Poster Presentation

Exposure Assessment

0462 A COMPARISON OF DISTAL UPPER LIMB PHYSICAL EXPOSURE QUANTIFICATION TOOLS: THE STRAIN INDEX, ACGIH TLV FOR HAL, AND THE RECENTLY DEVELOPED REVISED STRAIN INDEX

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Introduction There are several questionnaires and observational measurement tools to quantify distal upper limb (DUL) physical exposures. Perhaps the most commonly used observational methods are the Strain Index (SI) and the ACGIH TLV for HAL. However, there is currently no "gold standard" observational tool.

Methods Data from recently conducted prospective cohort studies of DUL musculoskeletal disorders (MSDs) were used to compare the SI, TLV for HAL, and the newly developed Revised Strain Index (RSI). A total of 3647 tasks performed by 710 workers were evaluated. When a tool lacked specific guidance, generally accepted techniques (e.g., time-weighted-averaging) were used to handle task complexity and multi-task jobs.

Results the SI, RSI, and TLV for HAL provide inconsistent estimates of physical exposure and predicted risk of DUL MSDs. Correlations and weighted kappa scores between the model's ranged from poor to good (e.g., weighted-kappa range: 0.16 to 0.82).

Conclusions Neither the TLV for HAL nor the SI were designed to assess multi-task jobs with complex tasks; whereas the RSI was. Assumptions made in order to use the SI and TLV for HAL for complex and multi-task analysis may contribute to the large differences between their physical exposure estimates. In this regard the RSI would appear to be a superior tool and one that has promising utility, at least for design and ergonomics intervention of complex and multi-task jobs. However, more research is needed to establish a "gold standard" DUL observational measurement tool.

Poster Presentation

Neurological Effects

0463 OCCUPATIONAL INTOXICATION BY MERCURY AND NEUROTOXICITY: PROFESSIONAL DISEASE

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Introduction Mercury is a heavy metal found naturally in the environment. Mercury poisoning of occupational origin is widely identified as occupational disease. The industries where cases have been described are those dedicated to the manufacture of thermometers, barometers, as well as in gold mines and metal refineries such as zinc.

Methodology The case of a 30-year-old male, a boilermaker (welder assembler) who is part of one of the teams responsible for replacing the carbon steel tubes of the exchanger through which sulphurous gases circulate with mercury remains is described. The initial symptoms were diarrhoea with mucus and blood and gum inflammation, initially presenting a blood mercury concentration of 475.9mcg/L (NV=<10 mcg/L) and urine mercury concentration 939mcg/L (NV=<30 Mcg/L) (BAL INSHT <5 mcg/g creatinine), not receiving treatment until after 6 months with DMPS twice seeing a reduction in urinary values from 1830.47 to 7.38 mcg/L. As a clinical result of mercury poisoning he had severe mercurial erethism with dysthymia and aggressive behaviour, as well as a secondary complex visual disorder and a diarrheal syndrome due to secondary autonomic neuropathy.

Conclusion This paper aims to warn about the consequences of prolonged exposure to mercury especially for the central nervous system, as well as early diagnosis and timely treatment. On the other hand, note the importance of adopting an adequate and effective preventive system to protect the health of workers exposed to mercury.

Oral Presentation

Other

0464 HOW DO GENDER AND JURISDICTION INTERACT WITH WORK DISABILITY DURATION?

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Objectives We examine whether gender differences in work disability duration were consistent across Canadian provinces and by length of work disability duration.

Methods Cohorts of injured workers in British Columbia (BC), Manitoba (MB) and Ontario (ON) were analysed using claim-level data for injuries occurring between 2007 and 2011. Work disability duration was measured using cumulative days that claims received work disability benefits during one-year post-injury. Extended Cox models provided hazard ratios (HR) and 95% confidence intervals (95% CI) to examine differences between women compared to men transitioning off work disability benefits and how this varied by length of work disability duration in each jurisdiction, adjusting for confounders.

Results In all three provinces, women transitioned off disability benefits slower initially (at 1 day, BC: HR: 0.90 [95% CI: 0.89–0.91], MB: HR: 0.89 [95% CI: 0.87–0.91], and ON: HR: 0.96 [95% CI: 0.95–0.97]) but in longer claims women transitioned off disability benefits faster (at 9 months, BC: HR: 1.10 [95% CI: 1.07–1.13]; MB: HR 1.14 [95% CI 1.08–1.21], and ON: HR: 1.03 [95% CI: 1.01–1.06]. This finding was consistent across different models by province and injury type.

Conclusions The persistent differences in work disability duration suggest that there may be underlying gender or sex differences in terms of recovery from work-related injury. Policies for the prevention and management of work injuries

should be tailored to men's and women's specific needs and barriers. The timing of such interventions should be considered given the time-varying differences observed between men and women.

Poster Presentation

Other

0465 GENDER, AGE, AND THE CHANGING BURDEN OF WORK-RELATED DISABILITY IN CANADA AND AUSTRALIA

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Objectives This research investigates the changing burden of work-related disability in Canada and Australia and how this varies by gender and age. The secondary objective is to demonstrate a means of comparing work disability data internationally.

Methods Workers' compensation data from Canada and Australia were used to analyse the relative disability burden of workers injured between 2004 and 2010. The two measures used were the number of claims with compensated time-loss and the corresponding time-loss years accrued, indexed to 2004. Gender and age-stratified analyses were conducted using descriptive statistics.

Results Male workers had more claims and cumulative time-loss in both countries. They also had steeper reductions in claim volumes and cumulative time-loss over time, indicating a narrowing in overall gender differences. Age-stratified analysis showed that differences between men and women were smaller among younger workers compared to older workers. In Canada, the proportion of claims attributable to females grew at the same rate as the proportion of time loss until 2007–08 when a gap emerged. In Australia, the proportion of claims and time loss attributable to females grew closer over time.

Conclusions While the volume of claims and cumulative time-loss has decreased in Canada and Australia, and the largest proportion is attributable to workers who are male and aged 35–54, a growing proportion is attributable to female and older workers. These changes have been driven by demographic factors (growth of females in the workforce, ageing workforce) and structural factors (economic recession and policy changes), particularly in Canada.

Oral Presentation

Working Conditions

0466 LABOUR MARKET AND HEALTH TRAJECTORIES DURING PERIODS OF ECONOMIC RECESSION AND EXPANSION IN THE UNITED STATES, 1988–2011

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Objectives Negative labour market experiences are associated with worse health outcomes, although little research has examined health effects of trajectories over time. This study examined associations between labour market and health (LMH) trajectories in the US between 1988 and 2011 and and whether associations differed across four macroeconomic periods defined by contraction or expansion.

Methods Working-age cohorts were derived for each period using data from the Panel Study of Income Dynamics. Cohorts started from a baseline state of employment/good health, and were followed over time to characterise LMH trajectories. Modified Poisson regression provided relative risks (RR) with robust 95% CIs for the association between trajectories.

Results LM trajectories ending in unemployment (RRs 1.7–2.5 across periods) or inactivity (RRs 2.3–3.2) had a greater risk of worse health trajectories, compared to stable employment. Individuals recovering into employment following a period of inactivity experienced a greater risk of worse health (RR s 1.6–2.1). There were persistent health-gradients across trajectories, with stable-employed individuals having the highest probability of remaining in good health, and 'LM exit' trajectories having the lowest probability. Overall relationships were consistent across the four periods.

Conclusions The increased likelihood of having worse health among unemployed/inactive individuals, yet attenuated risk among those recovering into employment following these intermediary states, suggests that health outcomes are not only dependent on the LM end-state, but also on the distinct pattern over time. Findings suggest that the contextual economic period has limited impact on these overall relationships, although future research might incorporate methodological frameworks with direct measures of the social-economic context.