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

**\*Ross LE, MacEachen E, Shahidi Faraz V, and Craig-Venturi D. Addressing knowledge gaps about skills of 2SLGBTQ+ people in Canada: a scoping review and qualitative inquiry. Final research report for Office of Skills for Success, Employment and Social Development Canada. Toronto: Dalla Lana School of Public Health, University of Toronto; 2023.**

<https://lgbtqhealth.ca/projects/foundationaltransferableskills.php>

**\*Tomba E, Imam S, Varickanickal J, Mofidi A, Gewurtz R, Irvin E, et al. Addressing knowledge gaps about skills of persons with disabilities: a literature review and key informant interviews. Final report. Toronto: Centre for Research on Work disability Policy; Institute for Work & Health; 2023.**

<https://www.iwh.on.ca/scientific-reports/addressing-knowledge-gaps-about-skills-of-persons-with-disabilities-literature-review-and-key-informant-interviews>

**Bang YJ, Kim YM, and Lee WJ. Circulatory disease mortality among male medical radiation workers in South Korea, 1996-2019. Scandinavian Journal of Work, Environment & Health. 2023; 49(2):99-107.**

<https://doi.org/10.5271/sjweh.4066> [open access]

Abstract: Objective: The aim of this study was to investigate the relationship between occupational radiation exposure and circulatory disease (CD) mortality among medical radiation workers. Methods: The study included 53 860 male diagnostic medical radiation workers enrolled in the National Dosimetry Registry (NDR) between 1996 and 2011 in South Korea. NDR data were linked with mortality data obtained from the national registry at the

end of 2019. Observed CD mortality rates in this population were compared to those in the general population using the standardized mortality ratio (SMR). The relative risk (RR) for occupational history was estimated by use of internal comparisons, and the excess relative risk (ERR) was used to quantify the radiation dose-response relationship. Results: A total of 320 deaths due to CD were identified among 53 860 male medical radiation workers. The SMR of CD was significantly lower among male workers than the general population. A linear dose-response model provided an estimated ERR per 100 mGy for CD [0.85, 95% confidence interval (CI) -0.11-1.82], ischemic heart disease (1.18, 95% CI -0.69-3.05), and cerebrovascular disease (0.23, 95% CI -0.48-0.94) with a 10-years lag, showing no statistical evidence of a radiation dose-response relationship. Additional adjustments for non-radiation factors did not affect the findings on occupational radiation risk for CD mortality. Sensitivity analyses excluding workers employed <1 year or who had exposure to a cumulative badge dose of =1 mSv showed similar results. Conclusions: Occupational radiation doses were non-significantly positively associated with CD mortality among male diagnostic medical radiation workers. However, cautious interpretation is needed due to the limitations of short follow-up.

**Bengough T, Sommer I, and Hannes K. The CONSENSYS approach: an instrument to support CONtextual SENSitivity in SYStematic reviews. *Research Synthesis Methods*. 2023; 14(2):266-282.**

<https://doi.org/10.1002/jrsm.1615>

Abstract: Contextual factors such as cultural values and traditions impact on implementation processes of healthcare interventions. It is one of the reasons why local stakeholders may decide to role out a programme differently from how it has originally been developed or described in scientific literature. This can result in different but most likely more context-specific outcomes. Systematic reviews are considered important in answering what works, for whom and in which circumstances. They often include a section on implications for policymakers and practitioners, in which they discuss relevant options to engage with. Implementation sections are coloured by the cultural background, theoretical and disciplinary perspective of the reviewers formulating them. They do not necessarily consider local contexts in which the evidence needs to be applied, hence the recommendations may be too general to be useful. When policy makers and practitioners implement systematic review findings the evidence presented needs to be translated to their local context. We propose CONSENSYS, an instrument that facilitates the transfer from review evidence into practice. CONSENSYS contains 52 contextual factors categorised as either of ecological and socio-cultural relevance or pitched as influencing actor. CONSENSYS is relevant for reviewers because it supports them in structuring and formulating context-sensitive implications sections. It may also guide end-users of systematic reviews in translating review evidence for use in local policies and practices. CONSENSYS is the first rigorously developed instrument that focusses on implications for policy and practice sections in systematic reviews

**Carey I and Hendricks K. Workplace violence against healthcare workers using nationally representative estimates of emergency department data, 2015-2017. *American Journal of Industrial Medicine*. 2023; 66(4):333-338.**

<https://doi.org/10.1002/ajim.23463>

**Abstract:** Introduction: Workers in the healthcare industry are at increased risk for workplace violence. The goal of this analysis is to determine the rate of injuries healthcare workers incurred as a result of intentional violence by patients in the workplace. Methods: Injuries linked to workplace violence that were treated in US emergency departments from 2015 to 2017 were identified using data from the National Electronic Injury Surveillance System-Occupational Supplement (NEISS-Work). All estimates and 95% confidence intervals were calculated using SAS® 9.4 Proc Survey to incorporate the stratified sample design of NEISS-Work. Results: Approximately 1.14 million injuries to workers in the healthcare industry were treated in US hospital emergency departments between 2015 and 2017. Intentional injuries by another person accounted for 15% of these healthcare-related injuries. The results also showed that male healthcare workers' rate of injuries was 2.3 times higher than their female counterparts despite composing a smaller proportion of the workforce. Injury rates were highest among the less-than-25 age group, and decreased as healthcare workers' age increased. Conclusions: Workplace violence is a serious problem in today's healthcare settings that affects both employees and patient care. Although violence in the healthcare industry has been researched for decades, there has been an increase in violent incidents in this industrial sector. The disparity in injury rates by sex and age are areas of concern. Further research in these areas is necessary to understand the root causes of these incidents and inform violence prevention strategies.

**Cherry N, Mhonde T, Adisesh A, Burstyn I, Durand-Moreau Q, Labreche F, et al. The evolution of workplace risk for COVID-19 in Canadian healthcare workers and its relation to vaccination: a nested case-referent study. *American Journal of Industrial Medicine*. 2023; 66(4):297-306.**

<https://doi.org/10.1002/ajim.23466>

**Abstract:** BACKGROUND: During the early months of the Covid-19 pandemic, studies demonstrated that healthcare workers (HCWs) were at increased risk of infection. Few modifiable risks were identified. It is largely unknown how these evolved over time. METHODS: A prospective case-referent study was established and nested within a cohort study of Canadian HCWs. Cases of Covid-19, confirmed by polymerase chain reaction, were matched with up to four referents on job, province, gender, and date of first vaccination. Cases and referents completed a questionnaire reporting exposures and experiences in the 21 days before case date. Participants were recruited from October 2020 to March 2022. Workplace factors were examined by mixed-effects logistic regression allowing for competing exposures. A sensitivity analysis was limited to those for whom family/community transmission seemed unlikely. RESULTS: 533 cases were matched with 1697 referents. Among unvaccinated HCWs, the risk of infection was increased if they worked hands-on with

patients with Covid-19, on a ward designated for care of infected patients, or handled objects used by infected patients. Sensitivity analysis identified work in residential institutions and geriatric wards as high risk for unvaccinated HCWs. Later, with almost universal HCW vaccination, risk from working with infected patients was much reduced but cases were more likely than referents to report being unable to access an N95 mask or that decontaminated N95 masks were reused. CONCLUSIONS: These results suggest that, after a rocky start, the risks of Covid-19 infection from work in health care are now largely contained in Canada but with need for continued vigilance

**Fadel M, Roquelaure Y, and Descatha A. Interventions on well-being, occupational health, and aging of healthcare workers: a scoping review of systematic reviews. *Safety and Health at Work*. 2023; 14(1):135-140.**

<https://doi.org/10.1016/j.shaw.2022.12.003> [open access]

Abstract: Introduction: With recent higher awareness of the necessity of improving healthcare workers' well-being, we aimed to overview systematic reviews dealing with interventions on well-being, occupational health, and aging of healthcare workers. Methods: From three databases (PubMed, Embase, and Web of Science), a scoping review of systematic reviews was carried out to determine current knowledge on interventions focused on the well-being or aging of healthcare workers. Only systematic reviews were considered, with appropriate extraction and quality evaluation. Results: Of the total of 445 references identified, 10 systematic reviews were included, mostly published since 2019. Nurses were the most frequent targets of interventions, and mental health was the main outcome described. The overall level of quality was also heterogenous, with high to low-quality reviews. Conclusions: Workers' mental health well-being was the major outcome targeted by intervention, with varying level of evidence. Further studies are needed with integrative approaches on global health and life course perspectives, with a focus on the plurality of settings, worker types, and women.

**Hellstrom L, Christensen TN, Bojesen AB, and Eplöv LF. Predictors of return to work for people with anxiety or depression participating in a randomized trial investigating the effect of a supported employment intervention. *Journal of Occupational Rehabilitation*. 2023; 33(1):61-70.**

<https://doi.org/10.1007/s10926-022-10046-7>

Abstract: Purpose Common mental disorders have a severe impact on society and individuals; rates of unemployment and disability pensions are high. Knowing which factors facilitate or hinder people's return to work is important when designing effective vocational rehabilitation interventions. Methods We conducted secondary analyses on data from 289 participants with depression or anxiety included in the Individual Placement and Support modified for people with mood and anxiety disorders (IPS-MA) trial. Associations of baseline characteristics and employment or education after 24 months were tested in univariate logistic regression analyses, variables with a p-value below 0.1 were included in multivariate

analyses. Results In the univariate analyses, self-reported level of functioning ( $p = 0.032$ ), higher age ( $p = 0.070$ ), and higher level of readiness to change ( $p = 0.001$ ) were associated with the outcome and included in the multivariate analysis. Only age ( $p = 0.030$ ) and readiness to change ( $p = 0.003$ ) remained significantly associated with return to work or education after 24 months in the multivariate analysis. Conclusion Higher age and lower readiness to change were associated with a lower chance of having returned to work or education. Factors modifying the effect of higher age should be identified, just as vocational rehabilitation should focus on improving factors related to people's readiness to change.

**Johal S. Out of office: the public policy implications of remote work. Toronto, ON: Canadian Standards Association; 2023.**

<https://www.csagroup.org/article/public-policy/out-of-office-the-public-policy-implications-of-remote-work/>

**Kim K. The effects of job quality on the health of wage workers: congruence between the hard and soft job quality. Safety and Health at Work. 2023; 14(1):31-42.**

<https://doi.org/10.1016/j.shaw.2022.10.003> [open access]

Abstract: BACKGROUND: This study analyzes the linear and non-linear effects of the hard and soft dimensions of job quality on the overall health of wage workers. It also examines the congruence or fit between the hard and soft job quality on the overall health of wage workers. METHODS: This study measured thirty indicators that constitute job quality and reduced the indicators into twelve sub-dimensions of job quality using reflective factor analysis. In addition, this study derived two dimensions of job quality from the twelve subdimensions, namely the hard and soft job quality using formative factor analysis. This paper applied the response surface analysis to analyze the congruence effect between the two dimensions of job quality. RESULTS: A logarithmic relationship was found between the dimension of hard job quality and the worker's overall health. This study also verified that the congruence effect between the two dimensions of job quality does not exist, and the combined effect of job quality is lower when the two dimensions of job quality are at the same level than the effect when either level of job quality is high or low. CONCLUSIONS: Although hard and soft job quality has independent positive effects on the overall health of wage workers, the two dimensions of job quality are not congruent or not in harmony with each other. This incongruence between hard and soft job quality, together with a higher impact of hard job quality, suggests that the role of soft job quality on overall health is relatively limited

**Lindsay S, Fuentes K, Tomas V, and Hsu S. Ableism and workplace discrimination among youth and young adults with disabilities: a systematic review. *Journal of Occupational Rehabilitation*. 2023; 33(1):20-36.**

<https://doi.org/10.1007/s10926-022-10049-4>

**Abstract:** PURPOSE: Young people with disabilities are persistently under-employed and experience concerning rates of discrimination and ableism in looking for work and within the workplace. Focusing on youth is salient because rates of ableism are often higher among younger ages compared to older. The objective of this systematic review was to explore the experiences and impact of workplace discrimination and ableism among youth and young adults with disabilities. METHODS: Systematic searches of seven databases from 2000 to 2021 were conducted. Four reviewers independently applied the inclusion criteria, extracted the data and rated the study quality. RESULTS: Of the 39 studies meeting our inclusion criteria, they represented 516,281 participants across eight countries over a 20-year period. The findings highlight the rates of workplace ableism, factors affecting workplace ableism (i.e., type of disability, gender, education level, lack of employers' knowledge about disability), ableism in job searching and anticipated ableism. The review also noted the impact of workplace ableism, which included pay discrimination, lack of job supports and social exclusion, job turnover and unemployment, and discrimination allegations and charges. CONCLUSIONS: Our findings reveal the stark prevalence of workplace ableism among youth and young adults with disabilities. There is an urgent need for further in-depth research to understand youth's lived experiences of ableism and the development of solutions to address it so they can be included in a meaningful and respectful way in the workplace

**Mittlaender S. Special pension schemes for workers in arduous and hazardous jobs: Functions and conditions to ensure equal treatment. *International Social Security Review*. 2023; 76(1):109-126.**

<https://doi.org/10.1111/issr.12318> [open access]

**Abstract:** Most jurisdictions grant differentiated and more beneficial treatment – usually in the form of early retirement, and commonly under special pension schemes – to workers in arduous or hazardous jobs. Several justifications for such treatment have been advanced, including i) compensating the worker for the hardship, ii) protecting the worker from the hazard, and iii) realizing the principle of equality in the distribution of costs and benefits in the social security system. This article analyses these functions from a socioeconomic perspective and explains how early retirement for workers in arduous and hazardous jobs is necessary to ensure equality by treating "unequals unequally", and in proportion to their inequality. Moreover, this article presents a precise formula to calculate when a worker should be allowed to retire, so that workers in occupational domains with a shorter life expectancy do not systematically enjoy lower expected benefits from the pension system while having contributed the same amount. Implications for the design and desirability of special pension benefits are discussed.

**Morrissey MC, Langan SP, Brewer GJ, Struder JF, Navarro JS, Nye MN, et al. Limitations associated with thermoregulation and cardiovascular research assessing laborers performing work in the heat. American Journal of Industrial Medicine. 2023; 66(4):267-280.**

<https://doi.org/10.1002/ajim.23462>

Abstract: Purpose: To quantify the current literature and limitations associated with research examining thermoregulatory and cardiovascular strain in laborers working in the heat. Methods: PubMed, SCOPUS, and SPORTDiscus were searched for terms related to the cardiovascular system, heat stress, and physical work. Qualifying studies included adult participants (18-65 years old), a labor-intensive environment or exercise protocol simulating a labor environment, a minimum duration of 120 min of physical work, and environmental heat stress (ambient temperature =26.0°C and =30% relative humidity). Studies included at least one of the following outcomes: pre- and peak physical work, core temperature, heart rate (HR), systolic blood pressure, diastolic blood pressure, HR variability, and rate pressure product. Results: Twenty-one out of 1559 potential studies qualified from our search. There was a total of 598 participants (mean = 28 ± 50 participants per study, range = 4-238 participants per study), which included 51 females (8.5%) and 547 males (91.5%). Of the participants, 3.8% had cardiovascular risk factors (diabetes: n = 10; hypertension: n = 13) and 96.2% were characterized as "healthy". Fifty-seven percent of the included studies were performed in a laboratory setting. Conclusions: Studies were predominantly in men (91.5%), laboratory settings (57%), and "healthy" individuals (96.2%). To advance equity in protection against occupational heat stress and better inform future heat safety recommendations to protect all workers, future studies must focus on addressing these limitations. Employers, supervisors, and other safety stakeholders should consider these limitations while implementing current heat safety recommendations.

**Nazeer Ahamed MF and Mariappan M. A study to determine human-related errors at the level of top management, safety supervisors & workers during the implementation of safety practices in the construction industry. Safety Science. 2023; 162:106081.**

<https://doi.org/10.1016/j.ssci.2023.106081>

**Ots P, Keller AC, Altrock E, Van Zon SKR, and Brouwer S. Do influence at work and possibilities for development mitigate the impact of job demands for workers with and without depression. Scandinavian Journal of Work, Environment & Health. 2023; 49(2):136-144.**

<https://doi.org/10.5271/sjweh.4069> [open access]

Abstract: Objective: Jobs characterized by low job demands and high job resources are associated with better work outcomes, yet it remains unclear whether this is the case for workers with depression. This study examined whether depression moderates the relationship between job demands, job resources, and maintaining employment. Methods: Data from the longitudinal population-based Lifelines cohort study were matched with register data on employment from Statistics Netherlands (N=55 950). Job demands included

quantitative demands and work pace; job resources included influence at work and possibilities for development. The two-way interaction between job demands and depression and the three-way interaction between job demands, job resources and depression were examined in a zero-inflated Poisson regression model with path 1, including a binary employment outcome, and path 2, a count variable including months out of employment. Results: The interaction effect of job demands and depression on being employed was significant [ $b=-0.22$ , 95% confidence interval (CI)  $-0.44-0.01$ ]. Workers without depression were more likely to be employed whereas workers with depression were less likely to be employed if they had high job demands. The three-way interaction between job demands, job resources, and depression was significant for months out of employment ( $b=0.15$ , 95% CI  $0.01-0.29$ ), indicating that workers with depression had more months out of employment when reporting high job demands and high job resources compared to workers without depression. Discussion Although increasing influence at work and possibilities for development to prevent negative work outcomes may be beneficial for workers without depression, this approach might be limited for workers with depression.

**Runjic R, Jelcic KA, Runjic E, Gudelj K, Milic J, Pacheco RL, et al. Most systematic reviews that used the term "update" in title/abstract were not an updated version. *Journal of Clinical Epidemiology*. 2023; 154:1-7.**

<https://doi.org/10.1016/j.jclinepi.2022.11.014>

Abstract: Objectives: To analyze whether articles labelled as systematic reviews or meta-analyses (SRs/MAs) in the title and used terms "updated" or "update" in the title or abstract are indeed a report of an updated version of a previously existing SR/MA. Study design and setting: We searched PubMed for SRs/MAs, using descriptors updated/update in the title/abstract published in 2018-2019. We analyzed how the articles used the term "update"/"updated" and whether the previous version of SR was referenced. We surveyed authors who indicated that the SR was an updated version, but there was no reference to the original SR. Results: Among 1,118 included articles, most ( $N = 716$ ; 64%) used the term "update" only to denote that an SR includes recent data. Among 47 authors eligible for survey, 15 replied (32%). Six authors (40%) stated that their article was an updated version and gave reference to the previous version, while 9 authors (60%) stated that their SR was not an updated version of a previous SR. Conclusion: Most SRs that used the term "update" in title/abstract were not an updated version of an SR. Authors should use the descriptor "update"/"updated" in their title/abstract only to refer to a new version of an SR to avoid ambiguity.

**Stec AA, Robinson A, Wolffe TAM, and Bagkeris E. Scottish firefighters occupational cancer and disease mortality rates: 2000-2020. *Occupational Medicine*. 2023; 73(1):42-48.**

<https://doi.org/10.1093/occmed/kqac138> [open access]

Abstract: BACKGROUND: Increased mortality from cancers and other diseases has been reported in USA, Canadian, and Nordic firefighters. However, UK firefighters are



understudied. AIMS: To determine whether UK firefighters suffer increased mortality from cancers and other diseases when compared with the general population. METHODS: Mortality from cancer and other diseases in Scottish male firefighters between 2000 and 2020 was compared with the general Scottish male population and expressed as standardized mortality ratios (SMRs) (with 95% confidence intervals, CI). RESULTS: Significant overall excess cancer mortality was found for Scottish firefighters compared with the general population (SMR 1.61, CI 1.42-1.81). Scottish firefighters were nearly three times more likely to die of malignant neoplasms (unspecified sites) (SMR 2.71, CI 1.71-4.00). Excess cancer mortality was also found for several site-specific cancers, including prostate (SMR 3.80, CI 2.56-5.29), myeloid leukaemia (SMR 3.17, CI 1.44-5.58), oesophagus (SMR 2.42, CI 1.69-3.29) and urinary system (kidney and bladder) (SMR 1.94, CI 1.16-2.91). Mortality from neoplasms of unknown behaviour was over six times greater in Scottish firefighters (SMR 6.37, CI 2.29-12.49). Additionally, significantly higher mortality was found for: acute ischaemic heart diseases (SMR 5.27, CI 1.90-10.33), stroke (SMR 2.69, CI 1.46-4.28), interstitial pulmonary diseases (SMR 3.04, CI 1.45-5.22), renal failure (SMR 3.28, CI 1.18-6.44) and musculoskeletal system diseases (SMR 5.64, CI 1.06-13.83). CONCLUSIONS: UK firefighters suffer significant excess mortality from cancer and other diseases when compared with the general population. Preventative health monitoring and presumptive legislation are urgently required to protect UK firefighters' health

**Szucs K and Gray SE. Impact of opioid use on duration of time loss after work-related lower limb injury. *Journal of Occupational Rehabilitation*. 2023; 33(1):71-82.**

<https://doi.org/10.1007/s10926-022-10048-5> [open access]

**Abstract:** Purpose This study sought to determine patterns of opioid use among workers with a compensated lower limb injury, factors associated with opioid use, and how opioid use is associated with time loss duration. Methods Claims and medication data were provided by the workers' compensation regulator of Victoria, Australia, for claims lodged 2008-2018 from workers aged 15+ years with a lower limb injury. Descriptive statistics showed the number and prevalence of each opioid type (weak/strong) by demographic, claim and injury predictors. Binary and multinomial logistic regression determined the likelihood of any opioid use, and use of strong, weak or a combination of strong and weak opioids by predictors. Cox regression determined the effect of each opioid type on duration of time loss, controlling for predictors. Results There were 51,334 claims and of these 23.6% were dispensed opioids (9.2% for strong opioids only, 6.6% for weak opioids only and 7.8% for a combination). Weak opioids, on average, were dispensed 15 days earlier than strong opioids. Time loss claims and workers with fractures or hip injuries were most likely to be dispensed opioids. All opioids were associated with increased duration of time loss, with those dispensed both weak and strong opioids having the longest duration of time loss. Conclusions Any opioid use was associated with longer time loss duration, with increasing opioid strength having a greater

effect. Review of pain management methods should be undertaken to reduce opioid use, which may have a positive impact on duration of time loss and long-term function

**Whitworth J, Galusha J, Carbajal J, Ponder WN, and Schuman DL. Affective depression mediates PTSD to suicide in a sample of treatment-seeking first responders. Journal of Occupational and Environmental Medicine. 2023; 65(3):249-254.**

<https://doi.org/10.1097/JOM.0000000000002724>

Abstract: **OBJECTIVE:** The aim of this study was to examine the associations of comorbid posttraumatic stress disorder (PTSD), affective or somatic depression, and suicide among first responders (FRs). **METHOD:** We used baseline data from FRs ( N = 232) who sought services at a nonprofit mental health agency specializing in treating trauma exposed FRs. We conducted two PROCESS simple mediation models with PTSD as the predictor, affective depression and somatic depression as the mediators, and suicidality as the dependent variable. **RESULTS:** Affective depression significantly mediated the relationship between PTSD and suicidality, whereas somatic depression did not. The direct effect of PTSD on suicidality was not significant. **LIMITATIONS:** These data are cross-sectional and should be followed up with longitudinal analyses across the course of treatment. **CONCLUSIONS:** To reduce suicide risk, it is recommended that clinicians target affective depression instead of PTSD symptoms

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