional causality between the identified relationships.

With regard to future research, a focus on other mediators is possible. Our results indicate that addressing issues of workload and organizational support may be potential alternative interventions. However, workload and organizational support may also be potential mediators of the perceived access to training and job satisfaction relationship. For example, workload is moderately correlated with perceived access to training. Management's support for training and addressing employees' skill needs may be key elements that enable employees to better manage the demands of their jobs. By creating a better understanding of technologies and procedures, productivity efficiencies are more likely to emerge leading to reduced workload demands. Thus, given the partial mediating role of stress, a focus on other mediators of the training and job satisfaction relationship, such as workload, may prove valuable. Further, given the partial mediation results presented above, the evidence suggests that the role of training should be considered additive to the possible actions that could be taken by managers.

4.2 Conclusion

Access to training is one way for managers to reduce employees' stress and increase job satisfaction--through skill maintenance and enrichment. These interventions also address issues of skill gaps among employees and skill obsolescence, and the need for employees to update or acquire new knowledge and skills to be effective at their tasks and duties. These types of interventions are critical to indicating support for and access to training that encourages job satisfaction. Understanding the utility or effectiveness of varying human resource practices and interventions on mitigating stress is critical for managers with limited resources to devote to reducing or controlling the effects of stress.

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