Editorial

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Gender and occupational health

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Gender and occupational health

This special section of the journal includes perspectives from four groups of scientists, from five different countries, on how gender should be treated in data analysis in occupational health. It arose from a symposium organized in 2007 by the Gender and Work Technical Committee of the International Ergonomics Association (IEA). The symposium occurred at the PREMUS conference on the prevention of work-related musculoskeletal disorders, itself organized by the Scientific Committee on Musculoskeletal Disorders of the International Commission on Occupational Health (ICOH). It is not accidental that both of these international organizations were involved in creating this event, as each recently established an official committee to reflect on gender and occupational health. Both the IEA Gender and Work Technical Committee and the ICOH Scientific Committee on Women Work and Health were formally established in 2006.

Why this sudden growth of interest in gender among occupational health researchers? Many scientists have suggested over the years that occupational health studies should include women in their samples (1, 2). They have noted that women's working conditions deserve attention (3, 4), that toxicologists should pay attention to physiological sex differences (5), and that the sex-specific reproductive functions of both men and women should interest occupational health scientists (6, 7). Nevertheless, the response of most researchers has initially been tepid, as shown by meta-analyses (2, 8, 9). In fact, a suggestion for a thematic panel at an international conference drew a negative response from the president of the host association who indicated women should no longer be considered a specific group as gender equality is now perfectly accepted in Europe.

Others have been concerned about exploring gender differences in response to occupational conditions due to a fear of discrimination against women, as happened in the United States in 1992 when Johnson Controls excluded fertile women, but not their male counterparts, from working in its battery-production department, arguing that lead exposure in the department could damage the fetus. Although lead also damages sperm, only women's reproductive damage was invoked by Johnson Controls' management. The United States Supreme Court, however, ruled against the company in this case (10). It is increasingly thought that occupational health intervention should focus on protecting all workers rather than excluding "vulnerable workers". This change in focus will become an economic imperative given the impending labor shortages that will result from changing demographics with respect to age and gender.

Beyond political considerations, several methodological problems have begun to impel scientists to think more deeply about the meaning of gender in work-related health (11, 12). The most obvious (and the one with which all of the papers in this special section are concerned) is the risk of over-controlling if analysts treat gender as a simple confounder in data sets, in which gender is a surrogate for specific work conditions (13, 14). This concern is important for those interested in exposures to risk factors for musculoskeletal disorders, since such exposures vary widely by gender (15, 16). And even when analyses are stratified, the interpretation of residual gender differences in outcomes poses a problem. Based on responses to a questionnaire, the paper by Hooftman and her colleagues (17), for example, presents and discusses gender differences in the musculoskeletal symptoms found in association with the same risk factors. The paper by Silverstein et al also considers male and female responses to specific exposures, profiting from a meticulous observation of work postures; they also found some gender differences (18). Do these differences come from physiological vulnerability, interactions with other exposures in paid and unpaid work, or intrastratum confounding in which the name of a specific risk factor, as used in a questionnaire, corresponds to different physiological demands in jobs done by women and men?

But the importance of considering gender is not confined to understanding gender differences; such consideration supplements information on occupational health risks in general. The paper by Messing et al synthesizes information from five data sets to show that gender stratification adds significant information to analyses of the relations between risk factors and musculoskeletal outcomes when compared with treating gender as a confounder and considering interactions (19).

Finally, the discussion paper by Härenstam suggests new approaches to data analysis that do not treat gender as a potential explanatory variable, but consider it instead in relation to results of multilevel and cluster analyses (20). In fact, such innovative treatment of population descriptors becomes necessary when researchers realize that gender is not alone in determining exposures, effects, and their interactions. Since simultaneous stratification for gender, social class, age, and ethnicity is not practicable in most data analyses, other methods for understanding their multiple interactions must be developed.

We hope that consideration of gender in occupational health will lead to more interesting questions. We encourage researchers to explore, for example, such questions as: why men have more compensated industrial accidents in most countries (21, 22), how perimenstrual back pain should be treated in studies of back pain [23, unpublished data: Borges A. Les désordres menstruels chez les infirmières de la Province d'Aragua, Venezuela (Menstrual disorders among nurses in Aragua Province) (thesis). Montréal (Canada): Université du Québec; 2003.], how training for manual materials handling should be adapted to the physiological specificities of each gender, how the dimensions of women's breasts should be incorporated into the biomechanical modeling of manual materials handling (24), what effect, if any, fatigue and supplementary exposures associated with the "double" (domestic and paid) workday have on occupational exposures (25), how work schedules can be adapted to family situations in the modern workplace, and why women's and men's occupational exposures vary in gender-specific ways with age (26) and ethnicity [27, unpublished data: Premji S. Étude aux méthodes mixtes sur la relation entre l'ethnicité et la santé et sécurité du travail (Mixed methods study of the relationship between ethnicity and occupational health and safety) (thesis). Montréal: Université du Québec; 2008.].

And finally, in addition to research, practice should also be viewed with a "gender lens." A growing number of studies show that gender discrimination affects occupational health and access to compensation (28–30). Occupational health and ergonomic standards and guidelines need to be evaluated from a gender viewpoint before being introduced into the workplace (31). Finally, occupational health regulations need to be developed for the growing service sector of the economy, in which an increasing number of risks are being identified (32–35).

References

1. Stellman JM. Women's work, women's health. New York (NY): Pantheon Books; 1978
2. Zahm SH, Pottern LM, Lewis DR, Ward MH, White DW. Inclusion of women and minorities in occupational cancer epidemiologic research. J Occup Med. 1994;36(8):842–7.
3. Marcelin J, Estryn-Behar M, Fouriaud C, Oustric M, Prades A, Suchet F, Vaichère E. Influence de facteurs professionnels sur le vieillissement différentiel selon le sexe [Influence of occupational factors on different rates of aging by sex]. Trav Hum. 1978;41(2):193–208.
4. Teiger C, Bernier C. Ergonomic analysis of work activity of data entry clerks in the computerized service sector can reveal unrecognized skills. Women Health. 1992;18:67–78.
5. Gochfeld M. Gender in toxicology and risk assessment. Environ Res. 2007;104(1):4–21.
6. Whorton D, Krauss RM, Marshall S, Milby TH. Infertility in male pesticide workers. Lancet. 1977;2(8051):1259–61.
7. Mergler D, Vezina N. Dysmenorrhea and cold exposure. J Reprod Med. 1985;30(2):106–11.
8. Niedhammer I, Saurel-Cubizolles MJ, Piciotti M, Bonenfant S. How is sex considered in recent epidemiological publications on occupational risks? Occup Environ Med. 2000;57:521–7.
9. Messing, K, Stellman, JM. Sex, gender and health: the importance of considering mechanism. Environ Res. 2006;101(2):149–62.
10. Kenen R. Reproductive hazards in the workplace: mending jobs, mending pregnancies. Binghampton (NY): Hayworth Press, 1993. p. 18–9.
11. Punnett L, Herbert R. Work-related musculoskeletal disorders: Is there a gender differential, and if so, what does it mean? In: Goldman MB, Hatch MC, editors. Women and health. New York (NY): Academic Press; 2000. p 474–92.

12. Messing K, Punnett L, Bond M, Alexanderson K, Pyle J, Zahm S, Wegman D, Stock SR, de Grosbois S. Be the fairest of them all: challenges and recommendations for the treatment of gender in occupational health research. Am J Ind Med. 2003;(6):618–29.
13. Mergler D. Adjusting for gender differences in occupational health studies. In: Messing K, Neis B, Dumais L, editors. Invisible: women's occupational health. Charlottetown (Canada): Gynergy books; 1995. p 238–51.
14. Messing K, Tissot F, Saurel-Cubizolles M-J, Kaminski M, Bourgine M. Sex as a variable can be a surrogate for some working conditions: factors associated with sickness absence. J Occup Environ Med. 1998;40:250–60.
15. Silverstein BA, Fine LJ, Armstrong TJ. Hand wrist cumulative trauma disorders in industry. Br J Ind Med. 1986;43:779–84.
16. Karlqvist L, Tornqvist EW, Hagberg M, Hagman M, Toomingas A. Self-reported working conditions of VDU operators and associations with musculoskeletal symptoms: a cross-sectional study focussing on gender differences. Int J Ind Ergon. 2002;30:277–94.
17. Hooftman WE, van der Beek AJ, Bongers PM, van Mechelen W. Is there a gender difference in the effect of work-related physical and psychosocial risk factors on musculoskeletal symptoms and related sickness absence? Scand J Work Environ Health. 2009;35(2)85–95.
18. Silverstein B, Fan ZJ, Smith CK, Bao S, Howard N, Spielholz P, Bonauto D, Viikari-Juntura E. Gender adjustment or stratification in discerning upper extremity musculoskeletal disorder risk? Scand J Work Environ Health. 2009;35(2)113–126.
19. Messing K, Stock SR, Tissot F. Should studies of risk factors for musculoskeletal disorders be stratified by gender? Lessons from the 1998 Québec Health and Social Survey. Scand J Work Environ Health. 2009;35(2)96–112.
20. Härenstam A. Exploring gender, work and living conditions and health—suggestions for contextual and comprehensive approaches. Scand J Work Environ Health. 2009;35(2)127–133.
21. Kjellberg A. Men, work and health. In: Kilbom Å, Messing K, Thorbjornsson CB. Women's health at work. Solna: Arbetslivsinstitutet: 1998. p 279–307.
22. Cru D, Dejours C. Savoir-faire de prudence dans les métiers du bâtiment [Expert safety knowledge in the building trades]. Cah Médicaux-Sociaux. 1983;27:239–47.
23. Tissot F, Messing K. Perimenstrual symptoms and working conditions among hospital workers in Quebec. Am J Ind Med. 1995;27(4):511–22.
24. Tate AJ. Some limitations in occupational biomechanics modelling of females. Communication presented at: Colloquium on women's environmental and occupational health; 29 March 2003, Montréal, Canada.
25. Habib RR, El-Masri A, Heath RL. Women's strategies for handling household detergents. Environ Res. 2006;101(2):184–94.
26. Torgén M, Kilbom Å. Physical work load between 1970 and 1993-did it change? Scand J Work Environ Health. 2000;26(2):161–8.
27. Smith PM, Mustard C. Comparing the risk of work-related injuries between immigrants to Canada, and Canadian-born labour market participants. Occup Environ Med. 2008 Jul 9. [Epub ahead of print]
28. Bond MA, Punnett L, Pyle JL, Cazeca D, Cooperman M. Gendered work conditions, health, and work outcomes. J Occup Health Psychol. 2004;9:28–45.
29. Lippel K. Workers' compensation and stress: gender and access to compensation. Int J Law Psychiatry. 1999;22(1):79–89.
30. Lippel K. Compensation for musculoskeletal disorders in Quebec: systemic discrimination against women workers? Int J Health Serv. 2003;33(2):253–81.
31. Messing K. ISO, ISOTTE: les normes ont-elles un genre? [Are international standards gendered?]. In: Rey P, Ollagnier E, Gonik V, Ramaciotti D, editors. Ergonomie et normalisation [Ergonomics and Standard-setting]. Toulouse: Octarès; 2004. p 37–47.
32. Carayon P. Job design and job stress in office workers. Ergonomics. 1993;36:463–77.
33. Falzon P, Lapeyrière S. L'usager et l'opérateur: ergonomie et relations de service [The user and the worker: ergonomics and the service relationship]. Trav Hum. 1998;61:69–90.
34. Caroly S. Différences de gestion collective des situations critiques dans les activités de service selon deux types d'organisation du travail [Differences between two work organizations of service activities in the collective management of critical situations]. PISTES [Internet]. 2004 [cited 2009 Mar 2];4(1): (about 31 p.). Available from: http://www.pistes.uqam.ca/v4n1/articles/v4n1a4.htm
35. Dahlberg R, Bildt C, Karlqvist L. From canteen to lunch box: ergonomic demands in distribution of portion-packed hot food. Women Health. 2003;37(2):31–53.

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