

support for health-related incapacity for work appeared to have little influence on the occurrence of symptoms.

Conclusions There is large international variation in the prevalence of disabling forearm and back pain among occupational groups carrying out similar tasks. This is only partially explained by the personal and socio-economic risk factors that were analysed.

253 **OCCUPATIONAL AND NON-OCCUPATIONAL RISK FACTORS FOR SURGICALLY TREATED CARPAL TUNNEL SYNDROME: PRELIMINARY RESULTS OF A MULTICENTRE POPULATION-BASED CASE-CONTROL STUDY**

¹S C Curti, ¹Mattioli, ²Baldasseroni, ³Bovenzi, ¹Bonfiglioli, ¹Violante. ¹University of Bologna, Bologna, Italy; ²Tuscany Regional Centre for Occupational Injuries and Diseases (CeRIMP), Florence, Italy; ³University of Trieste, Trieste, Italy

10.1136/oemed-2013-101717.253

Objectives Carpal tunnel syndrome (CTS) is a socially relevant condition that often involves disability. Few large analytical studies have been published considering occupational/non-occupational risk factors. This population-based case-control study aims at investigating both occupational and non-occupational risk factors for surgically treated CTS.

Methods Sixteen centres participated in the study. Each centre identified 200 subjects (aged 25–59 yr): 100 cases (50 women and 50 men) and 100 controls (50 women and 50 men). Cases were randomly drawn from administrative databases of all citizens submitted during 2001 to carpal tunnel release in any public/private hospital with a principal diagnosis of CTS. Controls were randomly sampled from official national health service registry records and were frequency matched by age and gender with cases. Participants were invited by mail (and phone when necessary) to respond to a structured questionnaire regarding occupational (including previous and current job titles along with biomechanical risk factors) and non-occupational risk factors.

Results The sixteen centres overall identified 3,052 subjects (1,458 cases and 1,594 controls) on the base of the study protocol criteria. A total number of 2,294 subjects responded to the questionnaire (1,182 cases and 1,112 controls) corresponding to a response rate of 81% and 70% respectively. After exclusion of non-eligible subjects, 1,018 cases and 959 controls entered the main analysis. After adjusting for non-occupational risk factors, manual workers of both sexes appeared to have at least 4-fold risk of surgical treatment of CTS, as compared with non-manual counterparts (women: OR 4.57, 95% CI 3.07–6.81; men: OR 4.44; 95% CI 2.96–6.67).

Conclusions This multicentre population-based case-control study strongly underscores the relevance of manual work as an important risk factor for surgically treated CTS, irrespectively of gender. Further analyses will contribute to provide conclusive evidence on the relationship between biomechanical overload and CTS, considering non-occupational risk factors as well.

254 **PSYCHOLOGICAL AND CULTURALLY INFLUENCED RISK FACTORS FOR THE INCIDENCE AND PERSISTENCE OF NON-DISABLING AND DISABLING MUSCULOSKELETAL PAIN. SPANISH CUPID STUDY**

¹S V P Vargas-Prada, ¹Serra, ¹Martínez, ²Delclos, ³Coggon, ¹Benavides. ¹Center for Research in Occupational Health (CiSAL). Universitat Pompeu Fabra, Barcelona, Spain; ²School of Public Health, University of Texas, Houston, United States of America; ³MRC Lifecourse Epidemiology Unit, University of Southampton, Southampton, United Kingdom

10.1136/oemed-2013-101717.254

Objective To investigate the role of psychological risk factors for the development and persistence of non-disabling (NDMSP) and disabling (DMSP) musculoskeletal pain (MSP).

Methods As part of the CUPID study, 1105 nurses and office workers were asked at baseline about psychological and work-related psychosocial risk factors, physical activities in the workplace and MSP in the past month and past year at ten anatomical sites (back, neck, and left and right shoulder, elbow, wrist/hand and knee). One year later, pain in the past month was again ascertained. Pain was defined as disabling if certain daily activities were difficult or impossible to perform. At baseline, pain-free anatomical sites were included in the analyses for new NDMSP and DMSP, and painful sites in the analysis for persistent NDMSP and DMSP. Analysis was based on anatomical sites and associations were explored using multilevel multinomial logistic regression modelling.

Results 971 participants (87.9%) completed follow-up. Among 8083 pain-free anatomical sites at baseline, 341 (4.2%) and 412 (5.1%) were involved in new NDMSP and DMSP at follow-up. After adjustment for sex, age, occupational risk factors and pain at the same site in the past year, new DMSP was predicted by somatising tendency (OR 3.4, 95%CI 2.1–5.5). Among 1627 painful sites at baseline, 379 (23.3%) and 500 (30.7%) still had NDMSP and DMSP one-year later. Having adverse beliefs about the prognosis of MSP was associated with an increased risk of persistence of NDMSP (OR 2.3; 95%CI 1.2–4.6) and DMSP (OR 2.9; 95%CI 1.5–5.6).

Conclusion Psychological risk factors may have a stronger role in the development and persistence of DMSP than of NDMSP.

255 **MUSCULOSKELETAL DISORDERS AND PSYCHOLOGICAL COMORBIDITY IN GULF WAR VETERANS AND THE RELATIONSHIP WITH PHYSICAL AND MENTAL HEALTH AND WELLBEING**

L Kelsall, McKenzie, Roberts, Forbes, Urquhart, Sim. Monash University, Melbourne, Australia

10.1136/oemed-2013-101717.255

Objective To investigate musculoskeletal disorders, psychological comorbidity, and general physical and mental health and wellbeing in Gulf War veterans and a military comparison group.

Methods Cross-sectional study of 1456 male Australian 1990–1991 Gulf War veterans (veterans) and a non-Gulf comparison group (n = 1588). At a medical assessment in 2000–2002, reported doctor diagnosed arthritis or rheumatism, back or neck problems, joint problems, soft tissue disorders were rated by medical practitioners as non-medical, unlikely, possible, or probable diagnoses. Only musculoskeletal disorders rated as probable diagnoses were included in analyses. DSM-IV psychological disorders were measured using the Composite International Diagnostic Interview. Physical and mental health and wellbeing was assessed using the 12-item Short-Form Health Survey (SF-12).

Results Almost one-quarter of veterans (24.5%) and comparison group (22.4%) reported a musculoskeletal disorder (odds ratio OR 1.19; 95% CI 1.00–1.43). Having any or a specific musculoskeletal disorder was associated with depression and

posttraumatic stress disorder (PTSD) but not alcohol use disorders. Physical health and wellbeing was poorer in those with a musculoskeletal disorder compared to those without (e.g., for veterans, difference in SF-12 PCS medians = -10.49; 95% CI -12.40, -8.57). Mental health and wellbeing was poorer in those with comorbid depression or PTSD compared to those with musculoskeletal disorders alone (e.g., for veterans, difference in SF-12 MCS medians = -20.74; 95% CI -24.3, -17.18). Similar patterns were found for the comparison group.

Conclusions Musculoskeletal disorders in the military were associated with depression and PTSD and poorer physical and mental health and wellbeing. Comorbidity of these conditions has implications for treatment and management and should be considered during assessment.

Session: 6. Intervention studies I

256 IMPACT OF A CAMPAIGN ON THE CORRECT USE OF PROTECTIVE PERSONAL EQUIPMENT IN CAR BODY REPAIR SHOPS

H De Raeve, Vandenbroeck, Godderis. *IDWE, Leuven, Belgium*

10.1136/oemed-2013-101717.256

Introduction Significant exposure to hexamethylene diisocyanate (HDI) might occur during spray painting in car body repair shops. Since HDI induces asthma it should be used in properly designed spray booths wearing appropriate personal protective equipment (PPE), i.e. an air-fed breathing apparatus (BA). A₂P₂ masks may fail to protect without warning. A federal campaign on safe use of chemicals in car body repair shops was set up in 2010. In this study, we assessed the impact of the campaign.

Methods Between September 2011–2012, 135 car body repair shops were screened by trained prevention advisors. Observation of the workplaces were done using a checklist assessing the condition of the spray booths (ventilation, negative pressure, visual leaks, warning systems, position of the operator) as well as the use of air-fed BA or A₂P₂ masks (replacement filters, fit test, storage, audit).

Results Ventilation in the spray booths was sufficient in 75%. Negative pressure was present in 68%. There was no visual leak at the door in 98%. Position of the operator towards the spray booth was correct in 89%. In 52% there was a warning system in case of insufficient ventilation.

The recommended air-fed BA was used in 20% of the car shops. In the other 80% (n = 108), spray painters wore A₂P₂ masks, however without following the guidelines for safe use: no scheduled filter replacement in 61%; no fit test in 81%; no proper storage in 56%, no audit in 77%. Only in 11 of these 108 cases all conditions above were met.

Conclusion Most of the spray booths were in good condition. However, despite the intensive federal campaign, 72% of the spray painters did not use the correct PPE (either air-fed BA or correctly used A₂P₂ masks). We hypothesise that campaigns should be accompanied by a change of safety behaviour program.

257 POSTREFORM CHANGES IN USE OF SICK-DAYS

E A Aaviksoo, Kiiwet. *University of Tartu, Tartu, Estonia*

10.1136/oemed-2013-101717.257

Objectives To analyse the effect of the reduction of sickness absence compensation, implemented by law on 1st of July 2009, on use of sick-days in employee groups with different education level.

Methods Data from a nationwide survey “Health Behaviour among Estonian Adult Population” in 2004, 2006, 2008 and 2010 was used. Proportions of sickness absence usage and selected descriptive variables were analysed in two population groups: lower (≤12 years of education) and higher educated (≥13 years of education) employees. The difference in use of sick-days before and after the reform was assessed using the chi-squared test.

Results The dataset comprised 7918 employed persons between 18–64 years of age. The overall decline of average sick-days per employee was 21%, from 9.1 to 7.2 days. Decline of the sickness absence users’ proportion was significant in both education groups: from 47% to 40% (p = 0.002) in lower and from 44% to 38% (p < 0.001) in the higher education group. For lower educated employees the drop was significant in the age group over 50 years (14% vs 11%, p = 0.049) and the users of 1–14 sick-days per year accounted for the decline. For higher educated employees the decline was observed in the age group under 50 years.

The only increase in the use of sick-days was observed (24% vs 30%, p < 0.001) in higher educated employees with higher income.

Conclusions There was a considerable decline in the use of sick-days after the reform, but some employee groups may need more attention to preserve their workability. The decline of sickness leave use among older persons and lower use of short sickness absences by lower educated employees may indicate their uncertainty in the labour market. In the group of higher educated persons with higher income the increased use of sick-days may reflect increasing psychological demands and related health deterioration.

258 HEALTH AND SAFETY IN SMALL AUTO COLLISION REPAIR SHOPS - OUTCOMES OF A 1-YEAR INTERVENTION

¹A B Bejan, ²Brosseau, ¹Parker, ¹Skand, ¹Xi. ¹Park Nicollet Institute, Minneapolis, United States of America; ²University of Minnesota, Minneapolis, United States of America

10.1136/oemed-2013-101717.258

Objective This study evaluated the effectiveness of a 1-year intervention to assist owners of small collision shops with workplace safety and health improvements.

Methods A comprehensive evaluation containing 92 safety-related questions was conducted by an industrial hygienist at baseline and after one year. Questions addressed safety programs and training, fire safety, personal protective equipment, and shop equipment and were assigned one of four priority ratings. After the baseline evaluation, shop owners received a written report and were asked to commit to correcting at least 30% of the problems identified, with emphasis on the highest priority issues. Participants received quarterly phone calls, written reminders, safety newsletters, and had access to online services and in-person assistance with creating safety programs and respirator fit testing.

Results Forty-nine shops received baseline assessments and 45 were visited for 1-year follow-up. At baseline, shops had 17–49% of items missing (mean = 34.4% items, SD = 7.5%). After one-year, shops had 7–36% of items missing (mean = 19.8% items, SD = 7.6%). Statistically significant improvements (p < 0.03) were identified in seven of the eight survey sections (safety