Work stress among health care providers

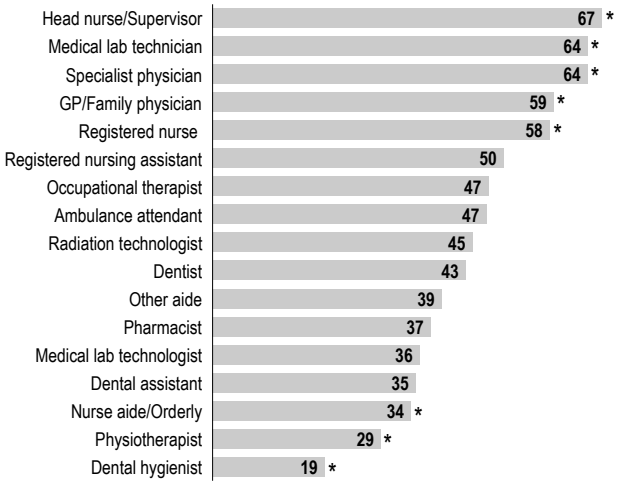
by Kathryn Wilkins

Keywords: occupational health, workload, health occupations

According to data from the 2003 Canadian Community Health Survey (CCHS), nearly one in three employed Canadians, about 5.1 million, reported that most days at work were "quite" or "extremely" stressful.

This article focuses on workers entrusted with providing health care to Canadians. Clearly, the well-being of this group of workers, which includes not only doctors and nurses, but also occupations such as ambulance attendants, technicians and therapists, is an important concern. The analysis compares levels of work stress—a factor that has been linked to poor physical and mental health and to occupational injury—among various types of health care providers.[1,2] Associations between stress and selected job-related, socio-demographic and personal characteristics are also described.

Chart 1
Percentage of health care providers reporting high work stress, by occupation, household popoulation aged 18 to 75, Canada, 2003



* significantly different from combined estimate for all other health care providers ($p < 0.05$)
Source: 2003 Canadian Community Health Survey, cycle 2.1.

Health care providers highly stressed

In 2003, health care providers comprised 6% of the Canadian work force aged 18 to 75 (data not shown). Nearly half (45%) of these workers, or 413,000, reported that most days on the job were "quite" or "extremely" stressful (hereafter referred to as "high" stress). This compared with 31% of all other employed people (data not shown).

The likelihood of high job stress among health care providers varied from a low of one in five (19%) dental hygienists to two-thirds (67%) of head nurses and nurse supervisors (Chart 1). Others with high work stress were medical laboratory technicians, specialist physicians, general practitioners and family physicians, and registered nurses (other than head nurses and supervisors); in these groups, the proportions reporting high work stress ranged from 58% to 64%.

In addition to dental hygienists, health care providers who were relatively *less* likely to report high work stress included physiotherapists (29%) and nurse aides and orderlies (34%).

Work-related factors

The likelihood of high work stress was positively related to income. About half of health care providers whose personal income was $40,000 or more reported high work stress, compared with 28% of those with incomes less than $20,000, and 42% of those in the $20,000 to $39,999 range (Table 1).

Work stress also varied according to logistical features of the job, such as shifts and number of hours worked. Health care providers whose schedule was other than a regular daytime shift were more likely to report high work stress. Those who worked less than 35 hours per week were not as likely as those with longer hours to report high stress. Self-employed health care providers were less likely to report high work stress than were those who worked for others.

Table 1
Percentage of health care providers reporting high work stress, by selected work-related and personal factors, household population aged 18 to 75, Canada, 2003

	%
Total health care workers	**45.0**
Work-related factors	
Personal income	
Less than $20,000	27.8*
$20,000 to $39,999	41.8*
$40,000 to $59,999†	54.0
$60,000 or more	49.8
Shift	
Involves shiftwork	47.7*
Regular day shift†	42.4
Employer	
Self-employed†	36.8
Not self-employed	46.3*
Weekly work hours	
Less than 35†	36.9
35 to 44	44.5*
45 to 79	60.3*
80 or more	56.8*
Personal factors	
Sex	
Men†	42.4
Women	45.6
Age group	
18 to 24†	31.0
25 to 34	42.4*
35 to 44	48.0*
45 to 54	49.9*
55 to 75	40.9*
Day-to-day stress	
Low (not at all/not very/a bit stressful)†	28.7
High (quite/extremely)	78.3*
Life satisfaction	
Satisfied†	44.4
Dissatisfied	75.2*
General health	
Good/Very good/Excellent†	42.7
Fair/Poor	54.7*

† reference category
* significantly different from estimate for reference category ($p < 0.05$)
Source: 2003 Canadian Community Health Survey, cycle 2.1.

Personal factors

High work stress was reported by 42% of male health care providers and 46% of their female counterparts, a difference that was not statistically significant (Table 1). However, there were differences by age. Health care providers younger than 25 were less likely to report high work stress (31%) than were those aged 25 or older. This may reflect the nature of the jobs that people these ages hold, specifically, having less responsibility at younger ages. Work stress peaked at ages 35 to 54, with about 50% of health care providers in this age

The questions

Occupation was defined using the Standard Occupational Classification (SOC) 1991 - Canada. "Health occupations" is one of 10 occupational sectors defined by the SOC.

The estimates for *work stress* were based on responses to the question, "The next question is about your main job or business in the past 12 months. Would you say that most days at work were: not at all stressful, not very stressful, a bit stressful, quite stressful, or extremely stressful?" Respondents who indicated either of the last two categories were classified as reporting high work stress.

Day-to-day stress was assessed by the question, "Thinking about the amount of stress in your life, would you say that most days are not at all stressful, not very stressful, a bit stressful, quite stressful, or extremely stressful?" Respondents who indicated either of the last two categories were classified as reporting high day-to-day stress.

Life satisfaction was measured by the question, "How satisfied are you with your life in general? very satisfied? satisfied? neither satisfied nor dissatisfied? dissatisfied? very dissatisfied?"

Self-perceived general health was measured by asking, "In general, would you say your physical health is excellent? very good? good? fair? poor?"

range reporting high work stress. The proportion fell to 41% among those aged 55 to 75.

In addition to questioning respondents about stress at work, the CCHS asked about stress in their daily lives. Nearly four in five (78%) health care providers who reported that their lives were "quite a bit" or "extremely" stressful also reported high work stress. This may partly reflect the impact that work stress has on a person's life in general, or perhaps a tendency for people who feel stressed at work to perceive high stress in other situations.

Data source and limitations

Estimates are based on data from the 2003 Canadian Community Health Survey (CCHS) (cycle 2.1). The CCHS is a general health survey that collects cross-sectional information about the health of Canadians every two years. It covers the non-institutionalized household population aged 12 or older in all provinces and territories, except members of the regular Canadian Forces and residents of Indian reserves, Canadian Forces bases, and some remote areas. In cycle 2.1, the overall response rate was 80.6%; the total sample size was 135,573 respondents. Of these, 75,184 respondents were aged 18 to 75 and had worked at some time during the year; 4,551 reported that they had worked in a health occupation. Job categories in the health care sector for which sample size was sufficient were included in the analysis. The analysis was based on weighted data from these respondents.

To account for survey design effects, standard errors and coefficients of variation were estimated using the bootstrap technique.[3-5]

The data used for this analysis are self-reported and not validated according to any external source. Perceptions of work stress may vary depending on factors that were not measured in the CCHS, such as an individual's resilience, outlook or other personal or socio-cultural traits.

Because the study is based on cross-sectional data, a cause-and-effect relationship between job category and stress cannot be inferred. Although it is probable that some jobs are more stressful than others, it also may be that people who are more likely to report high stress are also more likely to be employed in certain jobs.

Links to dissatisfaction

Similar to the association between day-to-day stress and work stress, life dissatisfaction was strongly related to work stress. Three-quarters (75%) of health care providers who were "dissatisfied" or "very dissatisfied" with their lives reported high work stress.

Work stress differed to a smaller, but signficant, extent by level of general health. Health care providers who described their health as "good," "very good" or "excellent" were less likely to report high work stress (43%) than were those who saw their health as "fair" or "poor" (55%). It is reasonable to assume that coping with compromised health may compound the stressfulness of work.

To summarize, the results of bivariate analysis indicate that the proportion of health care providers who reported high work stress varied according to their job and to conditions intrinsic to the job, such as shift work and number of hours worked. But the likelihood of perceiving stress on the job also varied according to personal characteristics of the worker.

Doctors, nurses most stressed

Multivariate analysis was used to examine the relationship between the job and perceived work stress, while controlling for the effects of personal characteristics and other influences. The association between work stress and each job category was examined in separate logistic regression models that adjusted for the potentially confounding effects of day-to-day stress, life satisfaction, general health, sex and age.

Even when influences outside the workplace were taken into consideration, specialist physicians, general practitioners/family physicians, and registered nurses (excluding supervisors and head nurses) had a statistically elevated likelihood of work stress relative to other health care providers (Table 2). Consistent with the bivariate results, the odds ratio for nurse supervisors and head nurses also appeared to be elevated, but fell just short of significance ($p = 0.053$), likely because of inadequate

Table 2

Adjusted odds ratios relating occupation to high work stress among health care providers, household population aged 18 to 75, Canada, 2003

	Adjusted odds ratio	95% confidence interval
Specialist physician	2.8*	1.4 to 5.5
Registered nurse†	2.1*	1.6 to 2.8
Head nurse/Supervisor	2.1	1.0 to 4.3
General practitioner/Family physician	2.0*	1.1 to 3.7
Dentist	1.5	0.5 to 4.5
Registered nursing assistant	1.3	0.7 to 2.4
Medical lab technician	1.2	0.6 to 2.5
Radiation technologist	1.2	0.5 to 2.8
Occupational therapist	0.9	0.4 to 2.1
Ambulance attendant/Other paramedic	0.9	0.3 to 2.4
Pharmacist	0.8	0.4 to 1.8
Physiotherapist	0.7	0.4 to 1.2
Other aide	0.7	0.3 to 1.5
Dental assistant	0.6	0.3 to 1.3
Nurse aide/Orderly	0.5*	0.4 to 0.7
Dental hygienist	0.4*	0.2 to 0.8
Medical lab technologist/Pathologist's assistant	0.4*	0.2 to 0.9

† other than Head nurse/Supervisor

* significantly different from estimate for all other health care workers ($p < 0.05$)

Note: A separate model was fitted for each occupation; thus the odds ratios cannot be compared with each other. Each model was controlled for sex, age, general physical health, life stress, life satisfaction and self-employment (or not).

Source: 2003 Canadian Community Health Survey, cycle 2.1.

statistical power. For medical laboratory technicians, the elevated likelihood of high work stress did not persist when other influences were controlled, suggesting that the association observed in bivariate analysis was at least partially accounted for by factors outside the job.

The multivariate analysis also indicated that the odds of high work stress were significantly lower, compared with all other health care workers, for laboratory technologists, dental hygienists, and nurse aides and orderlies.

This multivariate analysis indicates that health care providers are far more likely than employed people in general to feel that their jobs are highly stressful. Physicians and nurses report the most stress, even when influences outside the job are taken into account. Because doctors and nurses bear a major responsibility for delivering health care, these findings should concern all Canadians.

Kathryn Wilkins (613-951-1769; Kathryn.Wilkins@statcan.ca) is with the Health Information and Research Division at Statistics Canada, Ottawa, Ontario, K1A 0T6.

References

1 Wilkins K, Beaudet MP. Work stress and health. *Health Reports* (Statistics Canada, Catalogue 82-003) 1998; 10(3): 47-62.

2 Wilkins K, Mackenzie SG. Work injuries. *Health Reports* (Statistics Canada, Catalogue 82-003) 2007; 18(3): 25-42.

3 Rao JNK, Wu CFJ, Yue K. Some recent work on resampling methods for complex surveys. *Survey Methodology* (Statistics Canada, Catalogue no. 12-001) 1992; 18(2): 209-17.

4 Rust KF, Rao JNK. Variance estimation for complex surveys using replication techniques. *Statistical Methods in Medical Research* 1996; 5: 281-310.

5 Yeo D, Mantel H, Liu TP. Bootstrap variance estimation for the National Population Health Survey. American Statistical Association: *Proceedings of the Annual Meeting of the American Statistical Association, Survey Research Methods Section*. Baltimore: August 1999.