Methods Studies were selected by a systematic search in Medline (PubMed) and BIREME (LILACS, IBECs, BINACIS, BDNF, Index Psicologia, WHOLIS, MedCarib and Colección SUS) databases. Inclusion criteria were articles in English, Spanish or Portuguese, providing statistical analyses on risk factors for workplace bullying. Quality was assessed using an adapted version of the Downs and Black checklist. PRISMA and MOOSE guidelines were used for reporting papers.

Results Fifty-one papers were included in the review. 70.6% were from European countries. Women were reported to be at higher risk of being bullied in most studies. The association of age, marital status and personality traits with bullying varied across studies. Authoritarian and laissez-faire leadership styles were positively associated to bullying. Several occupational risks related to the work organisation and psychosocial factors – such as the stress – were strongly associated to workplace bullying.

Conclusions Findings from this review highlight the central role of organisational factors on bullying determination, in which the human resource management is a key distal factor. Policies to prevent bullying must address the culture of organisations, facing the permanent challenge of developing safe psychosocial work environments.

02B.3 WORK RELATED STRESS FOR NEW ZEALAND WORKERS IN HIGH RISK SECTORS: WHAT CAN WE LEARN FROM A DEMOGRAPHIC ANALYSIS?

Kirsten Lovelock, Trang Khieu*. *WorkSafe New Zealand, Wellington, New Zealand*

10.1136/OEM-2019-EPI.39

The physical and psychological outcomes of work related stress place a burden on individuals, their families, workplaces and communities. Work related stress is a health and socio-economic and political problem. It reduces work performance; drives higher rates of absenteeism or sick leave; can increase rates of injury; prompt high staff turnover; and, can prompt poor health behaviours such as excessive drinking or taking of drugs. The research record focussing on work related stress in New Zealand (NZ) is small and uneven, but growing. The aim of this study was to explore the prevalence of work-related stress among workers by a set of demographic characteristics. The study used data from the Health and Safety Attitudes and Behaviour Survey (HSABS) 2016. A total of 2190 workers in the four high risk industries (agriculture, forestry, construction and manufacturing) were interviewed about their perceptions towards work-related stress. Weighting was conducted to control inherent biases. Differences between workers were examined by age, sex, ethnicity, qualifications and migrant factors (e.g. being born in NZ or arriving in NZ within five years). Overall, 11% of workers responded that they had experienced with work-related stress in the last 12 months. Work-related stress was more statistically prevalent among people from 25 to 34 years of age or those having a bachelor's degree. Also, people being females or Maori or not born in NZ or first arrived in NZ in the last five years were more likely to have work-related stress. Findings from the study could allow better targeted and informed psychosocial health interventions to be implemented at workplace.

02B.4 FACTORS ON SICKNESS ABSENCE AMONG WORKERS AND MODERATING EFFECT OF JOB STRESS IN KOREA

¹Hyang-Woo Ryu*, ²Deog-Hwan Moon, ³Sang-Gil Lee. ¹*Occupational Safety and Health Research Institute, KOSHA, Ulsan, South Korea;* ²*Department of Public Health, Inje University, Busan, South Korea;* ³*Occupational Safety and Health Research Institute, KOSHA, Ulsan, South Korea*

10.1136/OEM-2019-EPI.40

Objective The purpose of this study was to analyze the various factors affecting the sickness absence of Korean workers and to confirm the moderating effect of job stress.

Method We analyzed the data of nationwide labor environment survey conducted by the Korea Occupational Safety and Health Agency (KOSHA) in 2011. This study covered 49 870 workers, excluding abnormal values. We analyzed the effects of the work environment and the moderating effect of job stress to the absence of sickness.

Results The number of sickness absent from the study was 4621 (9.3%), total sickness absence was 30,640 days, and the average period of sickness absence was 6.6 days. The factor with significant difference of illness absenteeism was education, monthly income, size of workplace, drinking opportunity, worker position, musculoskeletal disease risk factor, and subjective health status. The interaction effect between the control variable and the independent variable was significantly different from the job stress × musculoskeletal disorder factor.

Sickness absence was higher in middle school graduates, monthly incomes more than one million won, workplaces with 10 or more workers, and in the non-alcoholic group.

Musculoskeletal disorders and subjective health status showed a positive effect on sickness absence. The number of days of sickness absence increased and the subjective health condition got worse as the musculoskeletal disorders increased. As job stress increased, sickness absence increased. We found that the job stress interacted with musculoskeletal disease factors and affected sickness absence.

Conclusion It is necessary to prepare measures to improve subjective health condition, and to fully utilize the moderating job stress factors to reduce the factors of musculoskeletal diseases.

Workers' Compensation/Return to Work

02C.1 WORKER COMPENSATION: ARE EPIDEMIOLOGICAL STUDIES FIT FOR PURPOSE?

Lesley Rushton. *Imperial College London, London, UK*

10.1136/OEM-2019-EPI.41

Introduction Every year, large numbers of workers have an injury at work or develop a work-related disease. A range of worker compensation systems exist across countries for which epidemiological studies potentially provide critical evidence. This paper discusses the adequacy of current epidemiological research for this purpose.

Methods Compensation schemes need to identify the occupational circumstances, or dose, that increase (e.g. double) the risks of the disease, and to define these so they can be administered effectively by decision-makers who lack epidemiological

experience. Large studies or meta-analyses with effective control for confounders, adequate exposure assessment, and clear case definition are (ideally) required.

Results Although epidemiological studies may show consistent evidence of an increased health risk from an occupational exposure, definitions of exposure are often unsuitable for converting into an appropriate exposure schedule for a compensation scheme. Direct measurements of occupational exposure are usually scarce and not available for individual workers; both claimants, perhaps, assessors would find these measurements difficult to access and use. Exposures defined by industry or job title, particularly with a qualifying time-period, although perceived by epidemiologists as rather simplistic, are more straightforward to use, e.g. 'osteoarthritis in miners who have worked 10 or more years underground'. If quantitative exposure measurements are unavailable, epidemiologists often define qualitative metrics such as 'high', 'medium', or 'low' or develop more complex semi-qualitative exposure metrics such as 'exposed or not' at a given level of certainty or probability; intensity of exposure based on expert judgement of proximity to the substance and effectiveness of control procedures. Application of these in a compensation scheme may be problematical.

Discussion Epidemiology plays a vital role in ensuring workers are compensated for work-related ill-health. Epidemiological study design, exposure metrics and primary and subsidiary analyses should be tailored to directly support compensation schemes.

02C.2 DOES REGION OF RESIDENCE MATTER FOR RETURN-TO-WORK AFTER WORK-RELATED INJURY? A COMPARATIVE ANALYSIS OF SIX CANADIAN WORKERS' COMPENSATION JURISDICTIONS

¹Robert Macpherson*, ¹Hui Shen, ¹Mieke Koehoorn, ²Benjamin Amick, ³Alex Collie, ^{2,3}Peter Smith, ^{1,2}Christopher McLeod. ¹University of British Columbia, Vancouver, Canada; ²Institute for Work and Health, Toronto, Canada; ³Monash University, Melbourne, Australia

10.1136/OEM-2019-EPI.42

Objectives To investigate regional differences in return-to-work following work-related injury and whether these differences persist after adjusting for individual characteristics.

Methods Workers' compensation claims from six Canadian provinces were used to create comparable cohorts of workers aged 15–80 with a work-related injury resulting in at least one disability day from 2011 to 2015. Workers' residential postal codes were mapped to Census standard geographic units to categorize workers into six regions representing decreasing urban density and metropolitan influence (ranging from large urban areas of 100,000+ people to rural areas of <10 000 people with no metropolitan influence). Cox regression models were used to estimate the effect of urban-rural residence on the likelihood of injured workers transitioning off work disability benefits within one-year post-injury, adjusting for confounders, including provincial compensation jurisdiction. Models were stratified by industry sectors.

Results The cohort included 7 46 029 work disability claims, of which the majority resided in large urban areas (69%). Unadjusted models showed that workers residing in smaller urban and rural areas had a lower likelihood of transitioning off work disability benefits compared to those in large urban areas. Urban-rural differences persisted in adjusted

models (e.g. HR=0.91 95% CI 0.89, 0.94 for workers in rural areas with no metropolitan influence). Industry-stratified models showed that greater differences existed between urban and rural places of residence for workers in the transportation and construction sectors, and smaller differences for workers in the health care and manufacturing sectors.

Conclusions The main finding suggests that injured workers in more rural areas face barriers in returning to work and that workers' compensation resources may need to be allocated to address these regional disparities. Future research will incorporate both individual and regional-level variables in a multilevel model framework to identify the characteristics that are the most important in explaining variability in work disability duration.

02C.3 WHAT PREDICTS A SECONDARY ABSENCE FOLLOWING RETURN TO WORK AMONG WORKERS' COMPENSATION CLAIMANTS IN VICTORIA? RESULTS FROM A LONGITUDINAL COHORT

¹Peter Smith*, ¹Institute for Work and Health, Toronto, Canada; ²Monash University, Melbourne, Australia

10.1136/OEM-2019-EPI.43

Time taken to first return to work (RTW) is often a primary endpoint for studies among injured workers. However, studies using administrative workers' compensation claims data have documented that a substantial proportion (approximately one half) of claimants will incur a subsequent period of wage replacement. Unfortunately, workers' compensation data is limited in the information collected to better understand which claimants are more likely to have a subsequent absence from work. The objective of this study is to address this gap using a cohort of workers' compensation claimants in the Australian state of Victoria.

The sample for this study is drawn from a longitudinal cohort of workers' compensation claimants (n=869). For the purpose of this analysis we focused on those claimants who had returned to work (self-reported) at the baseline interview, which was conducted approximately 4 months after the injury had occurred (n=372). Independent variables examined included if the respondent was working on full or partial duties, currently receiving health care for their injury, type of injury (musculoskeletal versus psychological), co-worker responses when they returned to work (measured using nine questions), and work limitations, measured using an abbreviated form of the work limitations questionnaire.

A total of 205 respondents (55% of the sample) reported a subsequent absence from work when interviewed 6 months later. All independent variables, with the exception of injury type, were associated with subsequent absences from work. In a multivariable model, only working modified duties and greater limitations remained statistically significant.

The results of the current study help inform our understanding of trajectories in RTW and factors, measured after the first RTW, which may be associated with a subsequent absence from work. These findings can be integrated into RTW programs to help more workers achieve sustainable RTW following a work injury.