

IWH Research Alert
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***Dimitriadis C, LaMontagne AD, Lilley R, Hogg-Johnson S, Sim M, and Smith P. Cohort profile: workers' compensation in a changing Australian labour market: the return to work (RTW) study. *BMJ Open*. 2017; 7(11):e016366.**

<http://dx.doi.org/10.1136/bmjopen-2017-016366> [open access]

Abstract: **PURPOSE:** Workers' compensation claims for older workers and workers who have suffered psychological injury are increasing as a proportion of total claims in many jurisdictions. In the Australian state of Victoria, claims from both these groups are associated with higher than average wage replacement and healthcare expenditures. This cohort profile describes a longitudinal study which aims to investigate differences in the return to work (RTW) process for older workers compared with younger workers and claimants with musculoskeletal injuries compared with those with psychological injuries. **PARTICIPANTS:** This prospective cohort study involved interviewing workers' compensation claimants at three time points. The cohort was restricted to psychological and musculoskeletal claims. Only claimants aged 18 and over were recruited, with no upper age limit. A total of 869 claimants completed the baseline interview, representing 36% of the eligible claimant population. Ninety-one per cent of participants agreed at baseline to have their survey responses linked to administrative workers' compensation data. Of the 869 claimants who participated at baseline, 632 (73%) took part in the 6-month follow-up interview, and 572 (66%) participated in the 12-month follow-up interview. **FINDINGS TO DATE:** Information on different aspects of the RTW process and important factors that may impact the RTW process was collected at the three survey periods. At baseline, participants and non-participants did not differ by injury type or age group, but were more likely to be female and from the healthcare and

social assistance industry. The probability of non-participation at follow-up interviews showed younger age was a statistically significant predictor of non-participation. FUTURE PLANS: Analysis of the longitudinal cohort will identify important factors in the RTW process and explore differences across age and injury type groups. Ongoing linkage to administrative workers' compensation data will provide information on wage replacement and healthcare service use into the future

Axelrad H, Sabbath EL, and Hawkins SS. The impact of the 2008 recession on the health of older workers: data from 13 European countries. *European Journal of Public Health*. 2017; 27(4):647-652.

<http://dx.doi.org/10.1093/eurpub/ckx011>

Abstract: Background: Fluctuations in the national economy shape labour market opportunities and outcomes, which in turn influence the health conditions of older workers. This study examined whether overall economic shifts during the 2008 recession was associated with four health indicators among older workers. Method: Data came from 4917 respondents (16 090 contacts) aged 50-70 in 13 European countries (Austria, Belgium, Czech Republic, Denmark, France, Germany, Israel, Italy, Netherlands, Poland, Spain, Sweden, Switzerland) participating in the Survey of Health, Ageing and Retirement in Europe. Health and employment assessments from 2004-13 were linked to annual data on fluctuations in Gross Domestic Product (GDP) per capita, life expectancy and unemployment rates for each country. Using fixed effects models, we assessed the recession's implications on four individual health outcomes: body mass index (BMI), drinking alcohol, depression and general health, while isolating cyclical variation within countries and individual changes over time. Results: Overall economic shifts had an effect on older workers: decreases in GDP were associated with a decline in average BMI, consumption of alcohol and deterioration in self-rated health; country-level unemployment rate had no effect on health outcomes, while life expectancy at birth was significant but not consistently across models. Being employed or retired were associated with fewer depressive symptoms and better self-rated health. Conclusions: Overall economic shifts during recessions affect certain health outcomes of older workers, and better health conditions together with being employed or retired may limit the negative health consequences of a recession

Carlesso LC, Raja Rampersaud Y, and Davis AM. Clinical classes of injured workers with chronic low back pain: a latent class analysis with relationship to working status. *European Spine Journal*. 2017; [Epub ahead of print].

<http://dx.doi.org/10.1007/s00586-017-4966-1>

Abstract: PURPOSE: To determine (a) clinical classes of injured workers with chronic low back pain (CLBP), (b) predictors of class membership and (c) associations of classes with baseline work status. METHODS: Patients with CLBP from a tertiary care outpatient clinic in Toronto, Canada were sampled.

Latent class analysis was applied to determine class structure using physical, psychological and coping indicators. Classes were interpreted by class-specific means and analyzed for predictors of membership. Lastly, association of the classes with being off work was modeled. RESULTS: A 3-class model was chosen based on fit criteria, theoretical and clinical knowledge of this population. The resultant 3 classes represented low, moderate and high levels of clinical severity. Predictors of being in the high severity group compared to the low severity group were < high school education [odds ratio (OR) 3.06, 95% CI (1.47, 6.37)] and comorbidity total [OR 1.28, 95% CI (1.03, 1.59)]. High severity class membership was associated with four times increased risk of being off work at baseline compared to those in the low severity group [OR 3.98, 95% CI (1.61, 6.34)]. CONCLUSIONS: In a cohort of injured workers with CLBP, 3 clinical classes were identified with distinct psychological and physical profiles. These profiles are useful in aiding clinicians to identify patients of high clinical severity who may be potentially at risk for problematic return to work

Chan APC, Wong FKW, Hon CKH, Lyu S, and Javed AA. Investigating ethnic minorities' perceptions of safety climate in the construction industry. Journal of Safety Research. 2017; 63(Supplement C):9-19.
<http://dx.doi.org/10.1016/j.jsr.2017.08.006>

Foley M. Factors underlying observed injury rate differences between temporary workers and permanent peers. American Journal of Industrial Medicine. 2017; 60(10):841-851.
<http://dx.doi.org/10.1002/ajim.22763>

Abstract: BACKGROUND: Temporary workers face increased risk of injury as compared to permanent workers in similar occupations. This study explores the role played by several potential risk factors. METHODS: Injured temporary and permanent workers, matched by industry, tenure and demographic characteristics, were interviewed to isolate the association of temporary employment with several injury risk factors. RESULTS: Temporary workers had higher workers' compensation claims rates than their permanent worker-peers. In interviews temporary workers reported a lower frequency of exposure to hazards. However, they also reported being less likely to be equipped to cope with hazards by such countermeasures as experience screening, safety training and task control. CONCLUSION: Policies are needed to improve screening and training of temporary workers to assigned tasks, to discourage job-switching, to improve temporary workers' hazard awareness, to protect their right to report unsafe conditions. The responsibilities of agencies and host employers for ensuring the safety of their temporary workers need clarification in regulatory policy

Haukka E, Ojarvi A, Kaila-Kangas L, and Leino-Arjas P. Protective determinants of sickness absence among employees with multisite pain-a 7-year follow-up. Pain. 2017; 158(2):220-229.
<http://dx.doi.org/10.1097/j.pain.0000000000000741>

Abstract: We identified factors protective of all-cause sickness absence (SA) among subjects with multisite musculoskeletal pain (MSP). The nationally representative source sample comprised 3420 actively working Finns aged 30 to 55 in year 2000 and alive at follow-up. Pain in 18 body locations was combined into four sites (neck, low back, upper limbs, and lower limbs). The baseline prevalence of MSP (pain in ≥ 2 sites) was 32%. Baseline data on sociodemographic factors, work ability, work, health, and lifestyle were gathered by questionnaire, interview, and clinical examination and linked with national registers on all-cause SA (periods lasting ≥ 10 workdays) for 2002 to 2008. Based on trajectory analysis, 74% of those with MSP had a low and 26% a high probability of SA. In logistic regression analysis, younger age, male sex, and professional occupational group were inversely associated with SA. Allowing for these, good physician-assessed work ability, physically light work, possibility to adjust workday length, encouraging workplace atmosphere, no problems with working community or mental stress, normal weight, and no sleep disorders were predictive of lower SA rates (odds ratios between 0.47 and 0.70). In a final stepwise model adjusted for age, sex, and occupational group, no exposure to lifting (odds ratio 0.58, 95% confidence interval 0.39-0.85) and to repetitive hand movements (0.57, 0.39-0.83), possibility to adjust workday length (0.73, 0.53-0.99), and normal weight (0.59, 0.40-0.87) were inversely associated with SA. In conclusion, several modifiable factors related to work and lifestyle were found as predictive of lower rates of longer SA among occupationally active subjects with MSP

Howard J, Piacentino J, MacMahon K, and Schulte P. Using systematic review in occupational safety and health. American Journal of Industrial Medicine. 2017; 60(11):921-929.

<http://dx.doi.org/10.1002/ajim.22771>

Abstract: Evaluation of scientific evidence is critical in developing recommendations to reduce risk. Healthcare was the first scientific field to employ a systematic review approach for synthesizing research findings to support evidence-based decision-making and it is still the largest producer and consumer of systematic reviews. Systematic reviews in the field of occupational safety and health are being conducted, but more widespread use and adoption would strengthen assessments. In 2016, NIOSH asked RAND to develop a framework for applying the traditional systematic review elements to the field of occupational safety and health. This paper describes how essential systematic review elements can be adapted for use in occupational systematic reviews to enhance their scientific quality, objectivity, transparency, reliability, utility, and acceptability

Karckainen S, Ropponen A, Narusyte J, Mather L, Akerstedt T, Silventoinen K, Mittendorfer-Rutz E, and Svedberg P. Night work as a risk factor of future disability pension due to musculoskeletal diagnoses: a prospective cohort study of Swedish twins. European Journal of Public Health. 2017;

27(4):659-664.

<http://dx.doi.org/10.1093/eurpub/ckx084>

Abstract: Background: This study investigated the associations between night work, sleep and disability pension (DP) due to musculoskeletal disorders (MSD), while controlling for several confounding factors including both genetic factors and shared family background. Methods: The study sample consisted of 27 165 Swedish twin individuals born in 1935-58 with comprehensive survey data on sociodemographic, health and lifestyle factors. Night work was assessed as years of working hours at night at least every now and then, and categorized into 'not at all, 1-10 years and over 10 years'. Data on DP with MSD (ICD-diagnoses M00-M99) were obtained from the National Social Insurance Agency. Follow-up was from the time of the interview in 1998-2003 until 2013. Information on the length and quality of sleep was available for a sub-sample of twins (n = 1684). Cox proportional hazards models were used to calculate hazard ratios (HR) with 95% confidence intervals (CI). Results: During the follow-up, 1338 (5%) participants were granted DP due to MSD. Both 1-10 years (HR 1.33, 95% CI 1.17-1.53) and over 10 years of night work (HR 1.39 95% CI 1.18-1.64) increased the risk of future DP. The associations were not affected by health, lifestyle or sleep factors. In the discordant twin pair analysis, the associations between night work and DP due to MSD attenuated. Conclusions: Night work was associated with increased risk of DP due to MSD independently from health and lifestyle factors. Familial confounding could not be ruled out

Lilley R, Jaye C, Davie G, Keeling S, Waters D, and Egan R. Age-related patterns in work-related injury claims from older New Zealanders, 2009-2013: implications of injury for an aging workforce. Accident Analysis & Prevention. 2017; 110:86-92.

<http://dx.doi.org/10.1016/j.aap.2017.10.022>

Abstract: OBJECTIVES: This study describes the incidence, nature and cause of work-related injuries in older New Zealand workers to understand the risks of work-related injury in this rapidly aging population. METHODS: Data for the period 2009-2013 from 25,455 injured workers aged 55-79 years, extracted from national work-related injury entitlement claims, were stratified by age group and analysed by sex, industry, injury type and cause. Age-specific claims rates were calculated by year, sex and ethnicity. RESULTS: Patterns of injury differed by age: 70-79 year olds had the highest injury rates and proportion of claims due to falls (45%), for the self-employed (32%), for the agriculture sector (24%), and for fatal injuries (5%). DISCUSSION: The burden of work-related injuries in older workers, particularly in those aged over 70, will increase with their increasing participation in work. Workplace injury prevention strategies and interventions need to consider the specific characteristics and vulnerabilities of older workers

Milner A, King TL, LaMontagne AD, Aitken Z, Petrie D, and Kavanagh AM. Underemployment and its impacts on mental health among those with disabilities: evidence from the HILDA cohort. Journal of Epidemiology and

Community Health. 2017; 71(12):1198-1202.

<http://dx.doi.org/10.1136/jech-2017-209800>

Abstract: BACKGROUND: Underemployment (defined as when a person in paid employment works for fewer hours than their desired full working capacity) is increasingly recognised as a component of employment precarity. This paper sought to investigate the effects of underemployment on the mental health of people with disabilities. METHODS: Using 14 waves of the Household, Income and Labour Dynamics in Australia survey, we used fixed-effects models to assess whether the presence of a disability modified the association between underemployment and mental health. Both disability and underemployment were assessed as time-varying factors. Measures of effect measure modification were presented on the additive scale. RESULTS: The experience of underemployment was associated with a significantly greater decline in mental health when a person reported a disability (mean difference -1.38, 95% CI -2.20 to -0.57) compared with when they did not report a disability (mean difference -0.49, 95% CI -0.84 to -0.14). The combined effect of being underemployed and having a disability was nearly one point greater than the summed independent risks of having a disability and being underemployed (-0.89, 95% CI -1.75 to -0.03). CONCLUSION: People with disabilities are more likely to experience underemployment and more likely to have their mental health adversely affected by it. There is a need for more research and policy attention on how to ameliorate the effects of underemployment on the mental health of persons with disabilities

Nwaru CA, Peutere L, Kivimaki M, Pentti J, Vahtera J, and Virtanen PJ. Chronic diseases as predictors of labour market attachment after participation in subsidised re-employment programme: a 6-year follow-up study. Journal of Epidemiology and Community Health. 2017; 71(11):1101-1106.

<http://dx.doi.org/10.1136/jech-2017-209271>

Abstract: BACKGROUND: Little is known about the work patterns of re-employed people. We investigated the labour market attachment trajectories of re-employed people and assessed the influence of chronic diseases on these trajectories. METHODS: The study was based on register data of 18 944 people (aged 18-60 years) who participated in a subsidised re-employment programme in Finland. Latent class growth analysis with zero-inflated Poisson was used to model the labour market attachment trajectories over a 6-year follow-up time. Multinomial logistic regression was used to examine the associations between chronic diseases and labour market attachment trajectories, adjusting for age, gender, educational level, size of town and calendar year in subsidised re-employment programme. RESULTS: We identified four distinct labour market attachment trajectories, namely: strengthening (a relatively stable attachment throughout the follow-up time; 77%), delayed (initial weak attachment increasing later; 6%), leavers (attachment declined with time; 10%) and none-attached (weak attachment throughout the study period; 7%). We found that severe mental problems strongly increased the likelihood of belonging in the leavers (OR

3.61; 95% CI 2.23 to 5.37) and none-attached (OR 3.41; 95% CI 1.91 to 6.10) trajectories, while chronic hypertension was associated with none-attached (OR 1.37; 95% CI 1.06 to 1.77) trajectory. The associations between other chronic diseases (diabetes, heart disease, asthma and arthritics) and labour market attachment trajectories were less evident. CONCLUSIONS: Re-employed people appear to follow distinct labour market attachment trajectories over time. Having chronic diseases, especially mental disorders appear to increase the risk for relatively poor labour market attachment

Park J, Park JS, Han B, and Kim Y. Vulnerability of employees in businesses with fewer than five workers (micro-enterprises) to occupational safety and health problems. American Journal of Industrial Medicine. 2017; 60(12):1056-1065.

<http://dx.doi.org/10.1002/ajim.22783>

Abstract: INTRODUCTION: We assessed the characteristics of micro-enterprises (businesses with fewer than five workers) focusing on occupational safety and health (OSH) issues. METHODS: We performed a secondary analysis of data from the Economically Active Population Supplementary Survey and the fourth Korean Working Conditions Survey of 2014. RESULTS: Relative to larger businesses, micro-enterprises employ more women, temporary workers, and older workers (>55 years). In addition, more workers in micro-enterprises held "elementary occupations" (unskilled or under-skilled) or "sales and service jobs." Key sectors of such employment included the sectors of "wholesale and retail trade" and "hotel and restaurants." Furthermore, lower skilled workers in such micro-enterprises more frequently reported exposure to ergonomic risk factors and subsequent musculoskeletal disorders, and they also experienced a much higher fatality rate due to occupational injuries. CONCLUSION: Our results indicate that Korean workers in micro-enterprises are more vulnerable to OSH problems than workers in larger businesses

Schulte PA, Cunningham TR, Nickels L, Felknor S, Guerin R, Blosser F, and et al. Translation research in occupational safety and health: a proposed framework. American Journal of Industrial Medicine. 2017; 60(12):1011-1022.

<http://dx.doi.org/10.1002/ajim.22780>

Abstract: Translation research in occupational safety and health is the application of scientific investigative approaches to study how the outputs of basic and applied research can be effectively translated into practice and have an impact. This includes the study of the ways in which useful knowledge and interventions are disseminated, adopted, implemented, and institutionalized. In this paper, a 4-stage framework (Development, Testing, Institutionalization, and Evaluation) is presented. Translation research can be used to enhance the use and impact of occupational safety and health knowledge and interventions to protect workers. This type of research has not received much attention in the occupational safety and health field. However, in contemporary society, it is critical to know how to

make an impact with the findings and outputs of basic and applied research. This paper provides a novel framework for consideration of how to advance and prioritize translation research for occupational safety and health

Stynen D, Jansen NWH, and Kant I. The impact of work-related and personal resources on older workers' fatigue, work enjoyment and retirement intentions over time. *Ergonomics*. 2017; 60(12):1692-1707.

<http://dx.doi.org/10.1080/00140139.2017.1334094>

Abstract: This study aims to examine the impact of work-related and personal resources on older workers' retirement intentions by studying the pathways (fatigue and work enjoyment) from resources to retirement intentions, the buffering role of resources for psychological job demands, in a cross-sectional and longitudinal timeframe. Longitudinal results on a subsample of full-time, older workers (n = 1642) from the Maastricht Cohort Study suggest that over four years of follow-up personal resources like personal mastery and perceived health related to less (prolonged) fatigue and more work enjoyment. Personal mastery also related to later retirement intentions. A work-related resource like decision authority related to less prolonged fatigue. (Prolonged) fatigue related to earlier retirement intentions, suggesting that fatigue may be a pathway to early retirement. Finally, little evidence was found for effect modification by resources. This prospective study indicates that work-related and personal resources may be useful for prolonging working careers. Practitioner Summary: To date, the impact of work-related and personal resources on older workers' retirement intentions is rarely studied. As this prospective study shows that resources may impact older workers' (prolonged) fatigue, work enjoyment and retirement intentions, the monitoring and fostering of resources is of importance for prolonging their working careers

Wang B, Wu C, Shi B, and Huang L. Evidence-based safety (EBS) management: a new approach to teaching the practice of safety management (SM). *Journal of Safety Research*. 2017; 63(Supplement C):21-28.

<http://dx.doi.org/10.1016/j.jsr.2017.08.012>

***IWH authored publication.**