

challenge lies in educating maximum employees in shortest time thereby reducing musculoskeletal ailments and promoting safer working by exploring effective communication methods.

Methodology A cross-sectional study encompassing Unilever Global Corporate Office Employees' is being undertaken [2013–2017] in India, Dubai(U.A.E), Nairobi (Africa), Durban (South Africa) and South East Asian countries [Philippines, Vietnam, Indonesia, Singapore, Malaysia, Thailand and Sri Lanka] n=Total 2646.

Employees were grouped into two, to study following interventions;

- Lecture training including a forty-minute power point presentation & demonstration on a mock office workstation educating employees on maintaining ideal work postures, back & eye protection, taking rest breaks, performing desk stretches & arranging workstations ergonomically to their body dimensions'. n=1546.
- Short demonstrations (ten minutes) on each office floor on a live workstation educating employees on same parameters'. n=1100.

Results Forty minute Lecture training enhances awareness in >92% employees'. However, few employees attend this training, due to hectic work schedules.

Short ten minute live demonstrations undertaken in above countries appears to be an excellent tool enhancing awareness in >90% employees. When both above interventions were tested for statistical significance, 40 min lecture was superior only in Indonesia (p<0.05).

Discussion As few employees attend 40 min lecture training (though superior) on office ergonomics, the ten minute live demonstration is a promising practical novel intervention as it is comprehensive, undertaken at the workstation, enhancing awareness in maximum employees in a short-time, instilling a feeling of caring and bonding which is vital for a successful and robust office ergonomics control program. A reminder card with tips on chair adjustments, ergonomic arrangement of workstations and a link on desk stretches serves as handy desk-reminder emphasising safer work postures.

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REPEATED BACK PAIN AND ROUTES OF EXIT OUT OF PAID EMPLOYMENT AMONG BRITISH CIVIL SERVANTS: A FOLLOW-UP STUDY 1985–2013

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Introduction Pain is a risk factor for work disability, however, routes of exit out of paid employment among those with chronic pain have not been examined in detail. We aimed to examine the contribution of chronic back pain to subsequent transitions out of paid employment, accounting for covariates.

Methods We included participants of the Whitehall II study cohort (n=8445, 69% men, aged 35–55 at baseline), with measurements of back pain between phases 1 and 3 (1985–1994). Exit from paid employment (health-related, retirement

not related to health, unemployment, other) was observed between 1995–2013 (phases 4–11). Those remaining in paid employment served as the reference group. Sex, age, parental and own socioeconomic position, job demands, job control, and body mass index were controlled for. Repeated measures logistic regression models were fitted.

Result Altogether 10% of the participants exited paid employment due to health-related reasons, 2% due to unemployment and further 6.5% due to other reasons. After full adjustments, reporting back pain at one time point (26%) was unassociated with exit due to health reasons, whereas reporting repeated pain (18%) was associated with such exit (OR 1.53, 95% CI: 1.17 to 2.00), when compared to those who did not report pain during phases 1–3 (56%). Associations were somewhat stronger among middle or lower class employees, and non-existent among high class employees. Otherwise differences e. g. by age, working conditions or obesity were small. The risk of exit due to other routes than health-related did not vary between participants with or without pain.

Discussion These results highlight the need for early detection of chronic pain to prevent the risk of health-related early exit out of paid employment. The results further emphasise the importance of identification of high risk groups and their modifiable risk factors, such as adverse working conditions

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THE TRENDS AND DETERMINANTS OF WORK-RELATED MUSCULOSKELETAL DISORDERS (MSD) IN IRELAND BETWEEN 2002 AND 2013

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Introduction In Ireland between 2002–2013, Musculoskeletal Disorders (MSD) accounted for 50% of self-reported work-related illnesses. Moreover the average number of days absent (15.9 days) was higher than the average of 12.8 days for all other illnesses (except stress, anxiety and depression).

Methods This paper examines trends and determinants for work-related MSD between 2002 and 2013, using annual cross-sectional data from the Quarterly National Household Survey (QNHS).

Results Rates of MSD were strongly linked to the economic cycle. Rates per 1000 workers ranged from 11 in 2002 to 19 during the economic boom before falling to 7 during the recession (2009). The 2013 rate in a recovering economy was 14 per 1000 workers.

This pro-cyclical pattern remained when characteristics of workers and their workplace were held constant using logistic regression. Furthermore, within sectors, rates were higher when the annual percentage change in employment was positive.

We also found that certain worker and workplace factors influenced the risk of MSD independently. Workers aged 35–64 had the highest risk of MSD (2.5 times more than workers <25 years). Construction sector workers, followed by those working in agriculture and health, had the greatest risk of MSD. Rates in education and all other services sectors were much lower. The self-employed, those working 40 to 49 hours per week (compared to <30 hours), shift workers, and new recruits (with <6 months job experience) also had a higher risk of MSD.

Discussion These findings show that some groups of workers face a higher risk of work-related MSD and that further monitoring and targeted measures are needed to support employers and employees especially at a time of economic recovery.

Full results and description of the methodology can be found at <http://www.esri.ie/publications/work-related-illness/>

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USING GENERAL POPULATION JOB-EXPOSURE MATRIXES TO ESTIMATE WORKPLACE BIOMECHANICAL EXPOSURES: NEW OPPORTUNITIES AND INTERNATIONAL COMPARISONS

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Introduction Job Exposure Matrixes (JEMs) are commonly used in epidemiological studies of chemical and physical hazards; recent work has used JEMs to estimate workplace biomechanical exposures in studies of musculoskeletal disorders (MSDs). We conducted cross-national comparisons of general population JEMs from Denmark, France, and the USA. Prior studies using the Danish and US JEMs showed associations between MSD and workplace exposures to force, repetition, and posture.

Methods JEMs were constructed in the three countries using different methods to estimate workplace biomechanical exposures: Denmark (expert assessment), France (pooling of self-reported exposures from >28 000 current workers), and the USA (combined methods using O*NET, a national job demands database). Each JEM assigned multiple exposures to workers at the level of the job code. We created cross-walks between the respective national coding schemes (DISCO, PCS, and SOC) to compare estimated exposures at the level of the job.

Results Comparison between the Danish and US JEMs showed fair to moderate agreement for 7 lower extremity exposures across 168 job codes (kappa 0.25 to 0.56 across 7 exposures), and moderate to substantial agreement for 10 shoulder exposures across 336 jobs (kappa 0.38 to 0.77). Similar agreement was found when comparing 8 exposures between the French and American JEMs across 335 job codes. We will report additional analyses now in progress, including the strength of association between MSDs and exposures estimated by different JEMs when applied to the same datasets.

Discussion JEM for biomechanical exposures are a useful and efficient means to estimate workplace biomechanical exposures, particularly in large general population studies where exposure data are otherwise limited. Cross-national comparison studies are a useful methodological step as the use of JEM for studies of MSD continues to increase. Ongoing validation studies will increase the usability of JEMs in providing exposure-response estimates and further guidance for prevention of MSDs.

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POST-OFFER/PRE-EMPLOYMENT SCREENING FOR CARPAL TUNNEL SYNDROME AND OTHER MUSCULOSKELETAL DISORDERS: IS IT EFFECTIVE?

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Introduction Pre-employment examinations, known as post-offer pre-placement (POPP) tests in the US, are performed by many US employers to prevent work-related musculoskeletal disorders (MSDs) such as carpal tunnel syndrome (CTS). However, there is no strong evidence of effectiveness of such screening. We tested the predictive validity of POPP screening using nerve conduction studies (NCS) to identify future cases of carpal tunnel syndrome (CTS) among manufacturing workers.

Methods We used data from a natural experiment in which 1648 newly hired production workers in a manufacturing plant underwent baseline physical exam and NCS, but were hired regardless of test results. Workers were then followed for up to 5 years; outcomes of CTS and workplace physical exposures in different jobs were obtained from the employer's medical and safety records.

Results There was no association between NCV results at the time of hire and future CTS. Varying the diagnostic cut-offs for determining 'abnormal' NCS did not improve predictive validity. However, workers in jobs with high hand/wrist exposure showed greater risk of CTS than those in low exposed jobs (Relative Risk 2.82; 95% CI: 1.52 to 5.22).

Discussion NCS and other screening tests for the musculoskeletal system are commonly used in the US as a primary means to reduce or prevent MSDs, despite little evidence that such testing predicts which workers will incur MSDs in the future. Ours is the third study to find that POPP screening is ineffective as a preventive strategy for CTS. Other common testing strategies for MSDs do not satisfy evidence-based criteria, and their use should be scrutinised. Such screening seems a poor use of health and safety resources, which could better be spent on improving work activities to reduce injury risk for the entire worker population.

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WORKPLACE PRACTICES AND POLICIES TO PREVENT MSD: DEVELOPING AN IMPLEMENTATION GUIDE

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Introduction Musculoskeletal disorders (MSD) continue to be a major burden for workplaces and workers as well as insurance and health systems. Evidence-based approaches are desired but research-to-practice gaps remain. One reason for gaps is the necessary research of sufficient quality is often not available. However evidence-based practice considers both scientific evidence as well as practitioner expertise. Our objective is to synthesise evidence from the scientific literature, practice evidence (policies and practices), and experiences from stakeholders.