

Back pain and parenthood

Murray M Finkelstein

Abstract

Objective—To test the hypothesis that reports of back pain in a working population are associated with parenthood.

Methods—A questionnaire survey of back pain in municipal fire fighters and police officers in a municipality in Ontario, Canada. The questionnaire was distributed to current employees of fire and police departments. The survey was completed by 129 fire fighters (68% of the active force) and 346 police officers (74% of the force).

Results—36% of the respondents complained of a back problem. The prevalence increased from 13% among men aged 19 to 28 to 47% among men aged 49 to 59. The complaint was more common among firefighters (42%) than among police officers (33%). In a logistic regression analysis, back problems were significantly associated with the duration of employment, cigarette smoking, and the number of children.

Conclusions—Back pain is a multifactorial problem with significant impact on the working population. This survey has found that parenthood, a risk factor not previously described among men, is associated with self reported back pain. The mechanism presumably involves lifting of children or recreational factors. Fatherhood seems to be a confounder that should be controlled for in studies of occupational causes of back pain.

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Keywords: back pain; children; confounding

Back pain is a common ailment in western society, and is a major source of morbidity in the working population. Burchfiel and colleagues reported that 35% of 5900 employees from the Dow Chemical Company who completed a survey complained of back or neck pain during the previous year.¹ A visit to a physician was involved in 10% of complainants. In Ontario from 1982 to 1991 the Workers' Compensation Board accepted an average of 52 000 lost time claims a year for back injuries. These claims formed 29% of the total lost time claims accepted during this period.²

Occupational factors are thought to play an important part in the development or outcome of back pain. Riihimaki reviewed the

scientific literature and described a variety of work related factors associated with back pain.³ These include heavy physical work (lifting, carrying, pulling, and pushing); twisting; bending; non-neutral trunk postures; sitting; motor vehicle driving; and various psychological and psychosocial factors related to work, such as monotonous work and job dissatisfaction.

Other, non-occupational, factors have also been associated with the occurrence of low back pain.^{3,4} These include age, cigarette smoking, alcohol consumption, and psychosocial factors. My experience and anecdotal accounts from colleagues and patients have suggested that activities that involve children may be a source of back pain. Two studies have reported associations between the number of births or pregnancies and sciatica or low back pain in women,^{3,6} but parenthood has not been reported as a risk factor for back pain in men. Data from a survey of police officers and fire fighters allowed a test of the hypothesis that parenthood was hazardous to back health in men.

Materials and methods

Members of a municipal fire department were surveyed for current health after attendance at a chemical fire. Police officers in the same municipality served as a comparison population. The survey was completed by 129 fire fighters (68% of the active force) and 346 police officers (74% of the force). All the subjects of this analysis were men.

The questionnaire included questions about back pain: "Do you have problems with back pain?"; and personal habits including smoking and alcohol use. Information was collected about children fathered by the subject to explore suggestions that congenital abnormalities were increased among the offspring of fire fighters. A count of children was thus available. The hypothesis tested in this analysis was that back pain was associated with having children.

STATISTICAL ANALYSIS

Odds ratios (ORs) and confidence intervals (CIs) were computed by stratified 2 × 2 table analysis and by logistic regression.⁷

Results

Table 1 shows that 36% of the population of fire fighters and police officers complained of a problem with back pain. The complaint was

Health and Safety
Studies Unit, Ontario
Ministry of Labour
M M Finkelstein

Correspondence to:
Dr Murray Finkelstein,
Health and Safety
Studies Unit, Ontario
Ministry of Labour, 400
University Avenue, 7th
Floor, Toronto, Ontario,
Canada M7A 1T7.

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Table 1 Prevalence of back pain among police officers and fire fighters by age and number of children

	Children (n (%))						Total
	0	1	2	3	4	5	
Age:							
19-28	10/85 (12)	0/3	1/2 (50)	0/1	0/0	0/0	12/91 (13)
29-38	6/24 (25)	6/21 (29)	16/45 (36)	7/20 (35)	2/5 (40)	1/2 (50)	38/117 (32)
39-48	3/14 (21)	6/25 (24)	37/76 (49)	25/53 (47)	3/6 (50)	3/4 (75)	77/178 (43)
49-59	3/9 (33)	1/4 (25)	16/27 (59)	14/32 (44)	7/15 (47)	1/2 (50)	42/89 (47)
Total	22/132 (17)	13/53 (25)	70/150 (47)	47/106 (44)	12/26 (46)	5/8 (63)	169/475 (36)

more common among fire fighters (42% of 129 men) than among police officers (33% of 346 men). The prevalence increased from 13% among men aged 19 to 28 to 47% among men aged 49 to 59.

A conditional logistic regression analysis was performed to examine explanatory variables for back pain. The effect of age was controlled by matching on the age strata listed in table 1. Table 2 shows the results of the analysis. The number of years employed as a police officer or fire fighter was strongly associated with the complaint of back problems. The relation was effectively linear (regression coefficient for log (years of employment) = 0.85; SEM = 0.2). Police officers were at lower risk of back problems (OR = 0.77) but the difference between the forces was not significant. Current smokers were significantly more likely to complain of back problems than were non-smokers (OR = 1.88). There was no association between alcohol consumption and back problems.

The main hypothesis tested in the analysis was that parenthood was a risk factor for back problems. In a logistic regression model in which having children was entered as a dichotomous (yes or no) variable, fathers were more likely to have back problems than men with no children (OR = 1.75; 95% CI = 0.87-3.51). When the actual number of children fathered was used in the model, the risk increased significantly with the number of children (table 2 and figure). There were no significant interactions between any of the terms in the model.

Discussion

Data collected in a health survey of fire fighters and police officers was used to examine a hypothesis about parenthood and back pain. The principal aim of the survey was to compare the self reported health of fire fighters who had attended a chemical fire with the

health of fire fighters and police officers who had not been in attendance. It was found that the fire fighters in attendance at the fire more often described stress related symptoms, but that otherwise, there was little difference between the current health of working fire fighters and police officers.⁸ As data had been collected on the number of children fathered, it was possible to test a separate hypothesis about back pain generated by personal experience and clinical observation.

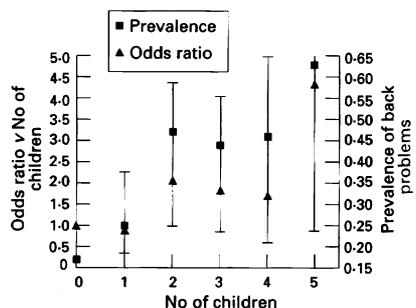
In this survey of actively employed fire fighters and police officers, back problems were often complained of, and had an overall-prevalence of 36%. The complaint was more frequent among fire fighters than among police officers, but, perhaps because of the small size of the survey population, this difference was not significant. There is the suggestion that a component of the problem may have been related to cumulative work related stresses because, even after controlling for age, there was a strong association between the risk of back problems and the number of years of employment.

Several non-occupational factors were found to be associated with back complaints. As has been reported elsewhere,³ cigarette smokers were more likely to report back problems. It is not clear whether this is due to biological factors, such as decreased oxygenation of tissues of the spinal or nervous systems, or to behavioural factors. It was also found that parenthood, a factor not previously reported for men, was associated with increased risk of

Table 2 Risk factors for back pain from a survey of fire fighters and police officers: results from a conditional logistic regression model that matched for age

Risk factor	Logistic regression results	
	OR (95% CI)	P value
Log (years of employment)	2.34	<0.001
Current smoker	1.88 (1.13-3.11)	0.014
Children (n)	1.24 (1.03-1.50)	0.027
Police officer v fire fighter	0.77 (0.48-1.23)	0.27

Fit of the model; likelihood ratio statistic on 4 degrees of freedom = 30.64 (P < 0.001).



Prevalence of back problems (right axis) in a survey of active police officers and fire fighters. The left axis shows the OR (95% CI) for back problems in relation to the number of children. Controls are men with no children. The OR is adjusted for age, duration of employment, department of employment, and cigarette smoking. The results are from a regression model in which each category of number of children was separate.

back problems. This is likely to be due to parenting and recreational activities carried out with children.

Back pain is a multifactorial problem with considerable impact on the working population. Demands of the workplace may cause substantial difficulty for workers whose back problems are caused by non-workplace factors. It is also likely that the quality of family life is diminished by back pain brought home from the workplace. It is often difficult to distinguish between work place and non-workplace causes of back trouble. Fatherhood seems to be a confounder that should be controlled for in studies of occupational causes of back pain.

- 1 Burchfiel CM, Boice JA, Stafford BA. Prevalence of back-pain and joint problems in a manufacturing company. *J Occup Med* 1992;34:129-34.
- 2 Ontario Workers' Compensation Board. *Statistical supplement to the 1991 annual report*. Toronto: Ontario Workers' Compensation Board, 1992.
- 3 Riihimäki H. Low-back pain, its origin and risk indicators. *Scand J Work Environ Health* 1991;17:81-90.
- 4 Kelsey JL, Golden AL. Occupational and workplace factors associated with low back pain. *Occup Med* 1988; 3:7-16.
- 5 Frymoyer JW, Pope MH, Constanza MC, et al. Epidemiologic studies of low back pain. *Spine* 1980;5: 419-27.
- 6 Videman T, Nurminen T, Tola S, et al. Low back pain in nurses and some loading factors of work. *Spine* 1984; 9:400-9.
- 7 EGRET *Statistical Software*. Seattle: Statistics and Epidemiology Research Corporation, 1990.
- 8 Finkelstein A. *Mortality and morbidity among firefighters and police officers in an Ontario city*. Toronto: Ontario Ministry of Labour, 1993.