Understanding the relationships between social inequalities and working conditions associated with work-related musculoskeletal disorders: implications for prevention

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\textbf{Introduction}

The reduction of health inequalities is an important public health priority in Canada and worldwide. Numerous studies over the past 30 years have documented that the prevalence and severity of a wide range of health problems vary by socioeconomic status (SES) with those in the lowest income, education and occupational classes having the highest rates of disease and disability (Marmot et Wilkinson 2006; Marmot et al 2007). The social determinants of these health inequalities and strategies for prevention have been the object of much study and reflection in recent years (CSDH, 2008, Marmot et al, 2008). Recent studies have shown the important contribution of work exposures to health inequalities associated with musculoskeletal disorders: when physical and some psychosocial work demands are taken into account, the relationship between musculoskeletal disorders and SES either disappears or is much reduced (Leclerc et al 2009; Mehlun et al 2008; Aittomäki, 2007; Lundberg et al 2007; Hagen et al 2006; Melchior et al, 2005; 2006). In order to prevent work-related musculoskeletal disorders (WMSD) in the most underprivileged high-risk groups, we need to better understand the nature of social inequalities of working conditions. In this study, our objectives were to better understand the social inequalities related to WMSD-associated work exposures and how they might differ by gender/sex and to reflect on the implications for prevention.

\textbf{Method}

Study data from the 2007-2008 Quebec Survey on Working and Employment Conditions and OHS include 2,434 female and 2,632 male workers. The case definition of WMSD was non-traumatic musculoskeletal pain interfering with activities, experienced frequently or all the time in the previous 12 months and perceived as related to work. Exposure variables include 18 physical, organizational and psychosocial work exposures. Socioeconomic variables included household income, occupational class and education. Gender/sex stratified multivariable analyses were performed in 3 steps: 1) logistic regression models to identify work exposures associated with WMSD; 2) calculation, for each gender, of multivariate risk scores (MRS) for WMSD-associated work exposures based on step 1; 3) linear regression models of the relations between MRS (dependent variable) and 3 measures of SES adjusted for age and weekly number of hours worked.

\textbf{Results}

20% of workers were found to have WMSD meeting the case definition. In both men and women, the following work exposures were significantly associated with WMSD: high physical work demands (based on index with 9 biomechanical demands), high quantitative demands, emotionally demanding work, lack of perspectives for promotion and having experienced at least one episode of involuntary unemployment in the previous 24 months; additionally, in women, WMSD were associated with sexual harassment, psychological harassment, experiencing frequent tense situations with clients, frequent noise exposure, and at least 16 hours of computer work/week and, in men, low support from co-workers and receiving contradictory work demands. When these cumulative exposures were combined in a single MRS statistic for each gender, the MRS was significantly related to SES. In both genders, it was associated with lower education and the two lowest socio-occupational classes; in men it was also associated with lower household income and technical
occupations. In women, in addition to elementary and intermediate occupational categories, the MRS was also associated with professional occupations and there was no significant relationship with income.

Discussion

Use of the MRS permitted quantification, in a single statistic, of the combined work exposures associated with MWSD. Results demonstrate the social inequalities associated with these exposures. It is those in the lower occupational classes and educational categories that are most exposed. In women this relationship is more complex, with 2 types of occupational classes highly exposed: (1) those in the lowest occupational classes (exposed to high physical demands, precarious work, few prospects for promotion and psychological and sexual harassment and (2) professional women (exposed to high quantitative demands, emotionally demanding work). Although high quantitative work demands and emotionally demanding work are also WMSD risk factors in men, the prevalence of these exposures is much higher in women and therefore may explain some of the gender differences in the results. But, in both men and women, the strongest associations between this composite measure of WMSD-associated exposures was to elementary occupations. These workers are often the lowest paid and are exposed to multiple adverse physical and psychosocial working conditions. Often it is workers in highly precarious work who find themselves in these jobs, for example, working for temporary employment agencies, informal employment relationships, immigrants, temporary migrant workers, who do not have access to adequate occupational health and safety and labour standards protection (Bambra, 2011; Gravel et al, 2012a,b; 2013a,b; Hanley et al 2013). In many jurisdictions they fall between the regulatory cracks. Preventive interventions that will reach these high-risk workers need to be designed and prioritised. We will discuss approaches in Quebec to such prevention.

References


