

Results This method has been applied to estimate the effect of events anticipated to influence the incidence of short latency WRI (e.g. asthma, dermatitis). Examples will be shown.

Conclusions THOR data can contribute to the evaluation of the impact of events such as changes in legislation or interventions.

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334 DIFFERENCES IN RISK FACTORS FOR NEUROPHYSIOLOGICALLY CONFIRMED CARPAL TUNNEL SYNDROME AND ILLNESS WITH SIMILAR SYMPTOMS BUT NORMAL MEDIAN NERVE FUNCTION

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Objectives To explore whether neurophysiologically confirmed carpal tunnel syndrome (CTS) has different risk factors from sensory symptoms in the hand that occur in the absence of impaired median nerve conduction.

Methods We compared 475 patients with neurophysiologically confirmed (NP+ve) CTS, 409 patients investigated for CTS but negative on neurophysiological testing (NP-ve), and 799 controls. Exposures to risk factors were ascertained by self-administered questionnaire. Odds ratios (ORs) and 95% confidence intervals (95% CIs) were estimated by logistic regression.

Results NP+ve CTS was associated with obesity, use of vibratory tools, repetitive movement of the wrist or fingers, poor mental health and workplace psychosocial stressors. NP-ve illness was also related to poor mental health and occupational psychosocial stressors, but differed from NP+ve disease in showing associations also with prolonged use of computer keyboards and tendency to somatise, and no relation to obesity. In direct comparison of NP+ve relative to NP-ve cases, the most notable differences were for obesity (OR 2.7, 95% CI 1.9–3.9), somatising tendency (OR 0.6, 95% CI 0.4–0.9), diabetes (OR 1.6, 95% CI 0.9–3.1) and work with vibratory tools (OR 1.4, 95% CI 0.9–2.2).

Conclusions When viewed in the context of earlier research, our findings suggest that obesity, diabetes, use of hand-held vibratory tools, and repeated forceful movements of the wrist and hand are causes of impaired median nerve function. In addition, sensory symptoms in the hand, whether from identifiable pathology or non-specific in origin, may be rendered more prominent and distressing by hand activity, low mood, tendency to somatise, and psychosocial stressors at work.

335 ERGONOMIC INTERVENTIONS IN NURSING FACILITIES: LONG-TERM EFFECTIVENESS OF A COMPREHENSIVE PROGRAM

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Objective Determine long-term efficacy of a comprehensive, multi-facility ergonomic intervention, utilising patient handling devices and participatory approach, on patient handling injuries to nursing personnel and comfort and safety of patients.

Background Musculoskeletal injuries (MSDs), in particular back and shoulder injuries, are a major problem for nursing personnel

in patient care. In USA, nursing aides (NAs) have the highest incidence rate of days-away-from-work injuries and illnesses (465/10,000 workers) from MSDs, a rate more than seven times the national MSD average for all occupations. The majority of injuries and illnesses (56%) among NAs involved contact with patients, with 86% of those injuries due to overexertion.

Methods A pre-post design (pre: 38.9 months, post: 51.2 months) was used to evaluate the efficacy of an ergonomic intervention using patient handling devices in six long-term care facilities and one chronic care hospital. Each facility formed teams consisting of: worker representatives, management, and an ergonomic specialist. These teams developed comprehensive ergonomics programs using participatory approach to reduce patient handling injuries, primarily through implementation of “no-manual-lifting-policies”.

Results Compared to pre-intervention, post-intervention data showed significant reductions in: injuries (59.8% reduction), lost workdays (86.7%), modified duty days (78.8%) and worker’s compensation costs (WCC) (90.6%) associated with patient handling activities ($p < 0.001$). The mean of payback periods was 15 months.

Patient handling devices were rated to be less stressful on the low back ($p < 0.001$), shoulders ($p \leq 0.008$) and wrists ($p \leq 0.005$). Patients rated these devices as more comfortable ($p \leq 0.007$) and safe ($p \leq 0.010$) than manual lifting methods. The programs had no effect on staffing levels.

Conclusions This study demonstrates that comprehensive ergonomics programs, properly utilising patient handling devices, are effective in reducing patient handling injuries, lost workdays, modified duty days, and WCC as well as improving patient comfort and safety during patient transfers.

336 RISK FACTORS FOR NEW-ONSET SCIATICA IN JAPANESE WORKERS: FINDINGS FROM THE JAPAN EPIDEMIOLOGICAL RESEARCH OF OCCUPATION-RELATED BACK PAIN (JOB) STUDY

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Objective To identify potential risk factors for the development of new-onset sciatica in initially symptom-free Japanese workers with no history of sciatica.

Methods Two-year, prospective cohort data collected for the Japan Epidemiological Research of Occupation-related back pain (JOB) study were used for the analysis. In total, 5,310 participants responded to a self-administered baseline questionnaire (response rate: 86.5%). Furthermore, 3,194 (60.2%) completed both 1- and 2-year follow-up questionnaires. The baseline questionnaire assessed individual characteristics, ergonomic work demands, and work-related psychosocial factors. The outcome of interest was new-onset sciatica with or without low back pain (LBP) during the 2-year follow-up period. Incidence was calculated for participants who reported no history of lumbar radicular pain (sciatica) and no LBP in the past year prior to baseline. Logistical regression assessed risk factors associated with new-onset sciatica.

Results Of 765 eligible participants, 141 (18.4%) reported a new episode of sciatica during the 2-year follow-up. In crude

analysis, significant associations were found between new-onset sciatica and age and obesity. In adjusted analysis, significant associations were found for obesity and mental workload in a qualitative aspect after controlling for age and gender. Consequently, in multivariate analysis with all the potential risk factors, obesity remained statistically significant (OR: 1.80; 95% CI: 1.19–2.71) while age (≥ 50 years vs. < 40 years) was almost significant (OR: 1.55, 95% CI: 0.99–2.44).

Conclusions In previously asymptomatic Japanese workers, the risk of developing new-onset sciatica is mediated by individual factors such as age and obesity. Our findings suggest that the management of obesity may prevent new-onset sciatica.

337 DETERMINANTS OF BACK-PAIN IN THE EUROPEAN COUNTRIES. A CROSS-SECTIONAL ANALYSIS OF DATA FROM THE FIFTH EUROPEAN WORKING CONDITIONS SURVEY

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Objectives Prevalence of back-pain in European countries has been reported to vary considerably. We used data from the fifth European Working Conditions Survey (EWCS) to explore the role of personal, occupational, and country socioeconomic characteristics in determining the national prevalence of back-pain.

Methods The EWCS was conducted in 34 countries during 2010. 43,816 subjects were interviewed using a standardised questionnaire. We analysed the prevalence of back-pain over the last year. Occupational and personal exposures investigated include: age, gender, biomechanical risk factors (carrying or moving loads; lifting or moving people; standing; tiring or painful positions; vibrations); job-demand control model; educational level; socio-economic status; housework or gardening; caring for children or elderly/disabled; performing housework or gardening; doing sporting, cultural or leisure activity outside home; somatisation tendency. We also studied the role of country socioeconomic characteristics. Analyses were performed with logistic or Poisson regression models incorporating sampling weights and with standard error clustered on NUTS regions. Multilevel models were fitted to study country socioeconomic characteristics.

Results 30,066 workers entered the main analysis. With the exception of gender, all personal and occupational characteristics were associated with back-pain in multivariate analysis; somatising tendency was the strongest predictor of the symptoms. Country socioeconomic characteristics were associated with back-pain in univariate analysis. However, no association was found after adjustment by subject-level characteristics. National prevalence of back-pain ranged between 22.1% (Ireland) and 64.2% (Portugal). Neighbouring countries frequently had similar prevalences. Adjustment for personal and occupational risk factors did not explain all of the variation in prevalence of back-pain among European countries.

Conclusions The high variability in prevalence of back-pain among European countries was not explained by subject-level characteristics. The inclusion of current country socioeconomic characteristics did not improve the fit of multivariate statistical models. Group-level characteristics and cultural factors should be investigated.

338 THE RISK OF MUSCULOSKELETAL DISORDERS IN A COHORT OF DANISH BAGGAGE HANDLERS

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Objectives To investigate associations between heavy lifting and musculo-skeletal disorders in a group of baggage handlers. It is generally accepted that heavy lifting and lifting in kneeling and stooped positions are risk factors for musculo-skeletal disorders in the shoulders, knees and lower back region. However, the influence of magnitude and time of heavy lifting on the risk of musculoskeletal disorders is still unclear. Baggage handlers are daily exposed to heavy lifting in stooped, squatting or kneeling positions in constrained spaces and hence they are a good study group for our objective. This abstract report the first results based on questionnaire data and will be supplemented later with objective data on lifting loads and diagnosed musculoskeletal disorders.

Methods We established a cohort of baggage handlers employed at Copenhagen Airport during the period 1983 to 2012 ($n = 3093$) and a reference cohort of men who worked in other unskilled occupations during the same period ($n = 2478$). Data regarding work history, lifestyle and musculoskeletal complaints were collected using a self-administered questionnaire. The response rate was 70.5%. Data were analysed using logistic regression.

Results The risk of self-reported pain in the shoulders, knees and lower back was significantly higher in the group of baggage handlers than in the reference group. The difference between the groups disappeared after adjusting for length of employment. Furthermore, the risk of pain increased with length of employment. For every 10 years of employment the risk of shoulder pain increased by 34% (OR = 1.34, CI: 1.19–1.51), the risk of knee pain increased by 45% (OR = 1.45, CI: 1.29–1.63) and the risk of lower back pain increased by 46% (OR = 1.46, CI: 1.31–1.63). Adjusting for age, height and weight did not change the results.

Conclusion The risk of self-reported shoulder, knee and lower back pain increased with the length of employment as baggage handler.

339 LIFE-TIME CUMULATIVE LIFT LOAD AND LUMBAR DISC DEGENERATION

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Objectives Lumbar disc degeneration (LDD) has been associated with cumulative lift load. However, dose-response relationship has not been established in Asia workers. The goal of this study is to investigate whether a dose-response relationship exists between LDD and lifetime cumulative lift load on lumbar disc.

Methods A total of 553 subjects who have ever worked were recruited. The participants received assessment with a questionnaire and magnetic resonance imaging (MRI) of the L-S spine.