

ABOUT RESEARCH ALERT

Research Alert is a service provided to you by the Institute for Work & Health (IWH) to help you keep abreast of recent literature in the areas of occupational health and safety, epidemiology, public health and others within the IWH mandate. Please note that these articles have not been reviewed by Institute scientists to assess the quality of the studies. Research Alerts should not be considered an endorsement of the findings. Readers are cautioned not to act on the results of single studies, but rather to seek bodies of evidence. It should also be noted that the Institute for Work & Health cannot provide full-text of articles listed in Research Alerts to individuals outside of the organization, as this violates copyright legislation.

Journal articles marked with an asterisk indicate an IWH scientist or adjunct scientist is included in the list of authors.

***Jetha A, Navaratnerajah L, Kondratowski S, Parmassar M, Tucker LB, and Gignac MAM. Impact of employment and income support interventions on the health of young adults with episodic disability: findings from a systematic review. *Scandinavian Journal of Work, Environment & Health*. 2023; [epub ahead of print].**

<https://doi.org/10.5271/sjweh.4133> [open access]

Abstract: OBJECTIVE: Young adults living with episodic disabilities face unpredictable disruptions to their employment and health. Our study aimed to examine the impact of employment and income support interventions on the health and well-being of young adults living with episodic disabilities. METHODS: We conducted a systematic review of peer-reviewed intervention studies published in 2001-2021 in industrialized contexts. Two independent reviewers screened titles, abstracts and full-texts. We undertook a narrative synthesis of eligible articles. RESULTS: Our search yielded 15 269 published articles, of which only five studies were eligible for evidence synthesis. All articles were appraised as being of medium quality. Four interventions focused on young adults living with mental health conditions. Two were based in clinical settings; three were based in community-based settings. Each employment intervention exhibited improvements in health outcomes. Three studies examined the impact of supported employment interventions that were particularly beneficial to improving work and health outcomes. CONCLUSION: Involvement in employment interventions could provide benefits for the health of young adults with episodic disability. Our systematic review highlights the need to for research to elaborate on the ways

in which employment interventions can impact the health and well-being of young adults living with different episodic disabilities

Bearss B, Martin A, Dorsey Vinton S, Chaidez V, Palmer-Wackerly AL, Mollard E, et al. "Too many jobs and not enough hands": immigrant and refugee community health workers at the frontlines of the COVID-19 pandemic. *Qualitative Health Research*. 2024; 34(1-2):86-100.

<https://doi.org/10.1177/10497323231204741>

Abstract: Refugees and immigrants have experienced heightened health inequities related to COVID-19. As community-embedded frontline health personnel, refugee and immigrant community health workers (riCHWs) played essential roles in the provision of informational, instrumental, and emotional support during the unprecedented first year of the pandemic. Despite the importance of this workforce, riCHWs are at high risk for burnout due to low recognition and demanding workloads. This was exacerbated as riCHWs navigated a new and uncertain health delivery landscape. We sought to glean insight into riCHWs' stressors, coping strategies and resources, and self-efficacy to identify ways to support their work and wellbeing. Using a narrative inquiry approach, we conducted semi-structured, in-depth interviews with 11 riCHWs working in a midsized city in the midwestern United States. We generated three distinct yet interrelated themes: (1) Rapid and trustworthy information is key, (2) Creativity and perseverance are good ... structural support is better, and (3) Integrating riCHW expertise into health promotion programming and decision-making. Although riCHWs were deeply committed to enhancing community wellbeing, quickly shifting responsibilities in tandem with structural-level health inequities diminished their self-efficacy and mental health. riCHWs relied on work-based friends/colleagues for informational and emotional support to enhance their capacity to deliver services. Findings suggest increasing opportunities for peer support and idea-exchange, professional development, and integration of riCHW expertise in health promotion decision-making are effective strategies to enhance riCHWs' professional self-efficacy and personal wellbeing.

Bullock GS, Dartt CE, Ricker EA, Fallowfield JL, Arden N, Clifton D, et al. Barriers and facilitators to implementation of musculoskeletal injury mitigation programmes for military service members around the world: a scoping review. *Injury Prevention*. 2023; 29(6):461-473.

<https://doi.org/10.1136/ip-2023-044905> [open access]

Abstract: Introduction: Musculoskeletal injury (MSK-I) mitigation and prevention programmes (MSK-IMPPs) have been developed and implemented across militaries worldwide. Although programme efficacy is often reported, development and implementation details are often overlooked, limiting their scalability, sustainability and effectiveness. This scoping review aimed to identify the following in military populations: (1) barriers and facilitators to implementing and scaling MSK-IMPPs; (2) gaps in MSK-IMPP research and (3) future research priorities. Methods: A scoping review assessed literature from inception to April 2022 that

included studies on MSK-IMPP implementation and/or effectiveness in military populations. Barriers and facilitators to implementing these programmes were identified. Results: From 132 articles, most were primary research studies (90; 68.2%); the remainder were review papers (42; 31.8%). Among primary studies, 3 (3.3%) investigated only women, 62 (69%) only men and 25 (27.8%) both. Barriers included limited resources, lack of stakeholder engagement, competing military priorities and equipment-related factors. Facilitators included strong stakeholder engagement, targeted programme design, involvement/proximity of MSK-I experts, providing MSK-I mitigation education, low burden on resources and emphasising end-user acceptability. Research gaps included variability in reported MSK-I outcomes and no consensus on relevant surveillance metrics and definitions. Conclusion: Despite a robust body of literature, there is a dearth of information about programme implementation; specifically, barriers or facilitators to success. Additionally, variability in outcomes and lack of consensus on MSK-I definitions may affect the development, implementation evaluation and comparison of MSK-IMPPs. There is a need for international consensus on definitions and optimal data reporting elements when conducting injury risk mitigation research in the military.

Deng J, Sarraf L, Hotte-Meunier A, and Sauve G. Relationship between self-esteem and employment in people with severe mental illness: a systematic review and meta-analysis. *Journal of Vocational Rehabilitation*. 2023; 59(3):273-283.

<https://doi.org/10.3233/JVR-230045>

Elniski DA. Autoethnography in workplace safety: revealing the suffering of unintentional first responders in the Canadian trucking industry and beyond. *Safety Science*. 2024; 170:106347.

<https://doi.org/10.1016/j.ssci.2023.106347>

Fuentes-Bargues JL, Sanchez-Lite A, Gonzalez-Gaya C, and Artacho-Ramirez MA. Descriptive analysis and a proposal for a predictive model of fatal occupational accidents in Spain. *Heliyon*. 2023; 9(11):e22219.

<https://doi.org/10.1016/j.heliyon.2023.e22219> [open access]

Abstract: Accidents at work are a problem in today's economic structures, but if they result in the loss of human lives, the economic and social cost is even higher. The development of prevention policies, both at governmental and sectoral level, has led to a progressive reduction of occupational accidents, but number of fatal accidents remain high. The aim of this study is to explore the evolution of fatal accidents at work in Spain for the period 2009-2021, analyse the relationship between the main variables, and propose a predictive model of fatal occupational accidents in Spain. Data for this study are collected from occupational accident reports via the Delt@ (Electronic declaration of injured workers) IT system. The study variables were classified into five groups: temporal, personal, business, circumstances, and consequences. Fatal accidents at work are more common in males and in older workers,

especially in workers between 40 and 59 years old. Companies with less than five workers have the highest percentage of fatal accidents, and the transport subsector and that the worker is carrying out his/her usual work have a strong correlation in the fatal accidents. Results can help to the agents involved in the health and safety management to develop preventive measures, and action plans.

Kelsall HL, Di Donato MF, McGuinness SL, Collie A, Zhong S, Eades O, et al. Workers' compensation claims for COVID-19 among workers in healthcare and other industries during 2020-2022, Victoria, Australia. *Occupational and Environmental Medicine*. 2023; 80(12):667-673.

<https://doi.org/10.1136/oemed-2023-108982>

Abstract: Objective: To identify and characterise COVID-19 workers' compensation claims in healthcare and other industries during the pandemic in Victoria, Australia. Methods: We used workers' compensation claims identified as COVID-19 infection related from 1 January 2020 to 31 July 2022 to compare COVID-19 infection claims and rates of claims by industry and occupation, and in relation to Victorian COVID-19 epidemiology. A Cox proportional hazards model assessed risk factors for extended claim duration. Results: Of the 3313 direct and indirect COVID-19-related claims identified, 1492 (45.0%) were classified as direct COVID-19 infection accepted time-loss claims and were included in analyses. More than half (52.9%) of COVID-19 infection claims were made by healthcare and social assistance industry workers, with claims for this group peaking in July-October 2020. The overall rate of claims was greater in the healthcare and social assistance industry compared with all other industries (16.9 vs 2.4 per 10 000 employed persons) but industry-specific rates were highest in public administration and safety (23.0 per 10 000 employed persons). Workers in healthcare and social assistance were at increased risk of longer incapacity duration (median 26 days, IQR 16-61 days) than in other industries (median 17 days, IQR 11-39.5 days). Conclusions: COVID-19 infection claims differed by industry, occupational group, severity and timing and changes coincided with different stages of the COVID-19 pandemic. Occupational surveillance for COVID-19 cases is important and monitoring of worker's compensation claims and incapacity duration can contribute to understanding the impacts of COVID-19 on work absence.

Loh PY, Choi J, and Lin Y. Impact of task variation and microbreaks on muscle fatigue at seated and standing postures. *Work*. 2023; 76(3):1039-1045.

<https://doi.org/10.3233/WOR-220528>

Abstract: Background: Prolonged and sustained work posture among computer users is one of the main factors that contributes to musculoskeletal discomfort. Rest-break interventions such as task variation and microbreaks may help prevent muscle fatigue and work-related musculoskeletal disorder. Objective: We aimed to investigate the effects of task variation and microbreaks at seated and standing workstations on forearm muscle activity, namely extensor digitorum communis, extensor carpi ulnaris, flexor digitorum superficialis, and flexor carpi ulnaris; mouse operation force (vertical compression force); mouse operation

parameters; and perceived body discomfort during mouse operation. Methods: Twelve healthy right-handed young adults were recruited (male: $n = 7$, 21.6 ± 1.4 years; female: $n = 5$, 21.4 ± 1.7 years). Participants performed three blocks of computer tasks (computer mouse operation and typing) in both seated and standing postures with each block lasting for 30 min. Surface electromyography (EMG) of the forearm muscles and operation force were monitored during computer mouse operation. Body discomfort rating was recorded at the end of each block. Results: With simulated task variation and microbreaks, work posture and work time showed no significant difference with EMG amplitude and mouse operation force. Conclusion: Task variation and microbreaks could be of benefit to computer users by reducing muscle fatigue during long hours of computer work at both seated and standing workstations.

Marjerrison N, Grimsrud TK, Hansen J, Martinsen JI, Nordby KC, Olsen R, et al. Occupational exposures of firefighting and urinary tract cancer risk among men in the Norwegian Fire Departments Cohort. Occupational and Environmental Medicine. 2023; 80(12):659-666. <https://doi.org/10.1136/oemed-2023-109003> [open access]

Abstract: Objectives: Increased risks of bladder cancer and mesothelioma were the strongest evidence for the recent reclassification of firefighting as carcinogenic (Group 1) by the International Agency for Research on Cancer. Our study aim was to develop indicators for specific firefighting exposures and examine associations with urinary tract cancer (UTC), including bladder cancer. Methods: We developed indicators for exposure from employment at a fire department or in firefighting jobs, to fire and smoke, and to diesel exhaust for men in the Norwegian Fire Departments Cohort ($n=4250$). Incident UTC cases were obtained from the Cancer Registry of Norway (1960-2021). Poisson regression was used to estimate incidence rate ratios (IRR) with cumulative exposures grouped into tertiles (reference: lowest exposed tertile) with 0-year, 10-year and 15-year lagging of exposures. Results: During 125 090 person-years of follow-up, there were 76 cases of UTC. IRRs were mostly non-significantly increased in the middle tertile and at or below 1 in the highest tertile for total duration of employment, number of fires attended and fire exposure score with and without lags. In the middle tertile for diesel exhaust exposure, UTC risk was elevated over twofold with 10-year (IRR 2.27, 95% CI 1.22 to 4.20) and 15-year (2.21, 1.18 to 4.16) lags, and near 1 in the highest tertile. Findings for bladder cancer were similar to those for UTC. Conclusions: Dose-response associations between the exposure indicators and UTC were not observed. Future studies using the indicators with more cases are needed.

Mohammad S, Miguet M, Rukh G, Schioth HB, and Mwinyi J. Job satisfaction and job tenure of people with mental health disorders: a UK Biobank cohort study. Scandinavian Journal of Public Health. 2023; 51(8):1248-1257. <https://doi.org/10.1177/14034948221119639> [open access]

Abstract: AIMS: Job satisfaction plays an important role for the life quality and health of working individuals. While studies have shown that self-reported mental health conditions

such as stress, anxiety and depression are associated with job satisfaction, a large population-based study exploring and comparing self-reported physician posed diagnosed conditions and their association with job satisfaction and job tenure is missing. This study addresses the gap along with exploring the impact of the neurotic personality trait and other possible contributing factors. **METHODS:** Sixteen mental health disorders diagnosed by physicians, categorised into four major groups were investigated in relation to employment status (108,711 participants) and in relation to job satisfaction and job tenure (34,808 participants). Analyses were performed using linear regression adjusted for age, sex, townsend deprivation index, body mass index, education, physical activity, work hours and neuroticism. **RESULTS:** Neurotic and stress disorders, eating disorders and other mental health disorders were strongly associated with lower job satisfaction and shorter job tenure in both unadjusted and adjusted analyses. Neuroticism was strongly linked to job satisfaction but was not associated with job tenure. **CONCLUSIONS:** Study findings clarify the complex relationship of mental health with job satisfaction and job tenure, which is very important to understand in designing measures to improve working life participation of individuals with mental health issues

Parodi JB, Burgos LM, Garcia-Zamora S, Liblik K, Pulido L, Gupta S, et al. Gender differences in workplace violence against physicians and nurses in Latin America: a survey from the Interamerican Society of Cardiology. Public Health. 2023; 225:127-132.

<https://doi.org/10.1016/j.puhe.2023.09.030>

Abstract: Objectives: To evaluate gender differences in workplace violence (WPV) against physicians and nurses in Latin America. Study design: Cross-sectional study. Methods: A cross-sectional electronic survey was conducted between January 11 and February 28, 2022. A prespecified gender analysis was performed. Results: Among the 3056 responses to the electronic survey, 57% were women, 81.6% were physicians, and 18.4% were nurses. At least one act of violence was experienced by 59.2% of respondents, with verbal violence being the most common (97.5%). Women experienced more WPV than men (65.8% vs 50.4%; $P < 0.001$; odds ratio [OR]: 1.89; 95% confidence interval [CI]: 1.63-2.19). Women were more likely to report at least one episode of WPV per week (19.2% vs 11.9%, $P < 0.001$), to request for psychological help (14.5% vs 9%, $P = 0.001$) and to experience more psychosomatic symptoms. In addition, women were more likely to report having considered changing their job after an aggression (57.6% vs 51.3%, $P = 0.011$) and even leaving their job (33% vs 25.7%, $P = 0.001$). In a multivariate analysis, being a woman (OR: 1.76), working in emergency departments (OR: 1.99), and with COVID-19 patients (OR: 3.3) were independently associated with more aggressive interactions, while older age (OR: 0.95) and working in a private setting (OR: 0.62) implied lower risk. Conclusions: Women are more likely to experience WPV and to report more psychosomatic symptoms after the event. Preventive measures are urgently needed, with a special focus on high-risk groups such as women.

Peters CE, Quinn EK, Rodriguez-Villamizar LA, MacDonald H, and Villeneuve PJ. Exposure to low-dose radiation in occupational settings and ischaemic heart disease: a systematic review and meta-analysis. *Occupational and Environmental Medicine*. 2023; 80(12):706-714.

<https://doi.org/10.1136/oemed-2023-108865> [open access]

Abstract: Ionising radiation is a human carcinogen, but the evidence is less clear that exposure to low-dose ionising radiation (LDIR) increases the risk of adverse cardiovascular outcomes. We synthesised the literature of chronic occupational exposure to LDIR and cardiovascular disease, particularly for ischaemic heart disease (IHD). The literature search was conducted using three databases including studies published between 1990 and 2022. A quality assessment of the studies was completed using the Office of Health and Assessment and Translation Risk of Bias Rating Tool. We conducted meta-analyses for IHD mortality using random effects models using measures of excess relative risk per sievert (ERR/Sv) obtained from internal cohort comparisons, as well as with standardised mortality ratios (SMRs) from external cohort comparisons. We identified 2189 articles, and of these, 26 provided data on IHD and were retained. Most studies were classified as having a 'moderate' level of risk of bias. Fourteen and 10 studies reporting external radiation doses were included in meta-analyses using SMR and ERR/Sv, respectively. The meta-summary SMR was 0.81 (95% CI 0.74 to 0.89) with evidence of reduced risk but high heterogeneity across studies. For internal cohort measures, the summary ERR/Sv for a lagged exposure of 10 years was 0.10 (95% CI 0.01 to 0.20) with low heterogeneity. The subgroup analysis by lagged exposure time showed the strongest association were for the 15 and 20 years lag. Our findings suggest that occupational exposure to LDIR increases the risk IHD mortality and highlight the relevance of internal cohort comparisons.

Shivakumar M, Welsh V, Bajpai R, Helliwell T, Mallen C, Robinson M, et al. Musculoskeletal disorders and pain in agricultural workers in Low-and Middle-Income Countries: a systematic review and meta-analysis. *Rheumatology International*. 2023; [epub ahead of print].

<https://doi.org/10.1007/s00296-023-05500-5> [open access]

Abstract: Agricultural workers constitute two-thirds of the population of Low- and Middle-Income Countries (LMIC) and are at increased risk of developing musculoskeletal disorders (MSD) due to high-risk activities. This systematic review and meta-analysis aim to synthesise the prevalence, predictors, and outcomes of musculoskeletal pain amongst agricultural workers to identify priority areas for prevention and development of early interventions. This systematic review and meta-analysis included Studies published from the inception of global electronic databases until 30 September 2022 were included. Prevalence estimates for MSDs among agricultural workers aged over 18 years in LMIC were extracted. Narrative synthesis summarized study findings and pooled estimates for 12-month pain prevalence were calculated. 7502 potential studies were identified. 64 studies (68,684 participants from 23 countries) were included in the systematic review; 33 studies were included in the meta-

analysis. Low back pain was the most widely investigated symptom. The 12-month pooled prevalence of low back pain was highest in Africa [61.96% (45.69–76.22)] compared to Asia [54.16% (47.76–60.50)] and South/Central America [28.52% (10.91–50.33)]. Narrative synthesis found associations between MSDs, particular activities including heavy lifting and repetitive movements, and outcomes including reduced productivity. MSDs are common in agriculture workers in LMIC. Global prevalence of low back pain in farmers, particularly in Africa, is greater than in previously reported global prevalence in the general population. This may be attributed to environmental factors and high-risk activities which could be targeted for prevention and early intervention strategies to support individuals, prevent disability, and reduce loss of productivity.

Skamagki G, Carpenter C, King A, and Wahlin C. How do employees with chronic musculoskeletal disorders experience the management of their condition in the workplace? A metasynthesis. *Journal of Occupational Rehabilitation*. 2023; 33(4):702-712.

<https://doi.org/10.1007/s10926-023-10099-2> [open access]

Abstract: This metasynthesis contributes to an understanding of the experiences, perceptions, and attitudes of employees on managing chronic musculoskeletal disorders (CMSDs) at work. Many studies in this field are concerned with prevention or return-to-work (RTW) programmes. However, the purpose of this review was to synthesise evidence that only focuses on the employees' management of their CMSDs at work. The SPIDER framework was used to structure the question "How do employees with CMSDs experience the management of their condition in the workplace"? The literature search focused on articles published between 2011 and 2021, and the search was conducted using the following databases: MEDLINE, SCOPUS, CINAHL, AMED, PsycINFO. The review identified nine articles that explored employees' experiences of managing CMSDs at work. Thematic synthesis was used to create analytic themes which provided a more in-depth discussion of these experiences. The identified themes were: 'employees actively seek ways to manage their conditions', 'influence of work environment on employees with CMSDs' and 'optimising the relationship between employees and managers. This metasynthesis suggests that the ability to negotiate workplace support and manage CMSDs at work is influenced by the cultural and social environment of the organisation. Effective communication, care and trust between the employee is needed. The review also illustrated the need for healthcare professionals to provide support to employees at work.

Thern E, Matilla-Santander N, Hernando-Rodriguez JC, Almroth M, and Bodin T. Precarious employment in early adulthood and later mental health problems: a register-linked cohort study. *Journal of Epidemiology & Community Health*. 2023; 77(12):755-761.

<https://doi.org/10.1136/jech-2023-220817> [open access]

Abstract: Background: Precarious employment is a determinant of self-reported mental health problems among young adults. Less is known about more severe and objectively measured health outcomes, such as mental health problems requiring inpatient care. The

current study aims to investigate the effect of precarious employment in early adulthood on later mental health problems requiring inpatient care. Method: A register-based cohort study, based on the Swedish Work, Illness and Labor-market Participation cohort, was conducted, following a cohort of young adults aged 27 years between 2000 and 2003 (born between 1973 and 1976) (n=339 403). Information on labour market position in early adulthood (precarious employment, substandard employment, unemployment and standard employment) was collected from registers 3 years after graduating from school. Information on the outcome of mental health problems (depression, anxiety and stress-related disorders) was collected from the National Patient Register. HRs with 95% CIs were obtained by Cox regression analyses. Results: After adjusting for important covariates, such as prior mental health problems, compared with individuals in standard employment, individuals who were precariously employed in early adulthood had an increased risk of later mental health problems (HRadjusted: 1.51 95% CI 1.42 to 1.60). The association between precarious employment and mental health was slightly stronger for males. Conclusions: In Sweden, entry into the labour market with precarious employment is associated with an increased risk of mental health problems, which is important given that precarious employment is becoming more prevalent among young adults.

Wang D, Mao W, Zhao C, Wang F, and Hu Y. The cross-level effect of team safety-specific transformational leadership on workplace safety behavior: the serial mediating role of team safety climate and team safety motivation. Journal of Safety Research. 2023; 87:285-296.

<https://doi.org/10.1016/j.jsr.2023.05.001>

Abstract: Introduction: Workplace safety not only impairs individual health but also affects economic and social development. Method: Based on social learning theory, collective social learning theory, and expectancy-valence theory, using cluster random sampling method, 630 employees from 66 different work teams out of around 800 employees in a domestic petroleum enterprise were selected to participate in the research. The safety-specific transformational leadership, safety climate, safety motivation and workplace safety behavior scales were used. Data were collected in two stages. SPSS22.0 and Mplus7.0 were used to analyze the data to explore the relationship between team safety-specific transformational leadership and workplace safety behavior, as well as the serial mediating effect of team safety climate and team safety motivation. Results: The results showed that: (a) team safety-specific transformational leadership can positively influence safety compliance and safety participation; (b) team safety climate mediates the relationship between team safety-specific transformational leadership and safety compliance and safety participation; (c) team safety motivation mediates the relationship between team safety-specific transformational leadership and safety compliance and safety participation; and (d) team safety climate and team safety motivation play a serial mediating role between team safety-specific transformational leadership and safety compliance and safety participation.

Missed an issue? Catch up on previous Research Alerts available on the IWH website
www.iwh.on.ca/journal-articles/research-alerts