

IWH Research Alert
November 19, 2021

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***Gibbs BB, Diaz KM, Kowalsky RJ, Smith PM, and Stoner L. Association of standing with cardiovascular disease and mortality in adults. *Current Epidemiology Reports*. 2021; [epub ahead of print].**

<https://doi.org/10.1007/s40471-021-00276-3>

***Premji S, Begum M, and Medley A. Language accommodations in workers' compensation: comparing Ontario and Quebec. *New Solutions*. 2021; [epub ahead of print].**

<https://doi.org/10.1177/10482911211053020> [open access]

Abstract: Workers who experience language barriers are more likely to get injured or sick because of their work and have poorer claim and return-to-work outcomes compared to other workers. To better understand the systemic factors that shape access to compensation in contexts of language barriers, we compared language accommodation policies and practices in the Quebec and Ontario workers' compensation systems. We uncovered gaps limiting access to professional interpreters in both provinces, although gaps were more pronounced in Quebec where workers were responsible for the cost of interpreters. We argue that simply improving the linguistic competence of workers' compensation systems is not sufficient to



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tackle access barriers and must be accompanied by efforts to address the root causes of social and economic inequities for workers who experience language barriers

***Smith PM, Smith BT, Warren C, Shahidi FV, Buchan S, and Mustard C. The prevalence and correlates of workplace infection control practices in Canada between July and September 2020. Health Reports. 2021; 32(11):16-27.**

<https://doi.org/10.25318/82-003-x202101000002-eng>

Abstract: BACKGROUND: There are important information gaps concerning the prevalence and distribution of infection control practices (ICPs) within workplaces continuing to operate during the COVID-19 pandemic. DATA AND METHODS: To address these gaps, this paper examines the prevalence of workplace ICPs among employed respondents to Statistics Canada's Labour Force Survey in the months of July, August and September 2020 (n = 53,316). The article also seeks to identify sociodemographic, occupational and workplace factors associated with the level and type of workplace ICPs. ICPs included the reorganization of the workplace to allow for physical distancing, increased access to hand sanitizer or handwashing facilities, enhanced cleaning protocols and access to personal protective equipment. Multivariable regression models were used to examine the number of ICPs in place and the absence of specific ICPs. RESULTS: Generally high levels of reported protections among workers (15% of the sample had three ICPs and 72% had four or more ICPs) were observed. However, certain subgroups of workers were less likely to have ICPs in place. These included workers who were male; those with lower levels of education, shorter job tenure, or non-permanent work; and those working in the agricultural, construction, transportation and warehousing, and education industries. INTERPRETATION: In a large sample of Canadian employees, generally high levels of workplace ICPs to reduce the transmission of COVID-19 were observed. Groups with lower levels of ICPs included workers at the start of their employment, workers with low levels of education, and certain industry groups

Aasdahl L, Vasseljen O, Gismervik SO, Johnsen R, and Fimland MS. Two-year follow-up of a randomized clinical trial of inpatient



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multimodal occupational rehabilitation vs outpatient acceptance and commitment therapy for sick listed workers with musculoskeletal or common mental disorders. Journal of Occupational Rehabilitation. 2021; 31(4):721-728.

<https://doi.org/10.1007/s10926-021-09969-4> [open access]

Abstract: Purpose There is a lack of results on long-term effects of return to work interventions. We previously reported that an inpatient multimodal occupational rehabilitation program (I-MORE) was more effective in reducing sickness absence and facilitating return to work (RTW) at 12 months follow-up compared to an outpatient program that consisted mainly of Acceptance and Commitment Therapy (O-ACT). We now report the 2-year outcome data. Methods A randomized clinical trial with parallel groups. Participants were 18-60 years old, sick listed with musculoskeletal, common mental or general/unspecified disorders. I-MORE lasted 3.5 weeks and consisted of ACT, physical training and work-related problem solving. O-ACT consisted mainly of 6 weekly sessions (2.5 h. each) of ACT in groups. Outcomes were cumulated number of days on medical benefits and time until sustainable RTW (1 month without medical benefits) during 2-years of follow-up, measured by registry data. Results For the 166 randomized participants, the median number of days on medical benefits was 159 (IQR 59-342) for I-MORE vs 249 days (IQR 103-379; Mann-Whitney U test, $p = 0.07$), for O-ACT. At 2 years, 40% in I-MORE received long-term benefits (work assessment allowance) vs 51% in O-ACT. The crude hazard ratio (HR) for sustainable RTW was 1.59 (95% CI 1.04-2.42, $p = 0.03$) and the adjusted HR 1.77 (95% CI 1.14-2.75, $p = 0.01$), in favor of I-MORE. Conclusions The 2-year outcomes show that I-MORE had long-term positive effects on increasing work participation for individuals sick listed with musculoskeletal and mental disorders. Further follow-up and economic evaluations should be performed..

Bertilsson M, Klinkhammer S, Staland-Nyman C, and De Rijk A. How managers find out about common mental disorders among their employees. Journal of Occupational & Environmental Medicine. 2021; 63(11):975-984.

<https://doi.org/10.1097/JOM.0000000000002287>

Abstract: OBJECTIVE: To explore how managers find out about common mental disorders (CMDs) among employees and



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associations with managers' work- and knowledge-related characteristics and attitude to CMDs. METHODS: Data from an online survey in 2017 with Swedish managers (n=1810) were used. Different ways managers find out about CMDs were measured, and multivariate logistic regression analysis was conducted for associations with manager characteristics. RESULTS: Few managers found out about CMDs themselves; another source was more common, for example, employees' self-disclosure. Managers' overseeing fewer subordinates and those with a negative attitude to depression were more likely to find out about CMDs themselves. The significance of mental health training and education could not be established. CONCLUSION: Managers' awareness about employees' CMDs mainly came about through employees' self-disclosure. Managers' attitudes and work conditions were related to the way of finding out

Duchaine CS, Brisson C, Talbot D, Gilbert-Ouimet M, Trudel X, Vezina M, et al. Cumulative exposure to psychosocial stressors at work and global cognitive function: the PROspective Quebec Study on Work and Health. Occupational and Environmental Medicine. 2021; 78(12):884-892.

<https://doi.org/10.1136/oemed-2021-107407>

Abstract: OBJECTIVES: Psychosocial stressors at work have been proposed as modifiable risk factors for mild cognitive impairment (MCI). This study aimed to evaluate the effect of cumulative exposure to psychosocial stressors at work on cognitive function. METHODS: This study was conducted among 9188 white-collar workers recruited in 1991-1993 (T1), with follow-ups 8 (T2) and 24 years later (T3). After excluding death, losses to follow-up and retirees at T2, 5728 participants were included. Psychosocial stressors at work were measured according to the Karasek's questionnaire. Global cognitive function was measured with the Montreal Cognitive Assessment. Cumulative exposures to low psychological demand, low job control, passive job and high strain job were evaluated using marginal structural models including multiple imputation and inverse probability of censoring weighting. RESULTS: In men, cumulative exposures (T1 and T2) to low psychological demand, low job control or passive job were associated with higher prevalences of more severe presentation of MCI (MSMCI) at T3 (Prevalence ratios (PRs) and 95% CIs of 1.50



(1.16 to 1.94); 1.38 (1.07 to 1.79) and 1.55 (1.20 to 2.00), respectively), but not with milder presentation of MCI. In women, only exposure to low psychological demand or passive job at T2 was associated with higher prevalences of MSMCI at T3 (PRs and 95% CI of 1.39 (0.97 to 1.99) and 1.29 (0.94 to 1.76), respectively).

CONCLUSIONS: These results support the deleterious effect of a low stimulating job on cognitive function and the cognitive reserve theory. Psychosocial stressors at work could be part of the effort for the primary prevention of cognitive decline

Graham M, Weale V, Lambert KA, Kinsman N, Stuckey R, and Oakman J. Working at home: the impacts of COVID 19 on health, family-work-life conflict, gender, and parental responsibilities. Journal of Occupational & Environmental Medicine. 2021; 63(11):938-943.

<https://doi.org/10.1097/JOM.0000000000002337> [open access]

Abstract: **OBJECTIVE:** To examine the impact of working at home on general health, pain, stress, and work-family and family-work conflict, and differences based on gender and parental responsibilities.

METHODS: A convenience sample of 658 adults completed an online questionnaire. Regression modeling examined the effects and interactions of gender and parental responsibility on general health, musculoskeletal discomfort/pain frequency and severity, stress, and work-family and family-work conflict. **RESULTS:** Women reported more pain and discomfort, regardless of the presence of children, than men with children. Women with children experienced increased stress compared with men with children. Women without children experienced less work-family conflict, and those without children experienced less family-work conflict than men with children.

CONCLUSIONS: The impact on pain, stress, and work-family and family-work conflict, due to mandated working at home, is gendered and influenced by parental responsibilities

Guo YJ, Tang J, Li JM, Zhu LL, and Xu JS. Exploration of interventions to enhance return-to-work for cancer patients: a scoping review. Clinical Rehabilitation. 2021; 35(12):1674-1693.

<https://doi.org/10.1177/02692155211021706>

Abstract: **Objective:** With the increasing incidence and earlier onset of cancer, more and more cancer patients are facing the problems of



return-to-work. This review is to explore the types, contents, and results of return-to-work interventions for cancer patients. Methods: This scoping review followed Arksey and O'Malley's framework and PRISMA-ScR List. Three Chinese databases and five English databases were searched from the establishment of databases to 31 March, 2021. Article selection and data extraction were conducted by two researchers. Results: Thirty-two studies and 1916 cancer patients with mainly breast and gastrointestinal cancer were included. According to the contents, interventions could be divided into four types: (1) physical interventions (n = 6), including high-intensity exercise, low-to-moderate intensity exercise, yoga, and upper limb functional training, (2) psychological interventions (n = 2), including early active individualized psychosocial support and mindfulness-based recovery, (3) vocational interventions (n = 14), including making work plans, educational leaflets, vocational consultations, electronic health intervention, and interventions targeting at employers, (4) multidisciplinary interventions (n = 10), including any combination of above interventions. Physical exercises, making working plans, vocational consultations, educational leaflets, two combinations of vocational and physical interventions were validated to have positive results in enhancing cancer patients' return-to-work. Conclusions: Return-to-work interventions for cancer patients are diversified and can be divided into physical, psychological, vocational, and multidisciplinary interventions. Medical staffs can utilize physical exercises, making working plans, vocational consultation, educational leaflets, combinations of vocational and physical interventions to enhance cancer patients' return-to-work. Other interventions still need to be developed and validated.

Lee WJ, Ko S, Bang YJ, Choe SA, Choi Y, and Preston DL. Occupational radiation exposure and cancer incidence in a cohort of diagnostic medical radiation workers in South Korea. Occupational and Environmental Medicine. 2021; 78(12):876-883. <https://doi.org/10.1136/oemed-2021-107452> [open access]

Abstract: Objectives: We investigated the association between protracted low-dose ionising radiation and the risk of cancer in medical radiation workers, the largest group of workers with occupational radiation exposures. Methods: Data of all South Korean diagnostic medical radiation workers enrolled at the National Dose



Registry during 1996-2011 were merged with the death and cancer incidence data until 31 December 2017. SIRs, relative risks and excess relative risks (ERRs) for cancer were calculated to quantify the radiation dose-response relationship using Poisson regression models. Results: A total of 3392 first primary cancer cases were identified among 93 920 diagnostic medical radiation workers. The mean cumulative badge dose in the cohort was 7.20 mSv. The ERRs for solid cancer with a 5-year lag and haematopoietic cancers with a 2-year lag for all workers were 0.15 per 100 mGy (95% CI -0.20 to 0.51) and 0.09 per 100 mGy (95% CI -2.02 to 2.20), respectively. The ERRs for cancers did not significantly vary by job title, different lag years or after excluding thyroid and lung cancers. Sensitivity analyses restricted to workers employed for at least 1 year, or who were employed in or after 1996, or who had exposure to a cumulative badge dose of 1 mSv or more showed similar results. Conclusions: Occupational radiation doses were not significantly associated with cancer incidence among South Korean diagnostic medical radiation workers. However, cautious interpretation of ERRs is needed due to the limitations of short follow-up and low cumulative radiation doses.

Liang Q, Zhou Z, Ye G, and Shen L. Unveiling the mechanism of construction workers' unsafe behaviors from an occupational stress perspective: a qualitative and quantitative examination of a stress-cognition-safety model. Safety Science. 2022; 145:105486.

<https://doi.org/10.1016/j.ssci.2021.105486>

Nagata T, Nagata M, Ikegami K, Hino A, Tateishi S, Tsuji M, et al. Intensity of home-based telework and work engagement during the COVID-19 pandemic. Journal of Occupational & Environmental Medicine. 2021; 63(11):907-912.

<https://doi.org/10.1097/JOM.0000000000002299> [open access]

Abstract: OBJECTIVE: The present study examined the relationship between the intensity of home-based telework and work engagement. METHODS: This cross-sectional study using a self-administrated questionnaire survey was conducted from December 22 to 25, 2020, in Japan. The subjects were asked single-item questions about the intensity of telework and three-item questions about work engagement using the Utrecht Work Engagement Scale. Coefficients



were estimated using a multilevel regression model nested by the prefecture of residence and adjusted for covariates. RESULTS: High-intensity (4 or more days per week) telework was not associated with high work engagement for men or women. In contrast, low and moderate intensity (3 days per week to once per month) were associated with high work engagement. The results were consistent when stratified by sex. CONCLUSIONS: Reasonable-intensity telework may have beneficial effects on work engagement

Ohrnberger J, Segal AB, Forchini G, Miraldo M, Skarp J, Nedjati-Gilani G, et al. The impact of a COVID-19 lockdown on work productivity under good and poor compliance. European Journal of Public Health. 2021; 31(5):1009-1015.

<https://doi.org/10.1093/eurpub/ckab138> [open access]

Abstract: BACKGROUND: In response to the COVID-19 pandemic, governments across the globe have imposed strict social distancing measures. Public compliance to such measures is essential for their success, yet the economic consequences of compliance are unknown. This is the first study to analyze the effects of good compliance compared with poor compliance to a COVID-19 suppression strategy (i.e. lockdown) on work productivity. METHODS: We estimate the differences in work productivity comparing a scenario of good compliance with one of poor compliance to the UK government COVID-19 suppression strategy. We use projections of the impact of the UK suppression strategy on mortality and morbidity from an individual-based epidemiological model combined with an economic model representative of the labour force in Wales and England. RESULTS: We find that productivity effects of good compliance significantly exceed those of poor compliance and increase with the duration of the lockdown. After 3 months of the lockdown, work productivity in good compliance is £398.58 million higher compared with that of poor compliance; 75% of the differences is explained by productivity effects due to morbidity and non-health reasons and 25% attributed to avoided losses due to pre-mature mortality. CONCLUSION: Good compliance to social distancing measures exceeds positive economic effects, in addition to health benefits. This is an important finding for current economic and health policy. It highlights the importance to set clear guidelines for



the public, to build trust and support for the rules and if necessary, to enforce good compliance to social distancing measures

Owusu Danso F, Adinyira E, Manu P, Agyekum K, Kwaku Ahadzie D, and Badu E. The mediating influence of local cultures on the relationship between factors of safety risk perception and Risk-Taking behavioural intention of construction site workers. Safety Science. 2022; 145:105490.

<https://doi.org/10.1016/j.ssci.2021.105490>

Pink J, Gray NS, O'Connor C, Knowles JR, Simkiss NJ, and Snowden RJ. Psychological distress and resilience in first responders and health care workers during the COVID-19 pandemic. Journal of Occupational and Organizational Psychology. 2021; 94:789-807.

<https://doi.org/10.1111/joop.12364> [open access]

Abstract: During the COVID-19 pandemic, first responders and health care workers faced elevated virus-related risks through prolonged contacts with the public. Research suggests that these workers already experienced lower levels of psychological well-being linked to occupational risks. Thus, the pandemic's impact might have particularly affected mental health in these groups. This paper analysed data from a large-scale Welsh population study (N = 12,989) from June to July 2020. Levels of psychological distress were compared across various occupations, including police, fire and rescue, and NHS health care workers. Resilience was also indexed, and its role considered as a protective factor for psychological distress. Surprisingly, health care workers reported lower distress levels than the general population. Further, fire and rescue and police groups had lower distress than most groups and significantly higher resilience. Within police officers, higher resilience levels were protective for distress. Fire and rescue workers were half as likely as others to report distress, even accounting for demographic factors and resilience. The findings offer an optimistic view of psychological resilience in these critical occupations. They illustrate potential benefits to one's mental health of playing a crucial societal role during crises and reiterate the importance of enhancing resilience within groups who encounter high-risk situations daily. PRACTITIONER POINTS: Our findings provide evidence that health care workers and



first responders showed lower levels of psychological distress than the general population during the first period of lockdown due to the COVID-19 pandemic in the United Kingdom. This may indicate that playing a critical role in society during an episode of crisis, and acting to help others, may be protective of one's own mental health. The research also provides an optimistic view of the psychological resilience of critical first responders and health care workers during a period early on in the COVID-19 pandemic (June-July 2020). This highlights the benefits of fostering resilience in those working within high-risk first responder and health care occupations

Shi B, He Y, Lee J, Huang Y, and Li Y. Safety climate profiles in remote workers: association with key predictors and outcomes at the team level. Safety Science. 2022; 145:105477.

<https://doi.org/10.1016/j.ssci.2021.105477>

Siame S, Bygvraa DA, and Jensen OC. Facilitators and barriers to implementing occupational safety interventions in the fishing industry: a scoping review. Safety Science. 2022; 145:105512.

<https://doi.org/10.1016/j.ssci.2021.105512> [open access]

Abstract: Background High fatality rates among fishermen have characterized the fishing industry for decades. Several safety interventions have been implemented, with considerable decline in fatalities in some countries. However, statistics suggest that global rates are still high. In addition, little is known regarding factors that support or hinder the implementation of these interventions. Objective To explore, synthesize and analyze factors influencing the implementation of safety interventions in the fishing industry. Methods In accordance with the scoping review methodology, an extensive search of articles reporting on factors influencing implementation of safety interventions was conducted in PubMed, CINAHL, Embase, Scopus and grey literature. The Social Ecological Model was used as a guiding framework for mapping and analysis of results. Results The search identified 618 articles with 12 meeting the inclusion criteria. The key facilitators included knowledge, management commitment, collaborative practices, supportive policies and enforcement of regulation. The key barriers included low risk perception, lack of time, inadequate skills, cultural and social norms, lack of support, high compliance cost, lack of harmonization of regulations, inadequate



enforcement guidelines, lack of funding and weak coordination. Conclusion The review highlighted that there is limited literature on factors affecting the implementation of safety interventions on most of the levels of the Social Ecological Model. There is need for extensive global research to fully understand what enables and impedes the implementation of safety interventions, as lack of attention to exploring these factors will result in non-reduction of fatalities. An effort to meet the UN's 17 global goals for sustainable development in fishing will be impossible. Furthermore, future knowledge translation should focus on the identified facilitators and barriers

Unsal N, Weaver G, Bray J, and Bibeau D. A scoping review of economic evaluations of workplace wellness programs. Public Health Reports. 2021; 136(6):671-684.

<https://doi.org/10.1177/0033354920976557>

Abstract: OBJECTIVE: Debates about the effectiveness of workplace wellness programs (WWPs) call for a review of the evidence for return on investment (ROI) of WWPs. We examined literature on the heterogeneity in methods used in the ROI of WWPs to show how this heterogeneity may affect conclusions and inferences about ROI. METHODS: We conducted a scoping review using systematic review methods and adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. We reviewed PubMed, EconLit, Proquest Central, and Scopus databases for published articles. We included articles that (1) were published before December 20, 2019, when our last search was conducted, and (2) met our inclusion criteria that were based on target population, target intervention, evaluation method, and ROI as the main outcome. RESULTS: We identified 47 peer-reviewed articles from the selected databases that met our inclusion criteria. We explored the effect of study characteristics on ROI estimates. Thirty-one articles had ROI measures. Studies with costs of presenteeism had the lowest ROI estimates compared with other cost combinations associated with health care and absenteeism. Studies with components of disease management produced higher ROI than programs with components of wellness. We found a positive relationship between ROI and program length and a negative relationship between ROI and conflict of interest. Evaluations in small companies (≤ 500 employees) were associated with lower ROI estimates than evaluations in large



companies (>500 employees). Studies with lower reporting quality scores, including studies that were missing information on statistical inference, had lower ROI estimates. Higher methodologic quality was associated with lower ROI estimates. CONCLUSION: This review provides recommendations that can improve the methodologic quality of studies to validate the ROI and public health effects of WWP

Zelik KE, Nurse CA, Schall MC, Jr., Sesek RF, Marino MC, and Gallagher S. An ergonomic assessment tool for evaluating the effect of back exoskeletons on injury risk. Applied Ergonomics. 2021; 99:103619.

<https://doi.org/10.1016/j.apergo.2021.103619>

Abstract: Low back disorders (LBDs) are a leading injury in the workplace. Back exoskeletons (exos) are wearable assist devices that complement traditional ergonomic controls and reduce LBD risks by alleviating musculoskeletal overexertion. However, there are currently no ergonomic assessment tools to evaluate risk for workers wearing back exos. Exo-LIFFT, an extension of the Lifting Fatigue Failure Tool, is introduced as a means to unify the etiology of LBDs with the biomechanical function of exos. We present multiple examples demonstrating how Exo-LIFFT can assess or predict the effect of exos on LBD risk without costly, time-consuming electromyography studies. For instance, using simulated and real-world material handling data we show an exo providing a 30 Nm lumbar moment is projected to reduce cumulative back damage by ~70% and LBD risk by ~20%. Exo-LIFFT provides a practical, efficient ergonomic assessment tool to assist safety professionals exploring back exos as part of a comprehensive occupational health program.

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