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

***Biswas A, Tiong M, Irvin E, Zhai G, Sinkins M, Johnston H, Yassi A, Smith PM, et al. Gender and sex differences in occupation-specific infectious diseases: a systematic review. *Occupational and Environmental Medicine*. 2024; [epub ahead of print].**

<https://doi.org/10.1136/oemed-2024-109451> [open access]

Abstract: Occupational infectious disease risks between men and women have often been attributed to the gendered distribution of the labour force, with limited comparative research on occupation-specific infectious disease risks. The objective of this study was to compare infectious disease risks within the same occupations by gender. A systematic review of peer-reviewed studies published between 2016 and 2021 was undertaken. To be included, studies were required to report infectious disease risks for men, women or non-binary people within the same occupation. The included studies were appraised for methodological quality. A post hoc power calculation was also conducted. 63 studies were included in the systematic review. Among high-quality studies with statistical power (9/63), there was evidence of a higher hepatitis risk for men than for women among patient-facing healthcare workers (HCWs) and a higher parasitic infection risk for men than for women among farmers (one study each). The rest of the high-quality studies (7/63) reported no difference between men and women, including for COVID-19 risk among patient-facing HCWs and physicians, hepatitis risk among swine workers, influenza risk among poultry workers, tuberculosis risk among livestock workers and toxoplasmosis risk among abattoir workers. The findings suggest that occupational infectious disease risks are similarly experienced for men and women within the same occupation with a few exceptions showing a higher risk for men. Future studies examining gender/sex differences in occupational infectious diseases need to ensure adequate sampling by gender

Antwi CO, Ntim SY, Zhang J, Asante EA, Darko AP, and Ren J. Health-protective instinct and emotional exhaustion: the why and when perceived COVID-19 infectability emotionally drains frontline employees during a pandemic. *International Journal of Stress Management*. 2024; 31(2):148-161.

<https://doi.org/10.1037/str0000326;10.1037/str0000326>

Durrant H, Havers R, Downe J, and Martin S. Improving evidence use: a systematic scoping review of local models of knowledge mobilisation. *Evidence & Policy*. 2024; 20(3):370-392.

<https://doi.org/10.1332/174426421X16905563871215> [open access]

Abstract: Background: While the rhetoric of evidence-based policymaking and practice is pervasive and persuasive, the extent to which either have been achieved is contested. Both require effective approaches to research-based knowledge mobilisation, particularly at the local level where context specificities undermine generic 'what works' claims. There has been limited research on how local processes of knowledge mobilisation happen, the practices they employ and why, and what can be learned from them. Aims and method: We undertook a systematic scoping review of local models of knowledge mobilisation to address these gaps in process understanding. Keywords associated with knowledge mobilisation at the local level were identified, and searches of two international databases were conducted in May 2023. Findings: Our review identifies three key features of knowledge mobilisation at the local level: it is relational; it involves the integration of different forms of knowledge; and it recognises the need for approaches to knowledge mobilisation to be tailored to local contexts, culture and capacity for evidence use by individuals and organisations, and at system level. Our findings advance understanding of how knowledge mobilisation at the local level can be designed to improve evidence utilisation in policy and practice. Discussion and conclusion: The paper highlights important gaps in current knowledge – namely a lack of understanding of the informal processes that underpin local knowledge mobilisation and of the determinants of demand for and the impacts of mobilising evidence – and it suggests ways in which future research might address these.

Hagani N, Clare PJ, Luo M, Merom D, Smith BJ, and Ding D. Effect of retirement on loneliness: a longitudinal comparative analysis across Australia, China and the USA. *Journal of Epidemiology & Community Health*. 2024; 78(10):602-608.

<https://doi.org/10.1136/jech-2023-221606> [open access]

Abstract: BACKGROUND: There is evidence that the transition to retirement can bring social challenges and may increase loneliness. Few studies have examined the impact of retirement on loneliness; most have been conducted in Western countries. It is important to examine the differences in loneliness postretirement across countries to identify patterns and risk factors that might influence the health and well-being of older adults. We aimed to examine the effect of retirement on loneliness among older adults in Australia, China and the USA. METHODS: Longitudinal analysis of data from population-based samples of Australian, Chinese and American adults over 50. Lagged and fully lagged adjusted models were applied. Social engagement was examined as an effect modifier and a sensitivity analysis was conducted among urban participants. RESULTS: Retirees had a higher predicted prevalence of loneliness than non-retirees in Australia (19.4% (95% CI 18.0% to 20.9%) vs 17.0% (95% CI 15.7% to 18.4%)) and in the USA (19.3% (95% CI 17.5% to 21.1%) vs 15.7% (95% CI 14.3% to 17.3%)). These differences were significant only in the USA. In China, loneliness was significantly lower in those who had retired (10.0% (95% CI 7.9% to 12.5%) vs 17.1% (95% CI 15.7% to

18.5%)). In Australia and the USA, voluntary retirees had the lowest loneliness and involuntary retirees had the highest. Social engagement did not modify the association between retirement and loneliness. CONCLUSIONS: Our findings imply that the effect of retirement should be considered within a cultural context to inform suitable and effective strategies to alleviate loneliness

IJzelenberg W, Oosterhuis T, Hayden JA, Koes BW, Van Tulder MW, Rubinstein SM, et al. Exercise therapy for treatment of acute non-specific low back pain: a Cochrane systematic review and meta-analysis of randomized controlled trials. Archives of Physical Medicine & Rehabilitation. 2024; 105(8):1571-1584.

<https://doi.org/10.1016/j.apmr.2024.02.732> [open access]

Abstract: OBJECTIVE: To assess the effectiveness of exercise for acute non-specific low back pain (LBP) vs our main comparisons: (1) sham treatment and (2) no treatment at short term (main follow-up time). DATA SOURCES AND STUDY SELECTION: A comprehensive search up till November 2021 was conducted in numerous databases for randomized controlled trials on the effectiveness of exercise in adults with acute LBP (<6 weeks). Studies examining LBP with a specific etiology were excluded. The primary outcomes were back pain, back-specific functional status, and recovery. DATA EXTRACTION: Two review authors independently conducted the study selection, risk of bias assessment, and data extraction. GRADE was used to assess the certainty of the evidence. DATA SYNTHESIS: We identified 23 randomized controlled trials (2674 participants). There is very low-certainty evidence that exercise therapy compared with sham/placebo treatment has no clinically relevant effect on pain (mean difference [MD] -0.80, 95% confidence interval [CI] -5.79 to 4.19; 1 study, 299 participants) and on functional status (MD 2.00, 95% CI -2.20 to 6.20; 1 study, 299 participants) in the short term. There is very low-quality evidence which suggests no difference in effect on pain and functional status for exercise vs no treatment (2 studies; n=157, not pooled due to heterogeneity) at short-term follow-up. Similar results were found for the other follow-up moments. The certainty of the evidence was downgraded because many randomized controlled trials had a high risk of bias, were small in size, and/or there was substantial heterogeneity. CONCLUSION: Exercise therapy compared with sham/placebo and no treatment may have no clinically relevant effect on pain or functional status in the short term in people with acute non-specific LBP, but the evidence is very uncertain. Owing to insufficient reporting of adverse events, we were unable to reach any conclusions on the safety or harms related to exercise therapy

Kelly SE, Brooks SPJ, Benkhedda K, MacFarlane AJ, Greene-Finestone LS, Skidmore B, et al. A scoping review shows that no single existing risk of bias assessment tool considers all sources of bias for cross-sectional studies. Journal of Clinical Epidemiology. 2024; 172:111408.

<https://doi.org/10.1016/j.jclinepi.2024.111408> [open access]

Abstract: Objectives: Different tools to assess the potential risk of bias (RoB) for cross-sectional studies have been developed, but it is unclear whether all pertinent bias concepts are addressed. We aimed to identify RoB concepts applicable to cross-sectional research validity and to explore coverage for each in existing appraisal tools. Study design and setting: This scoping review followed the Joanna Briggs Institute methodology. We included records of any study design describing or reporting methods, concepts or tools used to consider RoB in health research reported to be descriptive/prevalence survey or analytic/association (cross-sectional) study designs. Synthesis included quantitative and qualitative analysis. Results: Of the 4556 records screened, 90 were

selected for inclusion; 67 (74%) described the development of, or validation process for, appraisal tools, 15 (17%) described methodological content or theory relevant to RoB for cross-sectional studies and 8 (9%) records of methodological systematic reviews. Review of methodological reports identified important RoB concepts for both descriptive/prevalence and analytic/association studies. Tools identified (n = 64 unique tools) were either intended to appraise quality or assess RoB in multiple study designs including cross-sectional studies (n = 21; 33%) or cross-sectional designs alone (n = 43; 67%). Several existing tools were modified (n = 17; 27%) for application to cross-sectional studies. The RoB items most frequently addressed in the RoB tools were validity and reliability of the exposure (53%) or outcome (65%) measurement and representativeness of the study population (59%). Most tools did not consider nonresponse or missingness appropriately or at all. Conclusion: Assessing cross-sectional studies involve unique RoB considerations. We identified RoB tools designed for broad applicability across various study designs as well as those specifically tailored for cross-sectional studies. However, none of the identified tools comprehensively address all potential biases pertinent to cross-sectional studies. Our findings indicate a need for continued improvement of RoB tools and suggest that the development of context-specific or more precise tools for this study design may be necessary.

Latif A, Zaki M, Shahbaz H, Hussain SA, Daudpota AA, Imtiaz B, et al. Mass online training of health care workers during COVID-19: approach, impact, and outcomes for over 10,000 health care providers. Public Health. 2024; 233:193-200.

<https://doi.org/10.1016/j.puhe.2024.05.006> [open access]

Abstract: OBJECTIVES: COVID-19 revealed major shortfalls in healthcare workers (HCWs) trained in acute and critical care worldwide, especially in low-resource settings. We aimed to assess mass online courses' efficacy in preparing HCWs to manage COVID-19 patients and to determine whether rapidly deployed e-learning can enhance their knowledge and confidence during a pandemic. STUDY DESIGN: Retrospective cohort study. METHODS: This international retrospective cohort study, led by a large Academic Medical Centre (AMC), was conducted via YouTube and the AMC's online learning platform. From 2020 to 2021, multidisciplinary experts developed and deployed six online training courses based on the latest evidence-based management guidelines. Participants were selected through a voluntary sample following an electronic campaign. Training outcomes were assessed using pre-and post-test questionnaires, evaluation forms, and post-training assessment surveys. Kirkpatrick's Model guided training evaluation to measure self-reported knowledge, clinical skills, and confidence improvement. We also captured the number and type of COVID-19 patients managed by HCWs after the trainings. RESULTS: Every 22.8 reach/impression and every 1.2 engagements led to a course registration. The 10,425 registrants (56.8% female, 43.1% male) represented 584 medical facilities across 154 cities. The largest segments of participants were students/interns (20.6%) and medical officers (13.4%). Of the 2169 registered participants in courses with tests, 66.9% completed post-tests. Test scores from all courses increased from the initial baseline to subsequent improvement post-course. Participants completing post-training assessment surveys reported that the online courses improved their knowledge and clinical skills (83.5%) and confidence (89.4%). Respondents managed over 19,720 COVID-19 patients after attending the courses, with 47.7% patients being moderately/severely ill. CONCLUSIONS: Participants' confidence in handling COVID-19 patients is increased by rapidly deploying mass training to a substantial target population through digital tools.

The findings present a virtual education and assessment model that can be leveraged for future global public health issues, and estimates for future electronic campaigns to target

Middleton DRS, Wedekind R, Hall AL, Suonio E, DeBono N, Vermeulen R, et al. Critical reviews of exposure assessment in carcinogenic hazard identification: the IARC Monographs experience. Occupational and Environmental Medicine. 2024; 81(7):366-372.

<https://doi.org/10.1136/oemed-2023-109277>

Abstract: OBJECTIVES: To summarise the rationale, workflow and recommendations for the conduct of exposure assessment critiques in key human studies evaluated for International Agency for Research on Cancer (IARC) Monographs on the Identification of Carcinogenic Hazards. METHODS: Approaches to evaluating exposure assessment quality in human cancer and mechanistic studies were reviewed according to the precepts outlined in the IARC Monographs Preamble, using two agents as case studies. Exposure assessment 'domains', that is, salient aspects of exposure assessment for the agent under evaluation, were selected for review across the key human studies. RESULTS: The case studies of night shift work (volume 124) and 1,1,1-trichloroethane (volume 130) used a common approach, tailored to the agents' specific exposure scenarios, to evaluate exposure assessment quality. Based on the experiences of IARC Working Groups to date, the implementation of exposure assessment critique requires the need for agent-specific knowledge, consideration of the validity of time-varying exposure metrics related to duration and intensity, and transparent, concise reviews that prioritise the most important strengths and limitations of exposure assessment methods used in human studies. CONCLUSIONS: Exposure assessment has not historically been a fully appreciated component for evaluating the quality of epidemiological studies in cancer hazard identification. Exposure assessment critique in key human cancer and mechanistic studies is now an integral part of IARC Monographs evaluations and its conduct will continue to evolve as new agents are evaluated. The approaches identified here should be considered as a potential framework by others when evaluating the exposure assessment component of epidemiological studies for systematic reviews

Omoredede A and Berglund RT. The level of burnout and cognitive stress in managers when teleworking: the impact of psychosocial safety climate and the mediating role of demand-control-support. International Journal of Workplace Health Management. 2024; 17(3):220-240.

<https://doi.org/10.1108/IJWHM-12-2022-0197> [open access]

Abstract: Purpose The current research investigates the managers' perception of teleworking and attempts to understand how the psychosocial safety climate and psychosocial job characteristics affect their levels of burnout and cognitive stress levels while teleworking. Design/methodology/approach This study used a survey, collecting data via questionnaires from five distinct organizations. N=161 responses from managers were analyzed using the confirmatory factor analysis and regression analysis. Findings The findings show that managers who telework do not experience numerous psychosocial stressors. This means that they experience less burnout and cognitive stress. However, results also show that managers benefit from working in an environment with a high psychosocial safety climate. Practical implications Our study highlights the need to address managers' working conditions and well-being in telework, given their unique challenges, by fostering a supportive psychosocial climate and providing resources to mitigate stress and burnout. Originality/value Previous studies have thoroughly examined the dynamics of telework employees, including the challenges they face and the strategies their immediate supervisors employ to foster a

positive remote work environment. Such research has illuminated various stressors that these individuals may confront while teleworking. Despite this, scant attention has been paid to the experiences of managers themselves when they operate from home. The concept of psychosocial safety climate becomes crucial when considering managers grappling with high job demands, low control, and insufficient support from their own superiors and peers. This gap has prompted the present study to explore the unique experiences of managers in a teleworking context, particularly concerning cognitive stress and burnout

Pien LC, Cheng Y, Lee FC, and Cheng WJ. The effect of multiple types of workplace violence on burnout risk, sleep quality, and leaving intention among nurses. *Annals of Work Exposures and Health*. 2024; 68(7):678-687.

<https://doi.org/10.1093/annweh/wxae052>

Abstract: OBJECTIVE: The aim of our study is to explore the associations between multiple types of workplace violence (WPV) and burnout risk, sleep problems, and leaving intention among nurses. METHODS: This cross-sectional survey recruited 1,742 nurses, and data on WPV experiences were collected through self-administered questionnaires. Work conditions, burnout risk scales, sleep quality, and leaving intentions were also evaluated. Multivariate logistic regression analyses were performed to examine the associations of WPV with burnout risk, sleep quality, and leaving intentions, adjusting for demographic characteristics and work conditions. RESULTS: The study found that 66.7% of nurses reported experience of WPV, with 26.9% experiencing both physical and nonphysical forms. Those who experienced multiple types of WPV reported worse work conditions, higher burnout risk, poorer sleep quality, and a stronger leaving intention compared to those without such experiences. Adjusting for working conditions, logistic regression analysis showed that nurses who experienced multiple types of WPV had 2.12-fold higher odds of high personal burnout risk, 2.36-fold higher odds of high client-related burnout risk, 1.95-fold higher odds of poor sleep quality, and 1.80-fold higher odds of high leaving intention, compared to those without WPV experiences. CONCLUSIONS: Strategies by hospital managers and policymakers to monitor and reduce workplace violence are vital for sustaining nurses' mental health, well-being, and preventing early attrition from the profession

Roos M, Lamontagne ME, Desmeules F, Dionne C, Savard I, Pinard AM, et al. Workplace injury prevention and wellness program for orchestra musicians: a randomized controlled trial. *Journal of Orthopaedic & Sports Physical Therapy*. 2024; 54(9):1-10.

<https://doi.org/10.2519/jospt.2024.12277>

Abstract: OBJECTIVE: To evaluate the effect of a workplace injury prevention and wellness program compared to no intervention (control) on musicians' playing-related musculoskeletal pain intensity. The hypothesis was that musicians who completed the program would have a greater reduction in pain intensity than the control group. DESIGN: Pragmatic parallel randomized controlled trial. METHODS: Sixty-five orchestra musicians were recruited and completed patient-reported outcome measures (primary outcome: pain intensity over 11 months, using the Musculoskeletal Pain Intensity and Interference Questionnaire for Musicians; range: 0-40; lower is better) at baseline, 14 weeks (T1), and 11 months (T2). Following baseline assessment, participants were randomly assigned to the intervention (n = 33) or control (n = 32) groups, stratified by instrument and pain prevalence. The intervention group received a 14-week injury prevention and wellness program including education

and exercise; the control group received no intervention. RESULTS: Pain intensity means (standard deviation) were 7.8 (6.2), 8.0 (7.5), and 8.6 (5.7) in the control group, and 9.0 (6.6), 5.0 (4.2), and 6.7 (6.6) in the intervention group at T0, T1, and T2, respectively. Using intention-to-treat analyses (3 dropouts, n = 65 analyzed), between-group differences in pain intensity (95% confidence interval) were T1-T0: -4.2 (-7.5, -0.9); T2-T0: -3.7 (-7.1, -0.3), type III (overall) P = .03, favoring the intervention group. No adverse events were reported. CONCLUSION: A workplace injury prevention and wellness program may have a clinically meaningful effect on reducing orchestra musicians' pain intensity. J Orthop Sports Phys Ther 2024;54(9):1-10. Epub 11 June 2024. doi:10.2519/jospt.2024.12277

Tremblay M, Bergeron D, Parent AA, Pelletier J, Pare D, and Lavalliere M. Occupational health and safety portrait of lobster fishers from a St. Lawrence Gulf community. International Journal of Occupational Safety & Ergonomics. 2024; 30(3):907-915.

<https://doi.org/10.1080/10803548.2024.2366634>

Abstract: Lobstering industry workers are known to have poor overall health and low safety records, but there is still a gap in information concerning Canadian lobster fishers. This study aimed to report occupational health and safety characteristics of an Atlantic Canada community of lobster fishers and to assess differences between captains and deckhands. Twenty-eight participants (10 captains, 18 deckhands) were questioned and self-reported on lifestyle, general health status, work-related musculoskeletal disorders and traumatic injuries. The data collected reveal both groups' high prevalence of cardiometabolic and musculoskeletal health issues. Captains reported more occupational exposure and health issues, and showed poorer lifestyle habits than deckhands. Fishers reported potential solutions to reduce occupational risks, presented as three types: lifestyle, working behaviours and leadership. This study evaluated a community of Canadian lobster fishers regarding their occupational health and safety. Potential avenues for mitigating occupational risk specific to this community will nurture future implementation

Useche SA, Robayo S, and Orozco-Fontalvo M. The hidden cost of your 'too fast food': stress-related factors and fatigue predict food delivery riders' occupational crashes. International Journal of Occupational Safety & Ergonomics. 2024; 30(3):825-834.

<https://doi.org/10.1080/10803548.2024.2356997>

Abstract: Objectives. For several years, the so-called 'gig economy' has kept transforming urban transportation dynamics. However, the literature has often overlooked the demanding, stressful and safety-compromising conditions under which delivery riders carry out their occupational tasks. This research aimed to examine whether fatigue acts as a mediating mechanism in the complex relationships among job settings, stress-related psychosocial factors at work and the occurrence of occupational traffic crashes among two-wheeled food delivery riders. Methods. This cross-sectional study field-surveyed 248 food delivery riders operating across various platforms. Participants responded to a questionnaire on work features, psychosocial factors and occupational safety issues. The data underwent both descriptive analyses and structural equation modeling (SEM). Results. As hypothesized, the occupational (riding) crashes of food delivery riders can be largely explained through work-related fatigue, which exerts a full mediation between job settings, stress-related factors and riding safety outcomes. Conclusions. These results highlight fatigue as a significant yet overlooked threat in this occupation, emphasizing the need to connect stress-related conditions with safety incidents, a relationship not previously explored among delivery riders. Moreover, our findings

stress the necessity for policies and interventions targeting stress and fatigue management to improve occupational health and road safety in the gig economy era

Weaver III A, Kemp J, Ojiambo W, and Simmons A. From hard hats to helmets: the history & future of head protection. Professional Safety. 2024; 69(8):34-43.

https://www.assp.org/docs/default-source/psj-articles/f1weaveretal_0824.pdf?sfvrsn=14866546_0

Zhang X, Tian M, and Li J. Investigating the influencing factors and prediction models of skin burns for firefighters' occupational safety. International Journal of Occupational Safety & Ergonomics. 2024; 30(3):663-676.

<https://doi.org/10.1080/10803548.2024.2327869>

Abstract: Relevant studies in the fields of fire safety, occupational health and firefighter clothing were analyzed in this study to address the high injury rate among firefighters during fire rescue and the complexity of factors affecting skin burns. The findings indicate that the degree of skin burns in firefighters is primarily influenced by the heat source (heat flux, type), firefighter clothing (fabric, pattern) and the under-clothing air gap (thickness, characteristics). Since skin burns cannot be directly measured, internal skin heat transfer and burn prediction models are commonly employed to assess the impact of external factors on skin burns. These models can predict the safe working distance or time for firefighters. Investigating the influencing factors and prediction models of skin burns among firefighters holds significant value in enhancing operating procedures, optimizing firefighter clothing design and effectively preventing skin burns

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