Effects of personal and work-related factors on the incidence of shoulder pain in a French working population

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Objectives
Shoulder pain (SP) is common in the general population, with 1-year prevalence rates between 7 and 47%, and in the working population1. We used the data from a prospective surveillance program for musculoskeletal disorders implemented by the French Institute for Public Health Surveillance in the Pays de la Loire region, collected between 2002 and 2005 and then between 2007 and 2009. The aim of this study was to assess the effects of personal and work-related factors on the incidence of SP.

Methods

Study population
• Working population of the Pays de la Loire region, in France
• 83 occupational physicians were trained by the investigators to randomly include workers undergoing a mandatory annual health examination
• Between 2002 and 2005, 3710 workers (58% men and mean age=38.7 ± 10.3 years) were included
• In 2007, a follow-up questionnaire was mailed to subjects (reminder letters until 2009)

Outcome
• Subjects free from SP at baseline were those:
  - without SP during the preceding 7 days and without SP of more than 8 days during the preceding 12 months
  - Incidents cases were defined as subjects free from SP at baseline who declared SP during the 7 days preceding the second questionnaire.

Potential risk factors
• Answers at baseline
• Variables were divided into four groups:
  - Personal factors
  - Organizational factors
  - Biomechanical factors
  - Psychosocial factors

Statistical analysis
• Analyses were performed separately for men and women to account for possible differences in exposure to work constraints between genders.
• Age was forced into the models.
• 3-stage process:
  - Stage 1: bivariate analyses, using χ² test, were performed between each of the potential explanatory variables and SP. Non-significant variables (p>0.20) were excluded from further analyses.
  - Stage 2: Manual backward multivariate logistic regression models were then performed for each group of variables. Non-significant variables (p>0.10) after this stage were excluded.
  - Stage 3: Final multivariate logistic regression analyses were performed using all variables remaining after stage 2, and manual backward selection retained only significant variables at a p-level of 0.05.

Results
233 (6.3%) subjects did never receive the questionnaire because their address was unknown (n=215) or because they were deceased (n=18). Finally, a total of 2332 subjects (67.1%, excluding subjects that could not be contacted) fulfilled the second self-administered questionnaire.

Study population
Among the 2332 subjects, 645 had reported SP during the preceding 7 days at baseline or of more than 8 days during the preceding 12 months at baseline. In addition, there was missing values for 32 subjects. Finally, 1655 subjects (946 men (57%) and 709 women (43%)) were eligible for analysis of incidence of SP (figure).

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