

A B S T R A C T

This study examined the relationship of job stress with burnout and its three dimensions (emotional exhaustion, lack of accomplishment and depersonalization), job satisfaction, organizational commitment and psychosomatic health problems. Data were collected by means of a structured questionnaire from Canadian managers (N=67) and nurses (N=173). Pearson correlation and moderated multiple regression were used to analyze the data. Job stress was significantly correlated with overall burnout and its three dimensions and job satisfaction in both samples. In the nursing sample, job stress was also significantly correlated with psychosomatic health problems and organizational commitment. Moderated multiple regression only marginally supported the role of gender as a moderator of stress-burnout relationship.

A B R É G É

L'étude porte sur la relation entre le stress au travail et l'épuisement professionnel sous ses trois aspects (épuisement affectif, manque d'accomplissement et dépersonnalisation), la satisfaction au travail, l'identification envers l'organisation et les ennuis de santé psychosomatiques. Nous avons recueilli les données par la voie d'un questionnaire structuré administré à des gestionnaires (N = 67) et à des personnels infirmiers (N = 173) du Canada. Nous les avons analysées par corrélation de Pearson et par régression multiple modérée. Dans les deux échantillons, le stress au travail présentait une corrélation significative avec l'épuisement professionnel (général et sous ses trois aspects) et avec la satisfaction au travail. Dans l'échantillon des personnels infirmiers, le stress au travail présentait aussi une corrélation significative avec les ennuis de santé psychosomatiques et l'identification envers l'organisation. La régression multiple modérée n'appuyait que de façon marginale le rôle des différences hommes-femmes en tant qu'élément modérateur de la relation stress-épuisement professionnel.

Job Stress and Burnout Among Canadian Managers and Nurses: An Empirical Examination

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A number of recent reviews of occupational health have highlighted the importance of understanding stress and burnout relationship for the well-being of the employees and the employing organization.^{1,3} Job stress has been labelled as one of the most serious occupational hazards of modern time in industrialized countries.⁴ Work-related stress affects employee health with 50-80% of diseases being psychosomatic or stress-related in nature.^{5,6} Moreover, the reported cost of work-related stress has been increasing quite rapidly in industrialized countries.⁷ In the United States, the cost of stress and stress-related problems to organizations has been estimated to be in excess of \$150 billion annually.⁸ Burnout, on the other hand, has also been recognized as an occupational hazard for people-oriented professions such as health care, human services and education.^{3,9} It was first discovered in the mid-1970s and its main features include overwhelming exhaustion; feelings of frustration, anger and cynicism; and a sense of ineffectiveness and failure. The experience impairs both personal and social functioning.³ The present study was conducted to examine the relationship between job stress and burnout among Canadian managers (N=67) and nurses (N=173). It was guided by Maslach's General Model of Burnout in which job demands lead to feelings of burnout, that in turn lead to human and organizational costs such as low organizational commitment and more health prob-

lems.¹⁰ The choice of nurses and managers as subjects was based on the rationale that these occupations are traditionally seen as more prone to high stress and burnout because of the very nature of work involved in those jobs.^{11,12} Moreover, serious budget cuts in healthcare across Canada and the mild economic recession during the 1990s have further affected the well-being of employees in these occupations.

Job stress can be conceptualized as an individual's reactions to work environment characteristics that appear threatening to the individual. It indicates a poor fit between the individual's abilities and the work environment, in which excessive demands are regularly made of the individual or the individual is not fully equipped to handle a particular situation. Implicit in this conceptualization of stress is the chronic nature of stress, that implies that chronic stress arises when the individual does not fully recover between work days, causing lasting physiological strain that may result in stress-related disease or end-organ dysfunction.^{13,14} In contrast, acute stress is conceptualized in terms of short, temporary situations such as taking examinations, intensive employment interviews or dealing with short-lived extraordinary work levels such as those faced by sales personnel with the Christmas and New Year shopping rush or accountants at the end of the fiscal year and income tax filing season.¹⁵ Investigations that employ the acute stress perspective generally measure changes from, and return to baseline states, whereas the studies that employ the chronic stress perspective usually rely upon self-reports of psychological states and a range of symptoms assumed to be related to the enduring characteristics of particular occupations or types of jobs.^{1,2,13}

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In the present study, the person-environment model of chronic job stress was employed.¹⁶ However, other investigations have used different conceptualization of stress in their studies and these are reported elsewhere.^{1,17} Our choice of the person-environment fit model was based on its incorporation of both chronic and acute stress, and its popularity in health care and behavioural sciences as well as its solid empirical support.¹⁸ Notwithstanding conceptual variation, job stress usually results in disruption of the individual's psychological and physiological homeostasis, forcing deviation from normal functioning in interactions with job and work environment. In the face of chronic job stress, an individual's deviation from normal functioning is more likely to move toward the dysfunctional side. This happens because by nature most employees are extremely averse to chronic job stress that creates an uncomfortable situation in the workplace.^{2,3}

As mentioned earlier, this study was conducted among Canadian managers and nurses. In line with the extensive empirical literature on job stress and well-being from different occupational groups including managers and nurses as well as with the Maslach and Leiter general model of burnout, a number of hypotheses were developed.^{12,19-22} Specifically, the following three hypotheses were tested in the present study:

Hypothesis 1: Job stress will be positively related to overall burnout and its three dimensions (emotional exhaustion, lack of accomplishment and depersonalization).

Hypothesis 2: Job stress will be negatively related to job satisfaction and organizational commitment.

Hypothesis 3: Job stress will be positively related to psychosomatic health problems.

METHOD

Research setting

The present study was conducted in two different settings in a large Canadian metropolitan city on the east coast. Managers attending a large urban university on a part-time basis were invited to participate.

TABLE I
Means, Standard Deviations and Reliability Coefficients
for Managers (M) and Nurses (N)

Variable	Sample	Number of Items	Range	Means	S.D.	Alpha Reliability
Job Stress	M	13	1-65	32.05	11.37	0.85
	N	13	1-65	29.80	9.6	0.84
Overall Burnout	M	22	1-110	42.04	22.46	0.85
	N	22	1-110	51.80	12.20	0.84
Emotional Exhaustion	M	9	1-45	18.63	9.43	0.83
	N	9	1-45	22.80	7.50	0.85
Lack of Accomplishment	M	7	1-35	12.33	6.09	0.78
	N	7	1-35	19.01	4.33	0.67
Depersonalization	M	5	1-25	11.44	6.56	0.80
	N	5	1-25	10.01	4.11	0.71
Job Satisfaction	M	4	1-28	16.08	5.37	0.81
	N	4	1-28	19.10	3.66	0.75
Health Problems	M	—	—	—	—	—
	N	10	1-50	17.12	6.33	0.93
Organizational Commitment	M	—	—	—	—	—
	N	16	1-80	48-30	7.90	0.82

They will be referred to as managers, henceforth. Nurses working in a large hospital were also invited to participate. They will be referred to as nurses, henceforth.

Procedures

In both settings, data were collected by means of a structured questionnaire. In the managerial sample, 75 questionnaires were distributed among managers taking MBA evening classes. They were requested to mail the completed questionnaires to researchers at the university's address. With one follow-up, 67 (89%) usable questionnaires were returned. In the hospital sample, approximately 340 copies of the questionnaire were distributed among nursing staff with the paycheque. Nurses were asked to mail the completed questionnaire in a prepaid envelope to researchers at the university's address. With one follow-up, 175 (51%) completed questionnaires were returned.

Sample characteristics

In the managerial sample, the majority of the respondents were male (72%). The average manager was 31 years of age and had 17 years of education. Almost half (46%) of the respondents had an engineering background and the remaining came from a variety of backgrounds. In the nursing sample, the majority of respondents were female (67%). The average age was 39.3 years, average seniority was 12.1 years and the average education was 16 years. The respondents were quite similar to the actual nursing staff at the hospital with

regard to a number of background and sociodemographic variables.

Measures

In both research settings, the same standardized scales were used to assess variables in order to make comparisons meaningful. However, data on psychosomatic health problems and organizational commitment were available only for the nursing sample. Data on job stress, burnout and job satisfaction were obtained from both samples.

Job Stress

Job stress was assessed with the 13-item scale developed by Parker and De Cottiis.²³ It is a Likert-type scale with 1-5 response options, "1" indicating a strong agreement and "5" indicating a strong disagreement with the item. A higher score on the scale indicated a higher degree of job stress. This scale is frequently used to tap overall job stress and has good psychometric properties.¹⁴

Burnout

Burnout was assessed with the 22-item Maslach Burnout Inventory.²⁴ The scale consists of three subscales; emotional exhaustion, depersonalization, and lack of personal accomplishment. It is one of the most widely used measures of burnout and has excellent psychometric properties.²⁵ The scale was scored with a Likert-type format with response categories from 1-5 indicating strong agreement to strong disagreement. A higher score on this scale indicated a higher degree of burnout.

TABLE II
Intercorrelation Among Dependent Variables
for Managers (M)* and Nurses (N)†

Variable	Sample	1	2	3	4	5	6	7
Overall Burnout	M	–						
	N	–						
Emotional Exhaustion	M	0.87	–					
	N	0.89	–					
Lack of Accomplishment	M	0.81	0.63	–				
	N	0.62	0.32	–				
Depersonalization	M	0.60	0.33	0.31	–			
	N	0.70	0.49	0.20	–			
Job Satisfaction	M	-0.55	-0.50	-0.40	-0.39	–		
	N	-0.56	-0.51	-0.38	-0.38	–		
Health Problems	M	–	–	–	–	–	–	
	N	0.45	0.46	0.29	0.10	-0.32	–	
Organizational Commitment	M	–	–	–	–	–	–	–
	N	-0.34	-0.26	-0.24	-0.26	0.53	-0.09	–

* N=67, $r=0.25$, $p<0.05$, $r=0.26$, $p<0.01$
† N=173, $r=0.16$, $p<0.05$, $r=0.17$, $p<0.01$

TABLE III
Pearson Correlation Between Job Stress and
Dependent Variables for Managers and Nurses

Variable	Managers (N=67)	Nurses (N=178)
Overall Burnout	0.60**	0.56**
Emotional Exhaustion	0.68**	0.58**
Lack of Accomplishment	0.51**	0.19*
Depersonalization	0.39**	0.33**
Job Satisfaction	-0.37**	-0.34**
Health Problems	–	0.55**
Organizational Commitment	–	-0.20*

* $p<0.05$ ** $p<0.01$

Job Satisfaction

Job satisfaction was assessed by using the Hoppock Scale.²⁶ The scale has four items and each item has well-explained 1-7 scale points. A high score on this scale indicated a higher degree of job satisfaction.

Psychosomatic Health Problems

Psychosomatic health problems were assessed by adopting measures from the Michigan studies of workers' health.¹⁶ Health problems examined in the present study included headaches, upset stomach, trouble getting to sleep, gas and bloated feelings, changes in bowel movement, early morning sickness, loss of appetite, dizziness during the day, nervousness or shakiness inside and inability to relax. Each problem had 1-5 response categories, 1 representing having to face the problem less than once a month and 5 representing having to face the problem several times a week. Individuals' responses on various health problems were combined to create the index of psychosomatic health problems. A

high score on this index indicated a higher degree of health problems.

Organizational Commitment

Organizational commitment was assessed with the 16-item scale developed by Meyer and Allen.²⁷ It is a Likert-type scale with response options 1-5 indicating strong agreement to strong disagreement with each item. A high score on this scale indicated a higher degree of organizational commitment. The scale is regularly used in behavioural sciences to tap organizational commitment and has good psychometric properties.

RESULTS

The means, standard deviations and reliability coefficients of the study variable are presented in Table I. Reliabilities varied from 0.85 (job stress and burnout) to 0.78 (lack of accomplishment) in the managerial sample. In the nursing sample, reliabilities varied from 0.93 (health problems) to

0.67 (lack of accomplishment). In both samples, reliabilities were judged to be sufficient for survey research.

Intercorrelations among dependent variables were computed and are presented in Table II. Overall burnout was correlated moderately with almost all variables in both samples. Job satisfaction was also correlated moderately with health problems and organizational commitment in the managerial sample. Since none of the intercorrelations were excessively high, all variables were kept for further analysis.

Pearson correlations were computed to examine the relationship between job stress and dependent variables. These correlations are presented in Table III for both samples. Job stress was significantly and positively correlated with overall burnout and its three dimensions among managers and nurses, clearly supporting Hypothesis 1. Job stress was significantly negatively correlated with job satisfaction in both samples and was significantly negatively correlated with organizational commitment in the nursing sample. Thus, Hypothesis 2 was supported by the data in the present study. Job stress was significantly positively correlated with psychosomatic health problems in the nursing sample, thus supporting Hypothesis 3. In summary, all three hypotheses were clearly supported by the data in the present study.

Moderated multiple regression was used to examine the role of gender (male vs. female) as a moderator of job stress and burnout relationship. To determine the joint contribution of job stress and gender on seven dependent variables, we performed a hierarchical regression analysis in which job stress was entered first, followed by gender, and then job stress X gender. Out of a possible 12 interaction effects in two samples (5 among managers and 7 among nurses), only 1 was found to be statistically significant and it involved the variable of psychosomatic health problems in the nursing sample. The unique variance explained by the interaction effects was 5% ($p<0.05$). A close examination of the data through subgroup analysis indicated that female nurses with high job stress experienced more health problems than male nurses in similar situations.

DISCUSSION

The results of the present study derived from Canadian managers and nurses indicated that job stress was significantly related to overall burnout and its three dimensions. It was also found to be significantly related to job satisfaction, organizational commitment and psychosomatic health problems. These findings are in general agreement with the bulk of literature on job stress and employee well-being. Before the findings are discussed any further, a note of caution is warranted about the perceptual nature of various measures used in the present study. For future research, some objective measures should be used along with subjective measures in occupational stress research.

The finding that job stress is related to burnout and its three dimensions is in line with a recent meta-analysis of burnout.²⁸ The Lee and Ashforth analysis indicated that job stress and stressors such as role ambiguity, conflict, overload and work pressure were significantly related to emotional exhaustion, lack of personal accomplishment and depersonalization in studies they included in their meta-analysis.²⁸ A recent cross-cultural study of teachers in Canada (N=420) and Pakistan (N=335) also found that job stress was significantly and positively correlated with overall burnout and its three dimensions.¹⁴ In summary, the result of the present study on stress and burnout lends further support to the pervasive effects of stress on employee well-being.

The findings of the adverse effects of job stress on job satisfaction, organizational commitment and psychosomatic health problems are regularly reported in the literature.^{5,29-32} For example in a study of clerical workers and sales assistants from a financial services organization in the United States, Steffy and Jones found that measures of perceived job stress were significantly related to psychosomatic distress and coronary disease risk.³³ Similarly, in a recent study of managers in Taiwan, it was found that job stress was significantly related to job satisfaction, mental health and physical health.³⁴ In another study, Jamal and Preena found that job stress was significantly related to organizational commit-

ment, overall job satisfaction (JDI) and satisfaction with pay, coworkers and supervision among airline employees.³⁵ Finally, in a recent cross-cultural study, it was found that job stress was related to satisfaction with pay, work and supervision among teachers in Canada and Pakistan.³⁶

In summary, the results of the present study on stress and job satisfaction, organizational commitment and psychosomatic health problems add additional evidence on the harmful effects of chronic job stress on employees and employing organizations. Most of the empirical studies on job stress and employee well-being are conducted on people from one occupational group.^{1,31,37} The present study examining employees from two different occupational groups adds further evidence to the growing literature of job stress and employee well-being. Since organizational factors tend to play an important role in employees' stress, burnout and well-being, it is recommended that organizations should actively try to detect such factors and take corrective actions for the better health and well-being of the employees.^{38,39}

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REFERENCES

- Baba VV, Jamal M, Tourigny L. Work and mental health: A decade in Canadian Research. *Can Psychol* 1998;38:94-107.
- Beehr TA. Research on occupational stress: An unfinished enterprise. *Person Psychol* 1998;51:835-44.
- Maslach C, Goldberg J. Prevention of burnout: New perspectives. *Appl Prevent Psychol* 1998;7:63-74.
- Dollar MF, Winefield AH. Managing occupational stress: A national and international study. *Int J Stress Management* 1996;3:69-93.
- Daley AJ, Parfitt G. Good health - Is it worth it? *J Occup Organ Psychol* 1996;69:121-34.
- Jamal M, Badawi JA. Job stress among Muslim immigrants in North America: Moderating effects of religiosity. *Stress Med* 1993;9:145-51.
- Siu OL, Cooper CL. A study of occupational stress, and job satisfaction and quitting intention in Hong Kong firms. *Stress Med* 1998;14:55-66.
- Donatelle RJ, Hawkins MJ. Employee stress claims: Increasing implications for health promotion programs. *Am J Health Prom* 1989;3:19-25.
- Golembiewski RT. Next stage of burnout research and applications. *Psychol Reports* 1999;84:443-46.
- Maslach C, Leiter MP. *The Truth About Burnout: How Organizations Cause Personal Stress and What To Do About It?* San Francisco: Jossey-Bass, 1997.
- Dolan SL, Van Ameringen MR, Corbin S, Arsenault A. Lack of professional latitude and role problems as correlates of propensity to quit amongst nursing staff. *J Adv Nursing* 1992;17:1455-59.
- Plante A, Bouchard L. Occupational stress, burnout and professional support in nurses working with dying patients. *OMEGA* 1995;32(2):93-109.
- Rick T, Acton S, Payne R. Acute and chronic stress in cardiothoracic anaesthetists. *Stress Med* 1988;4:3-9.
- Jamal M. Job stress, Type-A behavior and well-being: A cross-cultural examination. *Int J Stress Management* 1999;6:57-68.
- Clusky GR, Vaux AC. Is seasonal stress a career choice of professional accountants? *J Employment Counsel* 1997;34:7-19.
- Caplan RD, Cobb S, French JRP, et al. *Job Demands and Worker Health*. Washington, DC: Government Printing Press, 1982.
- Beehr TA, Franz TM. The current debate about the meaning of job stress. In: Ivancevich JM, Ganster GD (Eds.), *Job Stress: From Theory to Suggestion*. New York: Hawarth Press, 1987.
- Edwards JR, Harrison RV. Job demands and worker health: A three dimensional reexamination of the relationship between P-E fit and strain. *J Appl Psychol* 1993;78:628-48.
- Armstrong-Stassen M, Al-Ma Aitah R, Cameron S, Horsburgh M. Determinants and consequences of burnout: A cross-cultural comparison of Canadian and Jordanian nurses. *Health Care for Women Int* 1993;15:413-21.
- Duquette A, Kerouac S, Sandhu BK, et al. Psychological determinants of burnout in geriatric nursing. *Int J Nursing Studies* 1995;32:443-56.
- Jamal M, Baba VV. Shiftwork, burnout, and well-being: A study of Canadian nurses. *Int J Stress Management* 1997;4:197-204.
- Krausz M, Koslowsky M. Impact of shift work and department type upon strain and attitudinal measures of hospital nurses. *Work and Stress* 1995;9:88-94.
- Parker DF, DeCotiis TA. Organizational determinants of job stress. *Org Behav Hum Perf* 1983;32:160-67.
- Maslach C, Jackson S. The measurement of experienced burnout. *J Occup Behav* 1981;2:99-113.
- Leiter MP, Schaufeli WB. Consistency of the burnout construct across occupations. *Anxiety, Stress and Coping* 1996;9:229-43.
- McNichols CW, Stahl JJ, Manley TR. A validation of Hoppock's job satisfaction measure. *Acad Management J* 1978;21:737-42.
- Meyer JP, Allen NJ. Testing the "side bet theory" of organizational commitment: Some methodological consideration. *J Appl Psychol* 1984;69:372-78.
- Lee RT, Ashforth BE. A meta-analytic examination of the correlates of the three dimensions of burnout. *J Appl Psychol* 1996;81:123-33.
- Jacobson BH, Aldana SG, Goetzel RZ, et al. The relationship between perceived stress and self-reported illness-related absenteeism. *Am J Health Prom* 1996;11:54-61.
- Jamal M. Job stress and job performance controversy: An empirical assessment. *Org Behav Hum Perf* 1984;33:1-21.

31. Kinicki AJ, McKee FM, Wade KJ. Annual review, 1991-1995: Occupational health. *J Vocational Behav* 1996;49:190-220.
32. Ganster DC, Shaubroeck J. Work stress and health. *J Management* 1991;17:235-71.
33. Steffy BD, Jones WJ. Workplace stress and indicators of coronary disease risk. *Acad Management J* 1988;31:686-98.
34. Lu L, Tseng HJ, Cooper CL. Managerial stress, job satisfaction and health in Taiwan. *Stress Med* 1999;15:53-64.
35. Jamal M, Preena S. Job stress and employee well-being among airline employees in an Asian developing country. *Int J Stress Management* 1998;5:121-27.
36. Jamal M. Job stress and employee well-being: A cross-cultural empirical study. *Stress Med* 1999;15:153-58.
37. Jamal M, Baba VV. Stressful jobs and employee productivity: Results from studies on managers, blue-collar workers and nurses. *Int J Management* 1992;9:62-67.
38. Daniels K. Why aren't managers concerned about occupational stress? *Work and Stress* 1996;10:352-66.
39. Dessler G. How to earn your employees' commitment? *Acad Man Exec* 1999;13(2):58-67.

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LETTER/CORRESPONDANCE

Should Public Health Workers be Able to Address the Public's Health?

I recently had the opportunity to give a "How Does Poverty and Low Income Affect Health" presentation to close to 100 health workers at the Canadian Public Health Association Annual meeting in Ottawa.¹ This presentation had previously been given to Health Canada staff, members of the social development sector, and a number of community forums in Toronto. This was the first time, however, that the audience had been mainly public health workers.

After outlining the indisputable evidence concerning the adverse effects of poverty and low income, I usually consider the ideological, political, institutional, personal and attitudinal barriers to health workers raising issues of poverty and income. I recognize that it is difficult for health workers to raise issues within an institution that contradict the "party line" that may be emanating from government officials and institutional mandarins.

Public health workers were in complete agreement with my thesis that poverty and low income pose direct threats to the health of Canadians. Indeed, no one suggested that pursuit of neo-liberal policies of increasing economic inequality, weakening social infrastructure and weakening social cohesion was good for population health! I was not prepared, however, to hear the stories in the question and answer period following my presentation about how health workers feel they are unable to raise these issues within their organizations or even in their role as private citizens.

I was repeatedly told that public health workers cannot speak out on how poverty and low income affects health in letters to

editors, to local elected representatives, or even to fellow citizens. To do so would jeopardize further advancement in their careers or even the future of their careers in public health.

I was stunned to hear this. As I stated at the next day's Annual General Meeting in support of the CPHA resolution concerning the effects of poverty on health, "It is frightening that those who know the most about the health effects of poverty – i.e., public health workers – feel unable to raise these issues in their role of citizens." I see no such reticence among teachers, social workers, and others in publicly raising issues they see as affecting the well-being of the public.

Considering the growing literature on the health effects of poverty and low income on health, and the increasing incidence of poverty in Canada, the issue of the ability of public health workers to participate in societal debate as citizens demands attention. Perhaps the passing by CPHA of its strong motion concerning the effects of poverty upon health will help stimulate this discussion.²

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REFERENCES

1. Raphael D. Addressing Health Inequalities in Canada. Presentation given at the Annual Meeting of the Canadian Public Health Association, October 24, 2000. On line at <http://www.utoronto.ca/qol/cpha2000.pdf>
2. Reducing Poverty and Its Negative Effects on Health. Resolution Adopted by the Canadian Public Health Association at the CPHA Annual Meeting in Ottawa, October 25, 2000. On line at <http://www.cpha.ca/english/policy/resolu/2000s/2000/page2.htm>.