

IWH Research Alert

October 4, 2019

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

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.

***Furlan AD, Pajer KA, Gardner W, and MacLeod B. Project ECHO: Building capacity to manage complex conditions in rural, remote and underserved areas. Canadian Journal of Rural Medicine. 2019; 24(4):115-120.**

https://doi.org/10.4103/CJRM.CJRM_20_18

Abstract: There is a need to bring specialized medical expertise to rural and remote areas. Project ECHO offers a method to move knowledge from specialists in academic centres using videoconference, case-base learning, and best-practices knowledge sharing. Ontario has implemented ECHO since 2014 and has demonstrated favourable outcomes among primary care clinicians

Asante BO, Trask C, Adebayo O, and Bath B. Prevalence and risk factors of low back disorders among waste collection workers: a systematic review. Work. 2019; 64(1):33-42.

<https://doi.org/10.3233/WOR-192977>

Abstract: BACKGROUND: Waste management is a growing industry worldwide. Working conditions may entail risk factors for musculoskeletal disorders, and especially low back disorders (LBD). OBJECTIVE: The purpose of this study was to perform a systematic review on: (i) the prevalence of LBD; and (ii) risk factors for LBD among waste collection workers. METHOD: A search was conducted in three electronic databases: Ovid Medline, EMBASE, and Global Health ePublications. Data were extracted on study design, sampling strategy, geographical region, LBD prevalence, and risk factors. Data were reported narratively. RESULTS: Thirteen full-text articles met the study criteria. Using a range of definitions for LBD, the included articles reported a 12-month prevalence of 'LBD' between 16 to 74%, although none of the included studies

quantified relationships between risk factors and LBD. None of the studies met all 9 risk of bias criteria. No articles investigated the association of risk factors and LBD, but even in absence this evidence authors of included studies suggested physical risk factors for LBD among waste workers: awkward posture, repetitive motion, and work duration. CONCLUSION: In light of these risks and future growth in this industry, the lack of high quality studies and investigation of risk factors highlight the need for more research in this sector which will support future LBD prevention efforts

Duncan MJ, Caperchione CM, Corry K, Van Itallie A, and Vandelanotte C. A RE-AIM evaluation of a workplace physical activity microgrant initiative: the 10,000 steps workplace challenge. Journal of Occupational & Environmental Medicine. 2019; 61(9):718-723.

<https://doi.org/10.1097/JOM.0000000000001653>

Abstract: OBJECTIVE: This study examines the reach, effectiveness, adoption, implementation, and maintenance of the 10,000 Steps Pedometer Microgrant Scheme using the RE-AIM framework. METHODS: The study used a mixed methods pre-post design. RE-AIM indicators were examined using employee surveys and workplace reports of microgrant implementation, adoption, and maintenance. RESULTS: A total of 259 microgrants and 21,211 pedometers were awarded (reach). Significant increases in physical activity were observed ($P < 0.05$) (effectiveness). Many (78%) workplaces reported using at least one challenge resource (adoption). Barriers were higher (26.5%) or lower (20.5%) than anticipated participation rates (implementation). Fifty percent of workplaces would continue to promote physical activity (maintenance). CONCLUSIONS: The microgrant reached a large number of employees and workplaces, increased physical activity, and achieved good levels of adoption and implementation. Employee and workplace levels of maintenance were mixed and need to be improved

Hillier-Brown F, Thomson K, McGowan V, Cairns J, Eikemo TA, Gil-Gonzalez D, et al. The effects of social protection policies on health inequalities: evidence from systematic reviews. Scandinavian Journal of Public Health. 2019; 47(6):655-665.

<https://doi.org/10.1177/1403494819848276>

Abstract: Background: The welfare state distributes financial resources to its citizens - protecting them in times of adversity. Variations in how such social protection policies are administered have been attributed to important differences in population health. The aim of this systematic review of reviews is to update and appraise the evidence base of the effects of social protection policies on health inequalities. Methods/design: Systematic review methodology was used. Nine databases were searched from 2007 to 2017 for reviews of social policy interventions in high-income countries. Quality was assessed using the Assessment of Multiple Systematic Reviews 2 tool. Results: Six systematic reviews were included in our review, reporting 50 unique primary studies. Two

reviews explored income maintenance and poverty relief policies and found some, low quality, evidence that increased unemployment benefit generosity may improve population mental health. Four reviews explored active labour-market policies and found some, low-quality evidence, that return to work initiatives may lead to short-term health improvements, but that in the longer term, they can lead to declines in mental health. The more rigorously conducted reviews found no significant health effects of any of social protection policy under investigation. No reviews of family policies were located. Conclusions: The systematic review evidence base of the effects of social protection policy interventions remains sparse, of low quality, of limited generalizability (as the evidence base is concentrated in the Anglo-Saxon welfare state type), and relatively inconclusive. There is a clear need for evaluations in more diverse welfare state settings and particularly of family policies

Johansson J, Berglund L, Johansson M, Nygren M, Rask K, Samuelson B, et al. Occupational safety in the construction industry. Work. 2019; 64(1):21-32.

<https://doi.org/10.3233/WOR-192976>

Abstract: BACKGROUND: The paper is a research review focusing on occupational safety in the construction industry. OBJECTIVE: The purpose is to present research that highlights the areas of occupational safety and risks and to identify areas where research is lacking. METHODS: 146 articles from scientific journals, mainly covering the construction industry in Europe, Canada, USA, Australia and Japan have been studied. The findings are presented under 11 categories: accident statistics; individual factors; legislation and regulations; ethical considerations; risk management; leadership, management, organization; competence; safety design; cost-benefit calculations; programs and models; and technical solutions. RESULTS: The research is dominated by initiatives from researchers and government authorities, while the construction industry only appears as the object for the research. There is a scarcity of research on integrated systems encompassing subcontractors, as well as a lack of research with sociological perspectives on accidents. Furthermore, only a few studies have applied a gender perspective on safety in construction, i.e. there is a need of further research in this particular area. CONCLUSIONS: A range of initiatives have been taken to increase safety in the construction industry and the initiatives are mainly reported to be successful. There are some cultural differences, but basically researchers present similar results regardless of country

Jun D, O'Leary S, McPhail SM, and Johnston V. Job strain and psychological distress in office workers: the role of coping. Work. 2019; 64(1):55-65.

<https://doi.org/10.3233/PWOR-192968>

Abstract: BACKGROUND: Work-related psychosocial factors such as job strain are thought to contribute to elevated psychological stress in office workers. One factor that may impact the relationship between job strain and psychological

distress is the individual's coping resources. OBJECTIVE: The purpose of this study is to examine the interaction effect of coping resources on the relationship between job strain and psychological distress in office workers. METHODS: 220 office workers in Australia and Korea completed the Job Content Questionnaire (to evaluate job strain and social support at work), the Depression, Anxiety, and Stress Scale, (DASS-21, a measure of psychological distress), and the Coping with Job Stress Scale to assess control and escape coping. Hierarchical regression analyses were executed to examine the interaction and moderating effect of coping resources. RESULTS: Job strain had a direct positive relationship with all three domains of psychological distress. The relationship between job strain and depression was positively moderated by escape coping, but negatively moderated by social support. Use of higher levels of escape coping predicted higher levels of depression and anxiety symptoms when higher levels of job strain were perceived. CONCLUSIONS: Findings suggest there may be a direct relationship between job strain and psychological distress in office workers. This relationship, however, may be moderated by the office workers coping resources (coping strategies and social support). It is suggested that the evaluation of coping might be a key consideration in the elements of the assessment of psychological distress in office workers

Kim SY, Shin YC, Oh KS, Shin DW, Lim WJ, Cho SJ, et al. Association between work stress and risk of suicidal ideation: a cohort study among Korean employees examining gender and age differences. Scandinavian Journal of Work, Environment & Health. 2019; [Epub ahead of print].

<https://doi.org/10.5271/sjweh.3852>

Abstract: Objective The aim of this study was to identify work stress associated with the development of suicidal ideation with a focus on gender and age differences among Korean employees. Methods The data of 95 356 healthy employees aged >18 years who had undergone at least two comprehensive health examinations at Kangbuk Samsung Hospital Health Screening Center, South Korea, were analyzed. Risk of suicidal ideation was assessed using a self-reported questionnaire examining suicidal ideation during the past year. Work stress was measured using the Korean Occupational Stress Scale-Short Form. A Cox proportional hazards model was used to examine relationship between work stress and suicidal ideation. Considering gender and age differences in the association between work stress and suicidal ideation, the data were stratified by gender and age groups. Results During 289 706 person-years of follow-up, suicide ideation was identified in 3 460 participants. For male workers, high job demands and lack of reward were associated with the risk of suicidal ideation in young adults and midlife decade group. Job insecurity was associated with the risk of suicidal ideation in midlife decade and middle-aged and older adulthood. Organizational injustice was associated with the risk of suicidal ideation in middle-aged and older adulthood. Discomfort in an organizational climate was associated with the development of suicidal ideation in all age groups. For female workers, organizational injustice and discomfort in an organizational climate were

associated with the risk of suicidal ideation in early adulthood. Conclusion The results suggested that certain work stressors are risk factors of suicidal ideation. Gender and age differences in components of work stress associated with suicidal ideation were also observed

Kononen J. Becoming a 'labour migrant': immigration regulations as a frame of reference for migrant employment. Work, Employment and Society. 2019; 33(5):777-793.

<https://doi.org/10.1177/0950017019835133>

Lawson SM, Masterson EA, and Azman AS. Prevalence of hearing loss among noise-exposed workers within the Mining and Oil and Gas Extraction sectors, 2006-2015. American Journal of Industrial Medicine. 2019; 62(10):826-837.

<https://doi.org/10.1002/ajim.23031>

Abstract: BACKGROUND: The purpose of this study was to estimate the prevalence of hearing loss (HL) among noise-exposed US workers within the Mining, and Oil and Gas Extraction (OGE) sectors. METHODS: Audiograms of 1.9 million workers across all industries (including 9389 in Mining and 1076 in OGE) from 2006 to 2015 were examined. Prevalence and adjusted risk as compared to a reference industry (Couriers and Messengers) were estimated for all industries combined and the Mining and OGE sectors and subsectors.

RESULTS: The prevalences of HL in Mining and OGE were 24% and 14%, respectively, compared with 16% for all industries combined. Many Mining and one OGE subsector exceeded these prevalences and most had an adjusted risk (prevalence ratio) significantly greater than the reference industry. Some subsectors, particularly in OGE, could not be examined due to low sample size.

The prevalences in Construction Sand and Gravel Mining and Natural Gas Liquid Extraction were 36% and 28%, respectively. Workers within Support Activities for Coal Mining had double the risk of HL than workers in the reference industry.

CONCLUSIONS: The many subsectors identified with high prevalences and/or worker risks for HL well above risks in the reference industry need critical attention to conserve worker hearing and maintain worker quality of life.

Administrative and engineering controls can reduce worker hazardous noise exposures. Noise and ototoxic chemical exposure information is needed for many subsectors, as is audiometric testing results for OGE workers. Additional research is also needed to further characterize exposures and improve hearing conservation measures

Lilly M, Calhoun R, Painter I, Beaton R, Stangenes S, Revere D, et al. Destress 9-1-1: an online mindfulness-based intervention in reducing stress among emergency medical dispatchers: a randomised controlled trial. Occupational & Environmental Medicine. 2019; 76(10):705-711.

<https://doi.org/10.1136/oemed-2018-105598> [open access]

Abstract: OBJECTIVES: Emergency medical dispatchers (EMDs) experience significant stress in the workplace. Yet, interventions aimed at reducing work-

related stress are difficult to implement due to the logistic challenges associated with the relatively unique EMD work environment. This investigation tested the efficacy of a 7-week online mindfulness-based intervention (MBI) tailored to the EMD workforce. METHODS: Active-duty EMDs from the USA and Canada (n=323) were randomly assigned to an intervention or wait list control condition. Participants completed surveys of stress and mindfulness at baseline, post intervention, and 3 months follow-up. Repeated measures mixed effects models were used to assess changes in stress and mindfulness. RESULTS: Differences between the intervention group and control group in pre-post changes in stress using the Calgary Symptoms of Stress Inventory were statistically significant, with a difference of -10.0 (95% CI: -14.9, -5.2, p<0.001) for change from baseline to post intervention, and a difference of -6.5 (95% CI: -11.9, -1.1, p=0.02) for change from baseline to 3 months follow-up. Change in mindfulness scores did not differ between groups. However, increases in mindfulness scores were correlated with greater reductions in stress for all participants, regardless of group ($r=-0.53$, p<0.001). CONCLUSIONS: Development of tailored online MBIs for employees working in challenging work environments offer a promising direction for prevention and intervention. This study found that a short, weekly online MBI for EMDs resulted in reductions in reports of stress. Implications of online MBIs in other emergency responding populations and directions for future research are discussed

Moda HM, Filho WL, and Minhas A. Impacts of climate change on outdoor workers and their safety: some research priorities. International Journal of Environmental Research and Public Health. 2019; 16(18):E3458.

<https://doi.org/10.3390/ijerph16183458> [open access]

Abstract: The literature on the potential impacts of climate change on the health of outdoor workers has received limited attention as a whole, and in sub-Saharan African countries in particular. Yet, substantial numbers of workers are experiencing the health effects of elevated temperature, in combination with changes in precipitation patterns, climate extremes and the effects of air pollution, which have a potential impact on their safety and wellbeing. With increased temperatures within urban settlements and frequent heat waves, there has been a sudden rise in the occurrence of heat-related illness leading to higher levels of mortality, as well as other adverse health impacts. This paper discusses the impacts of extreme heat exposure and health concerns among outdoor workers, and the resultant impacts on their productivity and occupational safety in tropical developing countries with a focus on Sub-Saharan Africa, where there is a dearth of such studies. Aside from the direct effects caused by extreme heat exposure, other indirect health hazards associated with increasing heat among this group includes exposures to hazardous chemicals and other vector-borne diseases. In addition, reduced work capacity in heat-exposed jobs will continue to rise and hinder economic and social development in such countries. There is an urgent need for further studies around the health and economic impacts of climate change in the workplace, especially in tropical developing



countries, which may guide the implementation of the measures needed to address the problem

Oosterhuis T, Smaardijk VR, Kuijer PPF, Langendam MW, Frings-Dresen MHW, and Hoving JL. Systematic review of prognostic factors for work participation in patients with sciatica. Occupational & Environmental Medicine. 2019; 76(10):772-779.

<https://doi.org/10.1136/oemed-2019-105797> [open access]

Abstract: Sciatica impacts on the ability to work and may lead to a reduced return to work. This study reviewed and summarised prognostic factors of work participation in patients who received conservative or surgical treatment for clinically diagnosed sciatica. We searched MEDLINE, CINAHL, EMBASE and PsycINFO until January 2018. Cohort studies, using a measure of work participation as outcome, were included. Two independent reviewers performed study inclusion and used the Quality In Prognosis Studies tool for risk of bias assessment and GRADE to rate the quality of the evidence. Based on seven studies describing six cohorts (n=1408 patients) that assessed 21 potential prognostic factors, favourable factors for return to work (follow-up ranging from 3 months to 10 years) included younger age, better general health, less low back pain or sciatica bothersomeness, better physical function, negative straight leg raise-test, physician expecting surgery to be beneficial, better pain coping, less depression and mental stress, less fear of movement and low physical work load. Study results could not be pooled. Using GRADE, the quality of the evidence ranged from moderate to very low, with downgrading mainly for a high risk of bias and imprecision. Several prognostic factors like pain, disability and psychological factors were identified and reviewed, and these could be targeted using additional interventions to optimise return to work. PROSPERO registration number: CRD42016042497

Philippe FL, Lopes M, Houlfort N, and Fernet C. Work-related episodic memories can increase or decrease motivation and psychological health at work. Work and Stress. 2019; 33(4):366-384.

<https://doi.org/10.1080/02678373.2019.1577311>

Pieper C, Schroer S, and Eilerts AL. Evidence of workplace interventions: a systematic review of systematic reviews. International Journal of Environmental Research and Public Health. 2019; 16(19):E3553.

<https://doi.org/10.3390/ijerph16193553> [open access]

Abstract: Work environment factors are highly correlated with employees' health and well-being. Our aim was to sum up current evidence of health promotion interventions in the workplace, focusing on interventions for the prevention of musculoskeletal disorders, psychological and behavioral disorders as well as interventions for older employees and economic evaluations. We conducted a comprehensive literature search including systematic reviews published from April 2012 to October 2017 in electronic databases and search engines, websites of relevant organizations and institutions. It consisted of simple and specific

terms and word combinations related to workplace health promotion based on the search strategy of a previous review. After full-text screening, 74 references met the eligibility criteria. Using the same search strategy, there was a higher proportion of relevant high-quality studies as compared with the earlier review. The heterogeneity of health promotion interventions regarding intervention components, settings and study populations still limits the comparability of studies. Future studies should also address the societal and insurer perspective, including costs to the worker such as lost income and lost time at work of family members due to caregiving activities. To this end, more high-quality evidence is needed

Riekhoff AJ, Krutova O, and Natti J. Working-hour trends in the Nordic countries: convergence or divergence? Nordic Journal of Working Life Studies. 2019; 9(3):45-70.

<https://doi.org/10.18291/njwls.v9i3.116056> [open access]

Abstract: In this article, we investigate changes in usual working hours and part-time work in Denmark, Finland, Norway, and Sweden in recent decades. We analyze whether convergence or divergence occurred between countries, between men and women, and between men and women in each country. We use annual data from the European Labor Force Survey to identify trends between 1996 and 2016 (N = 730,133), while controlling for a set of structural factors. The findings suggest a degree of divergence between countries: usual working hours and the incidence of part-time work were relatively stable in Finland and Sweden, while working hours decreased in Denmark and Norway. The latter is partly driven by a decline among the 15–29 age group. The gender gap in working hours and part-time work was closed somewhat, in particular due to a rise in part-time work among men and a decline among women in Norway and Sweden.

Singh H and Singh LP. Musculoskeletal disorders among insurance office employees: a case study. Work. 2019; 64(1):153-160.

<https://doi.org/10.3233/WOR-192978>

Abstract: BACKGROUND: Insurance employees in India are overworked, and their jobs demand prolonged sitting hours in the office; this can lead to musculoskeletal disorders through consistent stress on the musculoskeletal system. The present study includes implications for the reduction of work-related musculoskeletal disorders to minimise sick leaves and medical expenses.

OBJECTIVE: This study aimed to determine the prevalence of musculoskeletal disorder-related issues among employees working in insurance offices and to analyse the association of pain symptoms with risk factors including demographic, occupational and psychosocial factors. METHODS: The study included 400 employees from different insurance offices. Data were collected using a questionnaire about pain, a flexibility test (sit-and-reach test) and a video-based analysis of working postures using the Rapid Upper Limb Assessment (RULA) method. RESULTS: The prevalence of work-related musculoskeletal

symptoms was the highest in the neck (57.2%), shoulders (38.5%), upper back (28.5%) and lower back (46.2%). CONCLUSIONS: A high persistence of musculoskeletal symptoms was observed in the neck, lower back, upper back and shoulders; the presence of these symptoms was strongly associated with predominant factors: assumed awkward posture, body mass index, job demand, RULA score and infrequent rest breaks. Additional research is required for testing the effect of interventions involving stretching exercises and/or installation of ergonomic workstations

*IWH authored publication.



Institute
for Work &
Health

Research Excellence
Advancing Employee
Health