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**\*Jetha A, Bakhtari H, Irvin E, Biswas A, Smith MJ, Mustard C, Arrandale VH, Dennerlein JT, Smith PM. Do occupational health and safety tools that utilize artificial intelligence have a measurable impact on worker injury or illness? Findings from a systematic review. *Systematic Reviews*. 2025; 14(1):146.**

<https://doi.org/10.1186/s13643-025-02869-1> [open access]

Abstract: BACKGROUND: Artificial intelligence (AI) holds promise as a tool that can be used by practitioners in the field of occupational health and safety (OHS). This study aimed to identify AI applications specifically used for OHS and examine their impact on worker morbidity or mortality outcomes. METHODS: We conducted a comprehensive systematic review. We searched six databases to identify published quantitative studies of OHS AI applications across the hierarchy of controls that were published between years 2018 to 2024. Title/abstract and full-text screening was conducted to identify eligible studies which were then assessed for quality and risk of bias and synthesized. RESULTS: Of the 1255 articles identified by our search, only two met eligibility criteria; one of which was appraised as medium quality and the other as low quality. The one medium quality study identified by our review was an AI-based chatbot health promotion tool which was shown to improve musculoskeletal symptoms. Our systematic review shows that we are at the early stages of understanding the role AI can play in OHS and it may be premature to recommend the wide-spread use of AI for health and safety practice within workplaces. CONCLUSION: There is a critical need for future research to unpack how considerations taken in the development and adoption of workplace AI tools for OHS can determine their effectiveness in addressing worker injury or illness. SYSTEMATIC REVIEW REGISTRATION: PROSPERO CRD42023414422

**Baker DT and Rumens N. Men's anxieties and defences regarding gender (in)equality in the workplace: an object-relations psychoanalysis of organisational masculinities. *Human Relations*. 2025; 78(7):905-933.**

<https://doi.org/10.1177/00187267241279385> [open access]

Abstract: This article explores men's psychic attachments to organisational masculinities in the context of gender equality initiatives in the UK finance sector. Deploying an object-relations psychoanalysis and generating interview data with 30 male executives and non-executives, it unpacks why and how men outwardly support but unconsciously repudiate workplace gender equality. We explain how this conflict indicates the presence of what Melanie Klein terms the paranoid-schizoid position. We examine two key unconscious processes of the paranoid-schizoid position in men's accounts: gender-splitting, when men dissociate undesirable aspects of organisational masculinity, and projection, when repressed, negative parts of their masculine ideals are instead attributed to women. This article's contributions demonstrate how the paranoid-schizoid position is defensive, enabling men to articulate support for gender equality, but also protect paranoid constructions of organisational masculinity when it is threatened by women. Empirically and theoretically, this article shows how organisational masculinities are ambivalent, which in Kleinian terms underscores how masculinity has 'good' and 'bad' components that are constituted unconsciously through its relationship with the object world. This article concludes by drawing out the implications for (re)positioning men within workplace gender equality debates and activities.

**Chau PKT, Schjolberg T, Eriksen MB, Moe AG, Graff P, and Haugen F. Impact of cold exposure on shift working seafood handlers in Northern Norway: a comparative analysis across work shifts. *Journal of Occupational Medicine and Toxicology*. 2025; 20(1):22.**

<https://doi.org/10.1186/s12995-025-00469-2> [open access]

Abstract: Objective: This study aimed to investigate the impact of occupational thermal exposure on shift workers, specifically whether cold exposure elicits distinct physiological responses and thermoregulatory recovery across different tasks and shift types. Methods: Observational study at two factories processing prawns in Northern Norway in which 32 shift-working seafood handlers with different task responsibilities were followed for a single shift (morning, evening, night). The participants answered questionnaires regarding thermal exposures at work and related symptoms; these were compared to answers from 12 administration workers. Personal thermal loggers measured the range of temperature exposures associated with four different seafood handler work tasks. Pre- and post-shift plasma levels of FGF21, GDF15 and cytokines were analysed using immunoassays. As a proxy for thermoregulatory response across different shift types, hand temperature was measured repeatedly before and after breaks using a thermal imaging camera. Results: Most seafood handlers reported subjective impact from cold exposure. Cold working conditions of  $\leq 10$  °C were measured across all shifts and three different seafood handling tasks. The morning shift-seafood handlers displayed lower plasma FGF21 post-shift vs. pre-shift; the evening and night shifts showed no difference. GDF15 levels remained unchanged regardless of shift types but were positively correlated with age. Night shift was associated with increased plasma IL6 post-shift vs. pre-shift. Thermoregulatory responses showed a positive linear relationship with break duration but did not differ between shifts. Conclusions: The findings suggest that exposure levels are closely linked to specific tasks and shifts, with thermoregulatory responses varying by task type and time of day.

**Dietz M, Kahl A, and Schluter U. Behaviour in the workplace and monitoring data on occupational oral exposure to hazardous substances as prerequisites for the development of a model on occupational oral exposure: a systematic review and meta-analysis. *Annals of Work Exposures and Health*. 2025; 69(5):461-472.**

<https://doi.org/10.1093/annweh/wxaf015> [open access]

**Abstract:** INTRODUCTION: The assessment of the overall exposure of workers to hazardous substances is fundamental for their comprehensive protection. This includes oral exposure to hazardous substances, which can be relevant for total exposure depending on the specific workplace and substance. However, monitoring and available modelling approaches for a sound assessment of this exposure pathway are limited. The development of an occupational oral exposure assessment model requires knowledge of the contributing mechanisms, including worker behaviour and occupational hygiene practice. In addition, monitoring data on occupational oral exposure are a prerequisite for the evaluation of an exposure model. METHODS: A systematic literature review was conducted using the PRISMA method. Studies describing behaviours and occupational hygiene practices with regard to oral occupational exposure, and studies including measured data sets for the model evaluation were identified. The included data were then extracted and evaluated in a meta-analysis. RESULTS: 142 studies addressing oral occupational exposure were identified in the area of behaviour and occupational hygiene. Frequencies of hygiene practices were aggregated. The influence of worker training was investigated and the controllability of individual behaviour was described qualitatively. For the model evaluation, 9 publications were identified that included monitoring data for oral occupational exposure. These publications use 5 different sampling approaches and describe 4 different substance groups. DISCUSSION: The systematic literature search on behaviour and occupational hygiene provides a partly quantitative basis for the model-based description of occupational oral exposure to hazardous substances. Oral exposure to hazardous substances cannot be prevented by good occupational hygiene practices alone, as a relevant part of the causal personal behaviour (eg touching the own face) is subconscious and can therefore not be avoided completely. The identified database serves as a basis for the later model evaluation. The usability of the data sets depends on whether the future model input parameters are documented in the studies

**Esteve-Matali L, Salas-Nicas S, Llorens-Serrano C, and Navarro-Gine A. Employment protection policies in the COVID-19 context: did they protect workers' mental health? An intersectional perspective of the Spanish case. *Scandinavian Journal of Public Health*. 2025; 53(5):544-551.**

<https://doi.org/10.1177/14034948251332510>

**Abstract:** Aim: To assess differences in the prevalence of poor mental health of the Spanish salaried population according to the labour situation (employed, unemployed, under a suspension-furlough or under a reduction-furlough), from an intersectional perspective (sex and occupational class), 1 year after the outbreak of the COVID-19 pandemic. Methods: Cross-sectional study by means of a self-administered online questionnaire, on the Spanish salaried population. Final sample: 22,210 participants. Data collection: April-May 2021. Outcome variable: poor mental health (Mental Health Inventory Short-Form-36 scale). Explanatory variable: current employment status. Stratification variables: sex and occupational class. Confounding variables: age, occupational group, type of contract, living with children under 12-years old and living with chronic or disabled people. A descriptive analysis was carried out and prevalence and prevalence ratios (PR with 95% confidence interval (95%CI)) were estimated by means of robust Poisson regression models. Results: Around 55%

of the sample presented poor mental health outcomes. Employed people have less frequent mental health problems than those unemployed (PR: 0.83; 95%CI: 0.79-0.87). In terms of the association between furlough and mental health, different patterns are glimpsed between men and women and, among these, between manual and non-manual workers. Manual men in a suspension-furlough had less frequent mental health problems than those unemployed (PR: 0.75; 95%CI: 0.62-0.91). Conclusions: This study suggests new insights into the patterns of association observed between furlough and workers' mental health, helping to understand the phenomenon and better design future employment protection policies, which should include a gender and class perspective to avoid the introduction of mental health inequalities

**Gianola S, Guida S, Ravot G, Lunny C, Barger S, and Castellini G. Gaps in completeness of reporting and methodological quality: a metaresearch study of 139 network meta-analyses published in January 2023 using PRISMA-NMA and AMSTAR-2. Journal of Clinical Epidemiology. 2025; 183:111783.**

<https://doi.org/10.1016/j.jclinepi.2025.111783>

Abstract: Objectives: Network meta-analysis (NMA) is a method for comparing multiple interventions simultaneously, combining evidence to estimate and rank their relative effectiveness and safety across a network of studies. This study evaluates (i) epidemiological and descriptive characteristics, (ii) reporting completeness, and (iii) methodological quality of NMAs. Study design and setting: In this metaresearch study (protocol at <https://osf.io/pa6dz/>), we searched PubMed for systematic reviews with NMAs indexed in January 2023. We extracted epidemiological and descriptive data, assessed reporting completeness using the modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for NMA, and evaluated the methodological quality using A Measurement Tool to Assess Systematic Reviews 2 (AMSTAR-2). Results: Among the 139 NMAs, 77% were published in specialty journals (median journal impact factor [JIF] 4), and 52% originated from China. Reporting completeness and methodological quality were generally of a medium quality, with the median NMAs fulfilling 71% of the modified Preferred Reporting Items for Systematic Reviews and Meta-Analyses for Network Meta-Analyses (PRISMA-NMA) and 63% of the AMSTAR-2 criteria. Items such as "network geometry" for modified PRISMA-NMA (15%) and "list of excluded studies" for AMSTAR-2 (12%) were frequently unfulfilled. Better reporting and methodological quality were associated with registered protocol, non-Chinese country, higher JIF, and larger author teams. Conclusion: We highlight gaps in both reporting and methodological quality in NMAs. We recommend future authors to plan and conduct NMAs within a large author team that includes statistical experts and to strictly adhere to reporting and methodological quality standards. More attention should be given to the reporting of network geometry and documenting the list of excluded studies.

**Kaufman CE, Morrissey-Basler MC, Marcelino M, and Casa DJ. The effects of body cooling strategies on physiological and performance outcomes during simulated occupational work in the heat. American Journal of Industrial Medicine. 2025; 68(7):607-619.**

<https://doi.org/10.1002/ajim.23734>

Abstract: Background: Body cooling is a low-cost heat strain mitigation strategy to effectively reduce heat strain and enhance work performance. However, data on the efficacy of body cooling strategies remains limited. We aimed to examine the effects of body cooling with cooling garments on physiological, perceptual, and performance outcomes during simulated work in the heat in men and

women. Methods: Fourteen physically active participants (seven men and seven women; age:  $26 \pm 3$  years, peak oxygen consumption [VO<sub>2</sub>peak]:  $42.7 \pm 7.9$  mL kg<sup>-1</sup> min<sup>-1</sup>) completed two randomized control trials in a hot, humid environment (40°C, 40% relative humidity). During the body cooling trial (COOL), participants wore cooling garments (hat, sleeves, neck gaiter), and large cooling towels during rest breaks. There was no cooling intervention in the control trial (CON). Rectal temperature (TREC), skin temperature (TSK), and heart rate (HR) were measured continuously. Performance outcomes included the number of boxes lifted during the trial (BOX) and the time to complete 25 repetitions (TT25) post-trial. Results: There was a significant interaction between trial and activity with COOL reporting overall lower TREC (CON:  $38.40 \pm 0.46^\circ\text{C}$ ; COOL:  $38.08 \pm 0.31^\circ\text{C}$ ;  $p < 0.001$ ), TSK (CON:  $37.20 \pm 0.72^\circ\text{C}$ ; COOL:  $35.52 \pm 1.52^\circ\text{C}$ ;  $p < 0.001$ ), and HR (CON:  $145 \pm 17$  bpm; COOL:  $133 \pm 24$  bpm;  $p < 0.001$ ). There was a significant interaction between the number of boxes lifted and trial during BOX 1 and 3 (BOX 1:  $p = 0.010$ ; BOX 3:  $p = 0.001$ ). Significant differences between mean TT25 (CON:  $169 \pm 34$  s; COOL:  $149 \pm 32$  s;  $p = 0.011$ ) were reported between trials. Conclusion: Body cooling garments reduced physiological responses while improving performance during simulated work in heat and should be considered an effective, low-cost strategy to protect laborers from heat strain.

**Kong W, Sun L, Deng T, and Feng D. Presenteeism and physio-psychological disorders among frontline nurses fighting COVID-19. Occupational Medicine. 2025; 75(2):99-104.**

<https://doi.org/10.1093/occmed/kqaf011>

**Krause JS, Dismuke-Greer CE, and Reed K. A survival model of work life expectancy after spinal cord injury: relationships with race/ethnicity, education, injury, and aging factors. Rehabilitation Counseling Bulletin. 2025; 68(4):227-235.**

<https://doi.org/10.1177/00343552241265325>

**Liu YA, Kaur G, Banerjee NK, and Banerjee S. Dataset of worker perceptions of workforce robotics regarding safety, independence, job security, and privacy. Data Brief. 2025; 61:111750.**

<https://doi.org/10.1016/j.dib.2025.111750> [open access]

Abstract: With an aging blue-collar workforce spanning critical sectors such as construction, transportation and delivery, manufacturing, and warehousing, there is an increased need for collaborative workforce robots. Workers in these sectors are prone to lifting related workplace injuries that lead to a reduction in job longevity. Fear and perception of robotics is influenced by a broad range of demographic and socio-economic factors. In this paper we present a dataset consisting of 337 complete responses to a 40-question survey that we administered anonymously via Google Forms to blue-collar workers in Australia, Canada, United Kingdom, and United States of America working in six different job sectors, namely manufacturing, retail, transportation & delivery, warehousing, construction, and contract work. The questions range from worker demographics (7 questions), perceptions toward physical safety in the workplace (8 questions), perceptions toward working with human coworkers in the workplace (6 questions), perceptions toward working with robots (16 questions), and perceptions toward data privacy on robots (3 questions). The dataset will enable research on understanding worker concerns with sensing systems and data privacy in workforce robots and enable data informed recommendations on privacy and security preserving sensing systems on existing and future robots. The dataset will enable researchers to understand how workers perceive of robots of varying capabilities with regards to the worker's own perceptions of safety, independence, and job security. Researchers can also use the dataset to understand how

barriers to safety in the workplace influence worker perceptions and understand how the existing blue-collar workforce views collaborations with other workers and robots. The dataset can also enable researchers to understand how perceptions of robotics is influenced by demographic factors, country of work, job sector, and workplace location

**Man H, Vinstrup J, and Andersen LL. Work and lifestyle factors associated with musculoskeletal pain among professional cleaners: a cross-sectional study. *International Journal of Occupational Safety & Ergonomics*. 2025; 31(2):522-528.**

<https://doi.org/10.1080/10803548.2025.2453319>

**Abstract:** Objectives. Among cleaners, lower back pain (LBP) and neck/shoulder pain (NSP) are prevalent musculoskeletal disorders (MSDs). Despite their high occurrence, the underlying causes of LBP and NSP in this population remain largely unknown, suggesting a multifactorial aetiology. This study aims to assess the association between various lifestyle, physical and psychosocial factors with LBP and NSP in professional cleaners. Methods. The study included cleaners from the Danish Work Environment and Health study 2012-2018 with a total of 1042 responses. The cleaners filled in a questionnaire about their work environment, lifestyle and health. Associations between a range of work and lifestyle factors (predictors) with LBP and NSP (outcome) were estimated using general linear models. Results. When controlling for various confounders, cleaners experiencing high physical exertion during work showed higher LBP and NSP compared with those experiencing low and moderate physical exertion ( $p < 0.0001$ ). Low recognition from management was also associated with higher LBP and NSP ( $p < 0.05$ ). Several factors did not reach statistical significance: smoking, leisure physical activity, influence at work and support from colleagues. Conclusion. This cross-sectional study showed that obesity, high physical exertion during work and low recognition from management were associated with higher LBP and NSP.

**Ras J and Grace J. Relationship between metabolic syndrome and musculoskeletal health in firefighters. *Work*. 2025; 81(3):2907-2917.**

<https://doi.org/10.1177/10519815251324367> [open access]

**Abstract:** Background: Firefighting's physically demanding and hazardous nature requires firefighters to maintain optimal cardiometabolic and musculoskeletal health. It is suspected that metabolic syndrome (MetS) may contribute significantly to both sudden cardiac arrest and debilitating injury in firefighters, however, there are no studies investigating this relation. Objective: The objective of this study was to investigate the relationship between MetS and Musculoskeletal Health (MSH) in Firefighters. Methods: Using systemic sampling, 309 firefighters were recruited to participate. Using physical measures and questionnaires, risk factors for MetS were assessed. MSH was classified as musculoskeletal injuries and musculoskeletal discomfort, and assessed using the Nordic and Cornell musculoskeletal discomfort questionnaires. Logistic and multinomial regressions were used to assess the relationship between variables. Results: MetS was significantly associated with injuries in firefighters ( $p = 0.026$ ). Healthy firefighters experienced more musculoskeletal discomfort than firefighters with metabolic syndrome ( $p = 0.045$ ). Triglyceride and blood glucose concentrations were significantly associated with musculoskeletal injuries ( $p = 0.038$ ) and musculoskeletal discomfort ( $p = 0.035$ ). Multinomial regression indicated that firefighters with one, two and three risk factors were at increased odds of 5.01, 2.40, and 2.36 times than healthy firefighters. Conclusion: This study suggests

that cardiometabolic health may directly affect the musculoskeletal health of firefighters and may play a crucial role in their overall health and well-being.

**Sharifian N, Ray TN, Jacobson IG, Klimek-Johnson P, McMaster HS, Geronimo-Hara TR, et al. Bidirectional associations between probable eating disorders and mental health conditions among military service members and veterans. *American Journal of Epidemiology*. 2025; 194(6):1621-1630. <https://doi.org/10.1093/aje/kwae205>**

Abstract: Although prior research has examined the prevalence of eating disorders (EDs) such as binge eating disorder (BED) and bulimia nervosa (BN) among military personnel, less is known regarding temporal associations between EDs and other mental health conditions. Using longitudinal data from 179 694 service members and veterans from the Millennium Cohort Study, temporal associations between EDs (BN and BED) and mental health conditions (posttraumatic stress disorder, anxiety, depression, and problem drinking) were investigated using a cross-lagged panel model approach. Results indicated consistent bidirectional associations between most mental health conditions and EDs; however, the magnitude of these cross-lagged associations varied across BN and BED. Cross-lagged effects of mental health conditions on subsequent BED were significantly stronger than BED to mental health condition cross-lagged effects. In contrast, cross-lagged effects of BN on subsequent mental health conditions were stronger than mental health conditions to BN. Preventive screening for those at risk for BN may have a stronger impact on mitigating downstream mental health conditions, whereas interventions among those with mental health conditions may play a greater role in eliminating maladaptive coping strategies including binge eating. Study findings underscore the importance of early detection of mental health conditions and EDs to maximize readiness among service members. Although prior research has examined the prevalence of eating disorders (EDs) such as binge eating disorder (BED) and bulimia nervosa (BN) among military personnel, less is known regarding temporal associations between EDs and other mental health conditions. Using longitudinal data from 179 694 service members and veterans from the Millennium Cohort Study, temporal associations between EDs (BN and BED) and mental health conditions (posttraumatic stress disorder, anxiety, depression, and problem drinking) were investigated using a cross-lagged panel model approach. Results indicated consistent bidirectional associations between most mental health conditions and EDs; however, the magnitude of these cross-lagged associations varied across BN and BED. Cross-lagged effects of mental health conditions on subsequent BED were significantly stronger than BED to mental health condition cross-lagged effects. In contrast, cross-lagged effects of BN on subsequent mental health conditions were stronger than mental health conditions to BN. Preventive screening for those at risk for BN may have a stronger impact on mitigating downstream mental health conditions, whereas interventions among those with mental health conditions may play a greater role in eliminating maladaptive coping strategies including binge eating. Study findings underscore the importance of early detection of mental health conditions and EDs to maximize readiness among service members.

**Williams A, Ding R, and Lyeo JS. Retrospective review of a carer-employee workplace intervention. *Evaluation and Program Planning*. 2025; 111:102620. <https://doi.org/10.1016/j.evalprogplan.2025.102620> [open access]**

Abstract: In response to a growing aging population, carer-employees - who balance both unpaid care and paid employment, have become an increasingly normative phenomenon. In order to support the

growing population of carer-employees, some employers have implemented carer-friendly workplace policies aimed at keeping carer-employees employed and healthy. This study sought to retrospectively review the effectiveness of one such carer-employee workplace intervention which had been implemented in a post-secondary institution located in Southern Ontario. The study consisted of a thematic analysis of fourteen semi-structured post-intervention interviews from carer-employee participants. A thematic analysis of the interview transcripts revealed the following themes: (i) the pre-existing circumstances of participants; (ii) recommendations made by participants to improve the intervention; (iii) benefits participants received from the intervention; and (iv) factors limiting the benefits participants received from the intervention. Furthermore, the thematic analysis revealed several positive outcomes commonly experienced by intervention participants, namely: improvements in self-reported mental and physical wellbeing, greater self-confidence in caregiving abilities, and access to respite. These findings align with the larger literature on carer-employees and caregiver-friendly workplace policies

**Zou PXW and Ma S. How digital twin technology may improve safety management: a multi-industry perspective. *Safety Science*. 2025; 189:106837.**

<https://doi.org/10.1016/j.ssci.2025.106837>

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