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

**\*Smith PM, Oudyk J, Cedillo L, Inouye K, Potter G, and Mustard C. Perceived adequacy of infection control practices and symptoms of anxiety among in-person elementary school educators in Ontario. *Journal of Occupational & Environmental Medicine*. 2022; 64(11):e763-e768.**

<https://doi.org/10.1097/JOM.0000000000002693>

Abstract: OBJECTIVE: The aim of this study was to examine the association between the perceived adequacy of infection control practices (ICPs) and symptoms of anxiety among educators in Ontario, Canada. METHODS: Data from 4947 educators were collected in December 2020. Modified Poisson models assessed the association between adequacy of ICPs and moderate or severe anxiety symptoms, adjusting for a range of covariates. RESULTS: Approximately 60% of respondents reported moderate or severe anxiety symptoms. Two-thirds (66.5%) of the sample had less than half of their ICP needs met. Respondents with less than half their ICP needs met were more than three times more likely to have moderate or severe anxiety, compared with respondents with their ICP needs met. CONCLUSION: Findings highlight the importance of adequate administrative and engineering controls in schools, not only to minimize risk of infection, but also for educator's mental health

**Brendler-Lindqvist M, Tondel M, Helgesson M, Nordqvist T, and Svartengren M. Overqualification at work and risk of hospitalization for psychiatric and somatic diseases among immigrants in Sweden: a prospective register-based study. *Scandinavian Journal of Work, Environment & Health*. 2022; 48(8):632-640.**

<https://doi.org/10.5271/sjweh.4055> [open access]

**Abstract:** OBJECTIVES: This study aimed to (i) describe the prevalence of overqualification at work among immigrants in Sweden and (ii) analyze any association between overqualification and the risk of hospitalization for somatic and psychiatric disease among refugees and labor immigrants. METHODS: We performed a prospective register study in a cohort of 120 339 adults who immigrated to Sweden in 1991-2005 and were employed in 2006. Education-occupation status was defined as the combination of an individual's highest level of education and their occupation skill level. Individuals were followed from 2007 to 2016 with regard to hospitalization for a psychiatric, cardiovascular, respiratory or musculoskeletal disease or diabetes. Hazard ratios (HR) with 95% confidence intervals (CI) were calculated in a multivariate Cox regression analysis adjusted for age, gender, reason for residence and duration of residence. RESULTS: The overall prevalence of overqualification among immigrants with an academic education was 39%. Overqualified individuals had an increased risk of hospitalization for any disease (HR 1.33, 95% CI 1.21-1.46) compared to "job-matched with an academic education". However, the risk estimates were lower than that of "job-matched with no academic education" (HR 1.56, 1.46-1.68). The increased risk of hospitalization for a psychiatric disease of overqualified individuals did not differ from that of job-matched with no academic education. CONCLUSION: Our study showed that being overqualified was associated with poorer health outcomes than job-matched individuals with an academic education. Considering the high prevalence of overqualification in immigrants, this constitutes a concern, for both society and individuals

**Cherrie M, Rhodes S, Wilkinson J, Mueller W, Nafilyan V, Van Tongeren M, et al. Longitudinal changes in proportionate mortality due to COVID-19 by occupation in England and Wales. *Scandinavian Journal of Work, Environment & Health*. 2022; 48(8):611-620.**

<https://doi.org/10.5271/sjweh.4048> [open access]

**Abstract:** OBJECTIVE: This study aimed to understand whether the proportionate mortality of COVID-19 for various occupational groups has varied over the pandemic. METHODS: We used the Office for National Statistics (ONS) mortality data for England and Wales. The deaths (20-64 years) were classified as either COVID-19-related using ICD-10 codes (U07.1, U07.2), or from other causes. Occupational data recorded at the time of death was coded using the SOC10 coding system into 13 groups. Three time periods (TP) were used: (i) January 2020 to September 2020; (ii) October 2020-May 2021; and (iii) June 2021-October 2021. We analyzed the data with logistic regression and compared odds of death by COVID-19 to other causes, adjusting for age, sex, deprivation, region, urban/rural and population density. RESULTS: Healthcare professionals and associates had a higher proportionate odds of COVID-19 death in TP1 compared to non-essential workers but were not observed to have increased odds thereafter. Medical support staff had increased odds of death from COVID-19 during both TP1 and TP2, but this had reduced by TP3. This latter pattern was also seen for social care, food retail and distribution, and bus and coach drivers. Taxi and cab drivers were the only group that had higher odds of death from COVID-19 compared to other causes throughout

the whole period under study [TP1: odds ratio (OR) 2.42, 95% confidence interval (CI) 1.99-2.93; TP2: OR 3.15, 95% CI 2.63-3.78; TP3: OR 1.7, 95% CI 1.26-2.29]. CONCLUSION: Differences in the odds of death from COVID-19 between occupational groups has declined over the course of the pandemic, although some occupations have remained relatively high throughout

**Das BM and Conerly J. Effectiveness of an 8-week Hatha yoga intervention to improve lower back pain in university office workers: a mixed-methods pilot exploratory study. *Work*. 2022; 73(2):569-577.**

<https://doi.org/10.3233/WOR-205156>

Abstract: Background: Hatha yoga programs have been shown to be effective at improving low back pain among a variety of populations; however, methods to decrease low back pain of university office employees have not been studied. Objective: To examine the impact of an 8-week hatha yoga intervention on measures of health among university office employees. Method: Seven participants completed the 8-week yoga intervention. All measures, including anthropometric measures and online questionnaires, were completed at baseline and post-intervention. Results: Baseline pain intensity ( $6.6 \pm 3.1$ ) and pain interference ( $15.6 \pm 4.7$ ) reflected a moderate level of back pain and moderate to severe interference. Pain intensity showed a non-significant improvement with medium-to-large effect size [ $p = 0.07$ , ( $d = 0.7$ )]. There was a significant improvement with a large effect size [ $p = 0.002$ , ( $d = 2.4$ )] in pain interference. Baseline anxiety ( $7.4 \pm 3.6$ ) reflected a borderline abnormal symptom level, but anxiety significantly reduced to normal levels at post-intervention with a medium effect size [ $p = 0.002$  ( $d = 0.5$ )]. Focus group themes were improvements in health and development of a sense of community. Conclusions: Hatha yoga may be an effective mode of low-impact physical activity to decrease pain and improve mental health while facilitating a sense of community for office workers employed by a university. This study demonstrates promising results with large effect sizes; however, more research with larger sample size and randomized treatment and control groups are needed for future study efforts.

**Feng MY, Wang HX, Zhuo LB, Yao W, Hao CF, and Pei JJ. Work-related stress and occurrence of cardiovascular disease: a 13-year prospective study. *Journal of Occupational & Environmental Medicine*. 2022; 64(11):927-933.**

<https://doi.org/10.1097/JOM.0000000000002645>

Abstract: OBJECTIVE: The aim of the study is to investigate the influence of work-related psychological and physical stresses on risk of cardiovascular disease (CVD). METHODS: A total of 5651 CVD-free participants older than 50 years from the Survey of Health, Ageing and Retirement in Europe were followed up for 13 years to detect incident CVD. Work-related stress was assessed using job strain and job reward questionnaire. Cox regression model was used to estimate the association. RESULTS: High physical demands (hazard ratio [HR], 1.30) and low reward (HR, 1.19) compared with their counterparts, as well as active physical jobs (HR, 1.41) and high physical strain (HR, 1.45) in comparison with low physical strain were

associated with higher risk of incident CVD after adjusting for confounders. However, combining physically stressful jobs with low reward did not further increase the CVD risk. CONCLUSIONS: Avoiding physically stressful jobs or providing appropriate reward may reduce the occurrence of CVD

**Howick J, Koletsi D, Ioannidis JPA, Madigan C, Pandis N, Loef M, et al. Most healthcare interventions tested in Cochrane Reviews are not effective according to high quality evidence: a systematic review and meta-analysis. *Journal of Clinical Epidemiology*. 2022; 148:160-169.**

<https://doi.org/10.1016/j.jclinepi.2022.04.017>

Abstract: OBJECTIVE: To estimate the proportion of healthcare interventions tested within Cochrane Reviews that are effective according to high-quality evidence. METHODS: We selected a random sample of 2,428 (35%) of all Cochrane Reviews published between 1 January 2008 and 5 March 2021. We extracted data about interventions within these reviews that were compared with placebo, or no treatment, and whose outcome quality was rated using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) system. We calculated the proportion of interventions whose benefits were based on high-quality evidence (defined as having high quality GRADE rating for at least one primary outcome, statistically significant positive results, and being judged by review authors as effective. We also calculated the proportion of interventions that suggested harm. RESULTS: Of 1,567 eligible interventions, 87 (5.6%) had high-quality evidence supporting their benefits. Harms were measured for 577 (36.8%) interventions. There was statistically significant evidence for harm in 127 (8.1%) of these. Our dependence on the reliability of Cochrane author assessments (including their GRADE assessments) was the main potential limitation of our study. CONCLUSION: More than 9 in 10 healthcare interventions studied within recent Cochrane Reviews are not supported by high-quality evidence, and harms are under-reported

**Kausto J, Gluschkoff K, Turunen J, Selinheimo S, Peutere L, and Vaananen A. Psychotherapy and change in mental health-related work disability: a prospective Finnish population-level register-based study with a quasi-experimental design. *Journal of Epidemiology & Community Health*. 2022; 76(11):925-930.**

<https://doi.org/10.1136/jech-2022-218941> [open access]

Abstract: Background: Mental disorders are a major cause of work disability among the working-age population. Psychotherapy has shown to be an effective treatment for mental disorders, but the evidence is mainly based on small-scale randomised trials with relatively short follow-ups. We used population-based register data to examine the association between statutory rehabilitative psychotherapy and change in depression or anxiety-related work disability. Methods: We drew a nationally representative sample of the working-age population (aged 18-55 in 2010). The study group comprised all those who started rehabilitative psychotherapy in 2011-2014. A total of 10 436 participants who were followed from 3 years prior to 4 years after the onset of rehabilitative psychotherapy. This resulted in

83 488 observations. The annual total number of mental health-related work disability months (0 to 12) was calculated from the total number of annual compensated sickness absence and disability pension days. A quasi-experimental interrupted time series analysis was applied. Results: The onset of rehabilitative psychotherapy marked a decline in work disability in comparison to the counterfactual trend. Specifically, a 20% decrease in the level (incidence rate ratio, IRR 0.80; 95% CI 0.76 to 0.85) and a 48% decrease in the slope (IRR 0.52; 95% CI 0.50 to 0.54) of work disability were detected in comparison to the counterfactual scenario. No significant gender differences were observed. The decline in work disability was the steepest in the oldest age group. Conclusions: This study suggests that statutory psychotherapy may decrease work disability at the population level. However, further evidence of causal inference and the potential heterogeneity of the association is required.

**Kumari A, Sarkar S, Ranjan P, Chopra S, Kaur T, Baitha U, et al. Interventions for workplace violence against health-care professionals: a systematic review. *Work*. 2022; 73(2):415-427. <https://doi.org/10.3233/WOR-210046>**

Abstract: BACKGROUND: Workplace violence (WPV) against health-care professionals has been a concern worldwide as it strains the relationship between the patient and healthcare professionals. Implementing mitigation interventions to help the healthcare professionals to prevent and manage these violent episodes might make the workplaces more secure. OBJECTIVE: This study aimed to synthesize the recent evidence on intervention strategies for workplace violence. METHOD: Four electronic databases (PubMed, Wiley, Cochrane and Google Scholar) were searched for peer-reviewed intervention studies published in the last 11 years to mitigate workplace violence. A qualitative synthesis of the findings from included studies was done. RESULT: A total of 17 studies were identified based on prevention and management of workplace violence. The interventions were mainly educational in nature based on a workshop format. These interventions were found to be effective in improving the perceived ability to deal with situations that lead to violence. CONCLUSION: Strategies to mitigate violent episodes could be helpful to health-care professionals and administrators in their attempts to make safer workplaces in the health-care settings

**Morgan JR, Murphy SM, Assoumou SA, and Linas BP. Estimating absenteeism related to nonalcohol substance use in a US national cohort of full-time employees. *Journal of Occupational & Environmental Medicine*. 2022; 64(11):899-904. <https://doi.org/10.1097/JOM.0000000000002612>**

Abstract: OBJECTIVE: We aimed to estimate absenteeism due to substance use disorder among full-time employees. METHODS: We used the 2018 National Survey on Drug Use and Health to identify a sample of individuals employed full time. We used a survey-weighted multivariable negative binomial model to evaluate the association between absenteeism and type of substance use disorder controlling for available demographic information. RESULTS: In the adjusted model, we estimated that opioid use without a disorder had the highest absenteeism for use, and polysubstance use disorder had the highest absenteeism among

use disorders. In a hypothetical firm of 10,000 employees, we estimate \$232,000 of lost wage value annually. CONCLUSIONS: Substance use is associated with absenteeism and presents a compelling argument for employers to promote programs that support treatment for employees and reduce downstream costs associated with absenteeism and turnover

**Oakman J, Neupane S, Kyronlahti S, Nygard CH, and Lambert K. Musculoskeletal pain trajectories of employees working from home during the COVID-19 pandemic. *International Archives of Occupational & Environmental Health*. 2022; 95(9):1891-1901.**

<https://doi.org/10.1007/s00420-022-01885-1> [open access]

**Abstract:** Objectives: In March 2020, the COVID-19 pandemic necessitated a rapid public health response which included mandatory working from home (WFH) for many employees. This study aimed to identify different trajectories of multisite musculoskeletal pain (MSP) amongst employees WFH during the COVID-19 pandemic and examined the influence of work and non-work factors. Methods: Data from 488 participants (113 males, 372 females and 3 other) involved in the Employees Working from Home (EWFH) study, collected in October 2020, April and November 2021 were analysed. Age was categorised as 18-35 years (n = 121), 36-55 years (n = 289) and 56 years and over (n = 78). Growth Mixture Modelling (GMM) was used to identify latent classes with different growth trajectories of MSP. Age, gender, working hours, domestic living arrangements, workstation comfort and location, and psychosocial working conditions were considered predictors of MSP. Multivariate multinomial logistic regression was used to identify work and non-work variables associated with group membership. Results: Four trajectories of MSP emerged: high stable (36.5%), mid-decrease (29.7%), low stable (22.3%) and rapid increase (11.5%). Decreased workstation comfort (OR 1.98, CI 1.02, 3.85), quantitative demands (OR 1.68, CI 1.09, 2.58), and influence over work (OR 0.78, CI 0.54, 0.98) was associated with being in the high stable trajectory group compared to low stable. Workstation location (OR 3.86, CI 1.19, 12.52) and quantitative work demands (OR 1.44, CI 1.01, 2.47) was associated with the rapid increase group. Conclusions: Findings from this study offer insights into considerations for reducing MSP in employees WFH. Key considerations include the need for a dedicated workstation, attention to workstation comfort, quantitative work demands, and ensuring employees have influence over their work.

**Parent-Lamarche A and Biron C. When bosses are burned out: psychosocial safety climate and its effect on managerial quality. *International Journal of Stress Management*. 2022; 29(3):219-228.**

<https://doi.org/10.1037/str0000252> [open access]

**Abstract:** In various countries, national standards exist to reduce the financial burden of occupational health, create healthier workplaces, and promote well-being. In Quebec specifically, the Healthy Enterprise standard comprises different areas of intervention, including management practices relating to psychosocial risks. Managers play an important role in employees' exposure to psychosocial constraints (low decision latitude, low social

support, high job demands, or low rewards). However, little is known about what goes into their decision to adopt managerial practices that are conducive to their employees' health (managerial quality). This prospective study was conducted in three organizations involved in a certification process to become a Healthy Enterprise. The surveyed participants included a sample of managers (N = 105). Using MPLus, we conducted path analyses to evaluate the mediating role line managers' burnout plays between the psychosocial safety climate (PSC) and managerial quality. The results indicated that PSC at T1 (Time 1) was associated with burnout at T1. PSC at T1 was also indirectly associated with lower managerial quality at T2 (Time 2). Understanding the impact of line managers' burnout on enacted managerial quality is important given their effect on followers' health.

**Penney G, Byrne W, and Cattani M. Death at sea: the true rate of occupational fatality within the Australian commercial fishing industry. *Frontiers in Public Health*. 2022; 10:1013391.**

<https://doi.org/10.3389/fpubh.2022.1013391> [open access]

Abstract: Although the safety performance of the Australian commercial fishing industry has been the subject of multiple investigations, it has ultimately remained undefined. While most Australian industries notify industry regulators of significant workplace incidents and injuries in their operations, the majority of persons in the commercial fishing industry are contractors who are paid piecework and in some jurisdictions specifically excluded from the worker compensation legislation, meaning that most occupational injuries, including fatalities, are not captured in the centralized worker compensation data sets. This study presents the analysis of a systematic review of industry databases, published academic, and, Australian coroners reports to assist improve the definition of the nation's commercial fishing industry safety performance. The analysis shows occupational fatality rates are significantly higher than currently reported, and recurring factors contributing to deaths at sea remain unaddressed. The study is significant as it demonstrates how workplace injuries and deaths can be hidden within data sets applying broad industry classification and provides a foundation for future research in Australian fishing and other industries

**Said M, Temam S, Alexander S, Billaudeau N, Zins M, Kab S, et al. Teachers' health: how general, mental and functional health indicators compare to other employees? A large French population-based study. *International Journal of Environmental Research and Public Health*. 2022; 19(18):11724.**

<https://doi.org/10.3390/ijerph191811724> [open access]

Abstract: Teachers' health is a key factor of any successful education system, but available data are conflicting. To evaluate to what extent teachers' health could be at risk, we used pre-pandemic data from the CONSTANCES population-based French cohort (inclusion phase: 2012-2019) and compared teachers (n = 12,839) included in the cohort with a random subsample selected among all other employees (n = 32,837) on four self-reported health indicators: perceived general health, depressive symptoms (CES-D scale), functional

limitations in the last six months, and persistent neck/back troubles (Nordic questionnaire). We further restricted our comparison group to the State employees (n = 3583), who share more occupational similarities with teachers. Lastly, we focused on teachers and evaluated how their health status might differ across teaching levels (primary, secondary, and higher education). As compared to non-teacher employees, and even after adjusting for important demographic, socioeconomic, lifestyle, and occupational confounders, teachers were less likely to report bad perceived health and depressive symptoms but were more likely to present functional limitations. Trends were similar in the analyses restricted to State employees. Within the teaching population, secondary school teachers were more likely to report depressive symptoms but less frequently declared persistent neck/back troubles than primary school teachers. Our descriptive cross-sectional study based on a probability sampling procedure (secondary use of CONSTANCES inclusion data) did not support the idea that teachers' health in France was particularly at risk in the pre-pandemic period. Both cross-cultural and longitudinal studies are needed to further gain information on the topic of teachers' health around the world and to monitor its evolution over time, particularly during crises impacting the education system such as the COVID-19 pandemic

**Senthanar S, Koehoorn M, Tamburic L, Premji S, Bultmann U, and McLeod CB. Differences in modified-return-to-work by immigration characteristics among a cohort of workers in British Columbia, Canada. *Journal of Occupational Rehabilitation*. 2022; [epub ahead of print].**

<https://doi.org/10.1007/s10926-022-10077-0>

**Abstract:** Introduction To investigate differences in modified-return-to work (MRTW) within the first 30 days of a work-related, short-term disability injury by immigration characteristics. This question was part of a program of research investigating differences in work and health experiences among immigrant workers and explanations for longer work disability durations. Methods Workers' compensation claims, immigration records and medical registry data were linked to identify a sample of workers in British Columbia, Canada with a short-term disability claim for a work-related back strain, concussion, limb fracture or connective tissue injury occurring between 2009 and 2015. Multivariable logistic regressions, stratified by injury type, investigated the odds of MRTW, defined as at least one day within the first 30 days on claim, associated with immigration characteristics, defined as a Canadian-born worker versus a worker who immigrated via the economic, family member or refugee/other humanitarian classification. Results Immigrant workers who arrived to Canada as a family member or as a refugee/other immigrant had a reduced odds of MRTW within the first 30 days of work disability for a back strain, concussion and limb fracture, compared to Canadian-born workers. Differences in MRTW were not observed for immigrant workers who arrived to Canada via the economic classification, or for connective tissue injuries. Conclusion The persistent and consistent finding of reduced MRTW for the same injury for different immigration classifications highlights contexts (work, health, social, language) that

disadvantage some immigrants upon arrival to Canada and that persist over time even after entry into the workforce, including barriers to MRTW

**Wicke FS, Schmidt P, Petersen J, Ernst M, Krakau L, Brahler E, et al. Depression predicts equivalized income five years later, but not vice versa: results from the prospective Gutenberg Health Study. *Social Science & Medicine*. 2022; 313:115395.**

<https://doi.org/10.1016/j.socscimed.2022.115395>

**Zerden LS, Richman EL, Lombardi B, and Forte AB. Frontline, essential, and invisible: the needs of low-wage workers in hospital settings during COVID-19. *Workplace Health & Safety*. 2022; 70(11):509-514.**

<https://doi.org/10.1177/21650799221108490> [open access]

Abstract: BACKGROUND: Frontline health care workers are particularly vulnerable to burnout and diminished well-being as they endure COVID-19 pandemic-related stressors. While physicians and nurses are the public face of those experiencing burnout in hospitals, these stressors also affect low-wage workers such as food and housekeeping/janitorial service workers whose roles largely remain "invisible" when conceptualizing the essential health workforce and understanding their needs. This study sought to understand the experiences of frontline essential workers to better support them and prevent burnout. METHODS: Using a semi-structured interview guide, we conducted 20 in-depth qualitative interviews with workers in three U.S. states. Thematic content analysis was conducted to code and analyze interviews. RESULTS: Workers had an average of 5.8 years in their jobs, which included food services, housekeeping/janitorial, and patient transport roles. Analysis revealed four prominent stressors contributing to worker burnout: changes in duties and staff shortages, fear of contracting or transmitting COVID-19, desire for recognition of their job-related risk, and unclear communication on safety precautions and resources. Protective factors included paid time-off, mental health supports, sense of workplace pride, and self-coping strategies. CONCLUSION/APPLICATION TO PRACTICE: As health systems continue to grapple with care delivery in the context of COVID-19, identifying best practices to support all workers and prevent burnout is vital to the functioning and safety of hospitals. Further consideration is warranted to create policies and multipronged interventions to meet workers' tangible needs while shifting the culture, so all members of the health workforce are seen and valued

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