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**Musculoskeletal symptoms associated with workplace physical exposures estimated by a job exposure matrix and by self-report**

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**ABSTRACT**

**BACKGROUND** - A job-exposure matrix (JEM) is an efficient method to assign physical workplace exposures based on job titles. JEMs offer the possibility of linking work exposures to outcome data from national health registers that contain job titles. The French CONSTANCES JEM was constructed from self-reported physical work exposures of asymptomatic workers participating in a large general population study. We validated this general population JEM by testing its ability to demonstrate exposure-outcome associations for musculoskeletal disorders (MSD) symptoms. **METHODS** - The CONSTANCES JEM was evaluated by assigning exposure estimates to a validation sample of new participants in the CONSTANCES study (final n = 38 730). We used weighted Kappas to compare the level of agreement between JEM-assigned and self-reported exposures across job codes for each of the 27 physical exposure variables. We computed prevalence ratios and 95% confidence intervals using Poisson regression models adjusted for age and sex for pain at six body locations associated with work exposures estimated via individual self-report and by the JEM. **RESULTS** - Agreement between individual self-reported and JEM-assigned exposures ranged from  $\kappa = 0.16$  to 0.71; generally, the level of agreement was fair to good. We observed consistent and significant associations between pain and both self-reported and JEM-assigned exposures at all body locations. **CONCLUSIONS** - The CONSTANCES JEM replicated known associations between physical risk factors and prevalent MSD symptoms. Physical exposure JEMs can reduce some types of information bias, and open new avenues of research in the prevention of MSDs and other health conditions related to workplace physical activities.

**KEYWORDS:** Exposure assessment; Hand pain; Job-exposure matrix; Musculoskeletal disorders; Workplace physical exposures

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