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Workplace Research Monthly

September 2025

This Workplace Research Monthly includes the latest peer-reviewed articles, reports and evidence on a range of workplace health and safety, prevention, recovery at work and return to work topics that were published in August 2025 only.

Comcare does not conduct critical evaluations of the articles listed in the Workplace Research Monthly. Articles are arranged from highest to lowest quality based on levels of evidence outlined in table 1 and 2

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Description of Evidence Levels Definitions Used in this Review

1. **Level of Evidence** – Comcare does not conduct critical evaluations of the articles listed in the Workplace Research Monthly, however, certain study designs are scientifically stronger at answering a question. The scoring hierarchy we provided is presented below.

Level of Evidence	Description
Level 1	Evidence from a systematic/scoping review or meta-analysis of relevant studies.
Level 2	Evidence from a randomised controlled trial.
Level 3	Evidence from a controlled intervention trial without randomisation (i.e. quasi-experimental).
Level 4	Evidence from a case-control or cohort study.
Level 5	Evidence from a single case study, a case series, or qualitative study.
Level 6	Evidence from opinion pieces, reports of expert committees and/or from literature reviews.

2. **Relevance** – Research carried out in Australia or similar countries is most relevant to Australian readers.

Level	Description
A	Study conducted in Australia or the study has been conducted outside Australia but confounders unlikely to affect relevance
B	Study conducted outside Australia and confounders likely to affect generalisability

Enabling Healthy and Safe Workplaces

Health and Wellbeing

A systematic literature review on employee well-being: Mapping multi-level antecedents, moderators, mediators and future research agenda

Employee well-being has garnered increasing attention for its critical role in driving key organizational outcomes such as productivity, job satisfaction, and retention. However, existing research remains fragmented, lacking a holistic understanding of its multi-level antecedents, mediators, moderators, and outcomes. This study systematically examines the diverse factors shaping the relationship between employee well-being and organizational outcomes by employing an integrated framework of antecedents, mediators, moderators, and outcomes related to employee well-being as the guiding analytical structure. Through a rigorous synthesis of 102 peer-reviewed articles, this review evaluates the conceptualizations, measurement scales, theoretical frameworks, and methodological approaches employed in well-being research. The study makes three key contributions. First, it maps the definitional landscape, reviewing the predominant theoretical foundations and measurement approaches of employee well-being. Second, using this integrated framework, it develops an conceptual model that consolidates fragmented insights to enhance theoretical clarity and practical applicability. Third, it proposes a comprehensive research agenda, outlining critical gaps and future directions to advance both empirical research and theoretical development in the field of employee well-being.

Pandey et al. 2025.

Acta Psychologica, vol. 258.

Keywords: Employee well-being; integrative framework; organizational outcomes; PRISMA; systematic review.

Evidence Level: 1A

Link: https://linkinghub.elsevier.com/retrieve/pii/S0001-6918(25)00393-2

Factors associated with employment and quality of working life in patients with metastatic breast cancer

Purpose: As survival of patients with metastatic breast cancer (MBC) improves, their work situation is gaining importance. The aim of the current study was to identify factors associated with work status and quality of working life (QWL) in patients with MBC. Additionally, we investigated the effects of an exercise intervention on work status. **Methods**: Within the multinational PREFERABLE-EFFECT exercise trial, 287 patients with MBC of working age (18-65 years) reported on their working situation over 9 months as a secondary endpoint. Among a subgroup of participants, QWL was assessed by the Quality of Working Life Questionnaire for Cancer Survivors (QWLQ-CS) (N = 59). **Results**: At baseline, 157 (54.7%) participants were employed, of whom one-third reported having recently reduced their amount of work because of fatigue (41.7%), cognitive problems (33.3%), or inability to meet work demands (33.3%). Participants wished for more flexible working hours (29.2%) and less productivity pressure (37.5%). Participants were less likely to work if they experienced higher levels of pain ($p = 0.014$). Among working participants, an academic education and higher levels of psychological distress were associated with a higher number of working hours (all $p < 0.05$). Fatigue, an academic education, and performing mentally strenuous tasks at work were negatively associated with QWL (all $p < 0.05$). The exercise intervention did not affect the number of hours worked during the study. **Conclusions**: Symptom management might be important for patients' ability to work. To help patients stay employed and improve QWL, employers should consider offering more flexible work arrangements and adapting to their employees' changing needs and abilities.

Kias et al. 2025.

Cancer Medicine, vol. 14, no. 15.

Keywords: Employment; exercise; fatigue; metastatic breast cancer; pain; quality of working life.

Evidence Level: 4A

Link: https://onlinelibrary.wiley.com/doi/10.1002/cam4.71074

Leveraging a dual-focused growth mindset to boost employee resilience and work well-being: Evidence from a two-wave survey and an intervention study

The post-pandemic era, coupled with the rising adoption of AI chatbots and robotics, introduces significant new challenges for employee work well-being. Thus, it is important to investigate underlying mechanisms about how employees can develop mindsets to promote well-being at work. This study examines how a dual-focused growth mindset-comprising a growth mindset about the self (the belief in the ability to develop personal abilities) and a growth mindset about work (the belief in the capacity to optimise work conditions)- can enhance employee work well-being through resilience. In a two-wave survey involving 606 full-time employees in China (Study 1), we found that both mindsets were associated with lower levels of mental ill-health symptoms (one dimension of work well-being) by increasing personal resilience. Notably, the effect of a growth mindset about the self (but not about work) on personal resilience was stronger when individuals perceived a high (vs. low) level of work stress. In Study 2, a quasi-experimental design with 85 participants in an intervention group and 66 in a control group demonstrated that a growth mindset intervention effectively enhanced dual growth mindsets, leading to improved well-being, including job satisfaction and individual flourishing. A serial mediation analysis confirmed that resilience mediated the relationship between the self-growth mindset (not work-growth mindset) and employee flourishing. Theoretical and practical implications were discussed.

Siu et al. 2025.

Stress and Health, vol. 41, no. 4.

Keywords: Growth mindset; intervention; resilience; work well-being

Evidence Level: 4B

Link: https://onlinelibrary.wiley.com/doi/10.1002/smi.70093

Substance use right before or during work among the young US workers: Evidence from the National Longitudinal Survey of Youth 1997 Cohort

Objective: Substance use right before or during work (hereinafter, "substance use in the workplace") poses significant health risks to users, colleagues, and the public in the workplace. However, less clear are figures on recent prevalence, characteristics of those engaging in such behaviors, and variations across occupations. This study examines the prevalence of substance use in the workplace, individual and work-related characteristics, and substance use risks across different occupations among a nationally representative sample of workers in their early 30 s-a period of heightened substance use. **Methods**: Data from the National Longitudinal Survey of Youth 1997 (NLSY97) were analyzed, focusing on 6155 respondents. Past-month prevalence of substance use in the workplace (separately for any substance, alcohol, marijuana, and cocaine/hard drugs) was assessed overall and by occupation using the Census 2002 Standard Occupational Classification. Multivariable Poisson regression models tested associations between occupation and substance use, adjusting for sociodemographic and health-related characteristics. **Results**: In the past month, 8.9% of workers reported any substance use in the workplace, including 5.9% for alcohol, 3.1% for marijuana, and 0.8% for cocaine/hard drugs. Prevalence was highest in food preparation/serving occupations, followed by safety-sensitive occupations. Our models indicated higher risks for all types of substance use among food preparation/serving workers, higher alcohol use among white-collar workers, and elevated alcohol and marijuana use in safety-sensitive occupations. **Conclusions**: The substantial prevalence of workforce substance use among individuals in their early 30 s raises public health concerns, underscoring the need for workplace interventions addressing occupation-specific patterns of alcohol and marijuana use.

Oh et al. 2025.

American Journal of Industrial Medicine, vol. 68, no. 8.

Keywords: United States; food preparation/serving; occupation; safety-sensitive occupations; substance use in the workplace.

Evidence Level: 4B

Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.23737

Person-related work and the risk of cardiovascular disease: A Swedish register-based cohort study

Person-related work requires interaction with individuals not employed at the workplace, such as clients and patients, and can result in emotional labour, emotional demands, and confrontation. These stressors may increase workers' risk of cardiovascular disease (CVD), including coronary heart disease (CHD) and stroke, whereas colleagues' support may help buffer their impact. We aimed to examine the association between person-related work and the risk of CVD, and effect modification of social support at work. The study included around two million CVD-free workers aged 40-60 years in Sweden in 2006. Three dimensions of person-related work, including general contact with people, emotional demands, and confrontation, and job control and social support were respectively assessed using job exposure matrices. CVDs in 2007-20 were recorded in patient and death registers. Multivariable Cox regression models were used. A total of 114 404 individuals developed CVD (65 857 CHD and 48 547 stroke). High exposures to the three dimensions were associated with 4%-12% increased risks of CVD (7%-20% for CHD and 2%-7% for stroke) in women and 2%-8% (2%-7% for CHD and 3%-10% for stroke) in men. Adjusting for job control attenuated the associations for general contact with people in women. The increased risks related to emotional demands and confrontation in women and general contact with people and confrontation in men were not present in those more likely to receive high social support. In conclusion, person-related work is associated with an increased risk of CVD, and social support at work seems to modify the magnitude of this association.

Pan et al. 2025.

European Journal of Public Health, vol. 35, no. 4.

Keywords: Work; cardiovascular disease.

Evidence Level: 4B

Link: https://academic.oup.com/eurpub/article/35/4/657/8152101?login=false

Prevalence and factors associated with insomnia among firefighting personnel in Dhaka division, Bangladesh

Background: Firefighting is a challenging and stressful job, and firefighters face many adverse conditions while performing their duties. The study aimed to assess the prevalence of insomnia among firefighting staff working in the Dhaka division of Bangladesh and identify the factors contributing to the severity of insomnia. **Methods**: A cross-sectional study was conducted among a total of 406 employees of the Department of Fire Service & Civil Defense (FSCD) working in randomly selected nine districts of the Dhaka division using a simple random sampling (SRS) technique. Data were collected from the firefighting staff through face-to-face interviews. The severity of insomnia was assessed during the past 2 weeks using the Bangla version of the Insomnia Severity Index (ISI). Multivariable ordinal logistic regression (OLR) was used to identify the factors associated with insomnia among the fire service staff. All statistical analyses were performed using Stata version 17. **Results**: Among the 406 participants, nearly one-fourth (22.9%) suffered from moderate to severe insomnia. The results of the multivariable regression analyses showed that the firefighting staff aged 30 to 45 years (adjusted odds ratio, AOR: 2.0; 95% CI: 1.075 to 3.663) and above 45 years (AOR: 4.3, 95% CI: 1.386 to 13.039) had higher odds of insomnia than those aged below 30 years. The participants who conducted over 1,000 rescue operations had higher odds of experiencing insomnia compared to their colleagues who conducted fewer than 500 rescue operations (AOR: 2.6, 95% CI: 1.451 to 4.529). The firefighting staff with severe (AOR: 2.5, 95% CI: 1.325 to 4.551) and potentially dangerous (AOR: 3.9, 95% CI: 1.928 to 8.012) levels of workplace stress had two 2times higher odds of suffering from insomnia compared to those with minimal/mild levels of workplace stress. Furthermore, those who reported moderate (AOR: 2.0, 95% CI: 1.314 to 3.083) and severe (AOR: 2.6, 95% CI: 1.558 to 4.506) levels of PTSD were more likely to suffer from insomnia than their counterparts who reported minimal/mild levels of PTSD. **Conclusions**: The present study revealed that nearly one-fourth of firefighting staff working in the Dhaka division experienced moderate to severe insomnia. Several factors, including age, the number of

rescue operations, workplace stress, PTSD, and chronic diseases. The findings of this study highlight the need for sleep health promotion programs in firefighting staff.
Hawlader et al. 2025.
BMC Public Health, vol. 25, no. 1.

Keywords: Bangladesh; fire safety department; firefighters; insomnia; insomnia severity index.
Evidence Level: 4B
Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-23919-2

Transgender and gender-diverse individual's experiences of openness and concealment at work in Sweden

The workplace is an important part of many people's lives. Many transgender and gender-diverse (TGD) individuals have negative experiences of their workplace due to discrimination and cisnormativity. Whether or not to be open about TGD experiences, and the degree of openness, is something many TGD individuals struggle with at work. Openness is related to well-being and job satisfaction and is therefore important to consider when understanding TGD individuals' work situations. This article examines TGD individuals' experiences of openness and concealment regarding their TGD experience at work. Thirty TGD adults from Sweden participated in online semi-structured interviews, which were analyzed using thematic analysis. Results show that the organizational climate and physical environment, as well as leadership and human resources, set the stage for an inclusive or excluding workplace for TGD individuals. For the individual, these aspects are taken into consideration when weighing up the risks and advantages of being open about their TGD experience at work. Factors such as work climate, the presence of LGBTQ+ colleagues, and access to safe facilities make a difference in the decision about, and experience of, being open or concealing one's TGD experience at work. Personal values, and a prerequisite to pass or not, affect decisions concerning disclosure and create different challenges in managing working life as a TGD individual. Findings are helpful in better understanding TGD people's situation at work and are of use for work management and policymakers in creating a better work environment for TGD individuals.
Nihlén et al. 2025.
Scandinavian Journal of Psychology, vol. 66, no. 4.

Keywords: Minority stress; non-affirmation; stigmatization; transgender; work-related health.
Evidence Level: 5B
Link: https://onlinelibrary.wiley.com/doi/10.1111/sjop.13103

Work Health and Safety

Different approaches and their consequences for addressing the occupational health and safety of young workers: A systematic narrative literature review

Background: The last twenty years, studies have examined 'young workers' occupational health and safety (OHS). Depending on the discipline, approach and methodology, they address youth OHS in different ways. This systematic narrative review aims to provide a deeper understanding of this research landscape. **Objective**: The first objective is to provide a systematic review of the literature on OHS of 'young workers'. It consists of reviewing the literature by disciplines, approaches, methods, data and factors, and of focusing on studies that address the contextual and social aspects of OHS. The second objective is to consider the specific situation of apprentices. **Methods**: Searches were conducted in five scientific databases, supplemented by three resource platforms. The criteria of literature selection were: OHS of 'young workers' aged from 15-24; explicit link between work and health; publication between 2005 and 2022 in Europe, North America and Australia. Studies have been categorised. **Results**:193 studies were included. The review shows the diversity of the population studied under the same heading and the predominance of medical studies, which favour epidemiological approaches and quantitative data. Other disciplines (e.g., psychology, educational sciences, social sciences), approaches (e.g., organisational, risk perception), data (e.g., interviews, observations) and methods (qualitative, mixed, longitudinal) are marginal. Individual and

age-related factors are predominant. The impact of working conditions and social relations on OHS is rarely considered. **Conclusion**: Research on OHS through organizational context and social relations, particularly employment status, should be encouraged. This provides a deeper understanding of the constraints faced by 'young workers', especially apprentices.
Descloux et al. 2025.
Work, vol. 81, no. 4.

Keywords: Adolescent health; determinants of health; mental health; physical health; social working conditions; vocational education.
Evidence Level: 1A
Link: https://pubmed.ncbi.nlm.nih.gov/40275707/

Factors affecting seafarers' fatigue: A scoping review

Background: Nowadays, many maritime accidents occur due to the fatigue of seafarers. With the rapid development of the economy and society, the factors affecting seafarers' fatigue are also changing. At present, there is a lack of systematic articles that examine the factors influencing seafarers' fatigue over the past decade. This review aims to explore the various factors related to seafarers' fatigue through a scoping review, to identify effective approaches to addressing the fatigue issues faced by seafarers. **Methods**: Studies were searched on PubMed, Science Direct. Academic search completed using EBSCOhost databases, Springer Nature Link, and Web of Science in May 2025. This scoping review was conducted based on the framework of Arksey and O'Malley and the Preferred Reporting items for Scoping Reviews flow diagram. The inclusion criteria were studies that determined the relationship between factors relevant to seafarers' fatigue, including physical conditions and mental issues, etc. Data were narratively summarized and reported. **Results**: Eighteen articles were included in this review, while 18 major findings were clarified. Firstly, fatigue among seafarers has been frequently discussed over the past decade. Secondly, the factors influencing seafarers' fatigue can be categorized into three aspects: the seafarer's own factors, the working environment factors, and the management factors. The seafarer's own factors include physiological factors, psychological factors, and sociological factors. The working environment factors include safety climate, external support, work demands, work mode, and ship conditions. The management factors include those at the ship, system, technology, industry, and national regulations levels. **Conclusion**: At the individual level, focus on the accumulation of psychological capital and enhancing work autonomy can alleviate fatigue. More solutions need to be implemented at the organizational level, including providing a better sleep environment, providing more external support, flexibly handling work demands and work patterns, and improving technology and management measures.
Ma et al. 2025.
Frontiers in Public Health, vol. 13.

Keywords: Factors; fatigue; maritime; seafarers; shipping.
Evidence Level: 1A
Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1647685/full

A preliminary review of the impact of the Australian Consumer Goods (Quad Bikes) Safety Standard 2019 on fatal work-related incidents

Objective: This descriptive study assesses all work-related quad deaths in Australia for the 2001-2024 period. Preliminary findings and potential implications are discussed in relation to the introduction of the Consumer Goods (Quad Bikes) Safety Standard 2019. **Methods**: Data were retrieved through the National Coronial Information System. Descriptive analysis was followed by a one-sample Wilcoxon test assessing rolling four-year totals, both nationally and by jurisdiction, for all work cases and rollover events. **Results**: Of the 334 fatal cases in this period, there were 161 work-related cases (49%). Over 95% of work cases occurred on a farm, with 77% (n=120) over 50 years of age. Rollovers were responsible for 65% of all work cases (n=105). Nationally, there has been a nonsignificant reduction in all work cases (p=0.47) and work-related rollovers (p=0.63). No jurisdictions had significant changes in total work-related cases, while

Victoria had a significant reduction in rollover events (p=0.045). **Conclusion**: There was a small reduction nationally, with variability by jurisdiction. Significant reductions in Victoria (rollovers), may be suggestive of the impact of increased regulatory and enforcement approaches, made in conjunction with the Standards introduction and warrant further investigation. **Implications for public health**: These early data require further verification to assess the full impact of the Standard but point to a small reduction overall and the importance of enforcement approaches in the intervention mix.

Lower et al. 2025.

Australian and New Zealand Journal of Public Health, vol. 49, no. 4.

Keywords: ATV's; agriculture; all-terrain vehicles; farm; injury; quad.

Evidence Level: 4A

Link: https://www.sciencedirect.com/science/article/pii/S1326020025000354?via%3Dihub

A systems-based approach for the prevention of heat-associated kidney disease in Latin American workers

Background: The prevalence of chronic kidney disease and other non-communicable diseases in Guatemala has been rising. Recently, chronic kidney disease of non-traditional origin (CKDnt) has been identified among occupational cohorts and linked to heavy workloads in hot environments. **Objective**: To describe a systems-based community participatory approach to occupational safety and health. **Methods**: Over the last eight years, academic researchers have partnered with a large agribusiness in Southwest Guatemala to address the health, safety, and well-being concerns of workers, especially in relation to CKDnt. This case study presents the Total Worker Health® approach used to develop, implement, and evaluate interventions to address potential causes of CKDnt. The results of these interventions are presented using the Consolidated Framework for Implementation Research and RE-AIM. **Findings**: A Total Worker Health (TWH) approach addressing both transactional and transformational organizational behavior change to reduce the incidence of reduced kidney function in this workforce can be successfully implemented. Our findings highlight the need for collaborative approaches to the development and implementation of strategies to adapt to climate change in the workplace. The sustainability of interventions needs constant re-evaluation to adapt to changing contexts. **Discussion**: This case study illustrates a practical, evidence-based TWH approach to address the immediate impacts of heat stress and nephrotoxins on the kidney health of sugarcane workers in Guatemala. It also illustrates the importance of multi-modal interventions implemented and evaluated in a dissemination and implementation science framework informed by the community that is at risk. The principles underlying our approach may have applicability and generalizability to less extreme circumstances, and beyond those with heat-associated kidney disease.

Dally et al. 2025.

Annals of Global Health, vol. 91, no. 1.

Keywords: Heat-associated illness; implementation science; kidney disease; occupational health.

Evidence Level: 4B

Link: https://annalsofglobalhealth.org/articles/10.5334/aogh.4760

Sustainable safety practices and hazard management in the oil and gas industry: An HSE perspective

Despite advancements in operational technologies, the oil and gas (O&G) industry continues to face safety lapses due to persistent challenges in occupational health and safety management (OHSM), hazard identification and risk assessment (HIRA), and safety communication (SC). This study aims to examine how OHSM, HIRA, and SC influence safety knowledge (SK) and safety performance (SP), with safety culture (SCULT) mediating these relationships. A novel framework, integrating technical, procedural, and cultural dimensions is proposed and empirically tested. Grounded in social exchange theory (SET), this framework is distinct in its dual focus on system-level safety practices and cultural mechanisms in high-risk environments. Malaysia's downstream O&G sector was chosen due to its operational complexity, multicultural workforce, and elevated accident rates, making it a critical context for evaluating sustainable safety interventions. Data was collected from 350 employees from the operational department using

stratified sampling across two major national oil companies PGB and MLNG. Partial least squares structural equation modeling (PLS-SEM) was employed to validate the model, demonstrating strong reliability and predictive relevance (SRMR = 0.064, AVE > 0.5). Notably, SC exhibited weak direct effects on SK and SP, but strong indirect effects via SCULT, suggesting that communication-based safety interventions are only effective when trust and cultural alignment are present. Behavioral outcomes such as proactive safety participation and cognitive outcomes such as hazard recognition were both positively influenced by a strong SCULT. This research offers practical strategies for industry stakeholders, including the adoption of a near-miss reporting system, behavior-based safety (BBS) training programs, and culturally adaptive communication audits. Policymakers are encouraged to embed cultural indicators within national safety audit frameworks and promote leadership accountability across organizational levels. The findings emphasize that achieving sustainable safety outcomes require more than structural compliance with culturally integrated safety systems.

Jamil et al. 2025.

Frontiers of Public Health, vol. 13.

Keywords: Hazard identification and risk assessment; occupational health and safety; safety communication; safety culture; safety knowledge; safety performance; sustainable safety practices.

Evidence Level: 4B

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1611106/full

The impact of occupational nonhypoxic hypobaria on cerebral function and integrity

Repetitive nonhypoxic hypobaria is nearly omnipresent in the aerospace environment and has been shown to be associated with subcortical white matter hyperintensities (WMH) on brain magnetic resonance imaging (MRI). This raises the question of whether such exposures may be detrimental to brain structure and function. A single-center observational study was conducted comparing individuals with repetitive nonhypoxic hypobaric exposure, specifically 19 altitude chamber personnel (ACP) from 4 European countries, with 28 healthy controls. MRIs were evaluated for WMH occurrence, volume and distribution, as well as white matter parcellation, cortical volume, and thickness. Additionally, Diffusion Weighted Imaging (DWI) acquisitions were analyzed. Furthermore, neurophysiological (VEP, AEP, OCT) and psychometric tests (Vienna test system, WinSCAT) were performed. Both groups exhibited WMH, although to a lesser extent than reported in the general population. The number and volume of WMH increased with age and were influenced by cumulative chamber exposure time to ACP. Noticeable were circumscribed significant reductions in lateral orbitofrontal cortical volume and thickness as well as decreases in the volume of the pars opercularis of both hemispheres in the study group. Neurophysiological and neuropsychological findings were not different. There are no hints that occupational nonhypoxic hypobaric exposure in ACP, as currently used in the participating NATO Air Forces, can cause brain damage.

Ledderhos et al. 2025.

Scientific Reports, vol. 15, no. 1.

Keywords: Brain; hypobaria; MRI; occupational.

Evidence Level: 4B

Link: https://www.nature.com/articles/s41598-025-13622-y

The generality of psychosocial safety climate theory - A fundamental element for global worker well-being: Evidence from four nations

Occupational health and safety researchers and policymakers often rely on organisational theories and evidence to provide valuable information for effective policy making and understanding. Yet, most traditional and contemporary organisational theories are developed within a single nation, often in high-income countries. Therefore, cross-national validation is required for generalisable worldwide use. The current study focuses on an antecedent to workplace health and safety, that is, the psychosocial safety climate (PSC), and aims to investigate if PSC is an etic (i.e., universally applicable) or emic (i.e., nationally/context specific) theory. Across nations, we investigate the construct meaning of PSC by testing PSC measurement invariance and the invariance of a nomological network of PSC relationships, (1) PSC to

co-worker to work engagement (PSC extended Job-Demands Resources (JD-R) motivational pathway), (2) PSC to co-worker support to psychological distress (PSC extended JD-R health erosion pathway), and (3) the moderation of PSC on the co-worker to outcomes relationship. A total of 5854 employees from four nations (Australia = 1198, New Zealand = 2029, Malaysia = 575, Japan = 2052) participated in the study. Multi-group structural equation modelling suggested that there was measurement invariance in a four-factor PSC model across the four samples. Findings from multigroup analyses support both the PSC extended motivational and health erosion pathways across nations, as well as the moderation effect of PSC in the Australian and Japanese samples. Together, the results largely support the etic nature of PSC construct and theory, with a few national nuances.

Loh et al. 2025.

Stress and Health, vol. 41, no. 4.

Keywords: Co-worker support; cross-national study; measurement invariance; psychological distress; psychosocial safety climate; work engagement.

Evidence Level: 4B

Link: https://onlinelibrary.wiley.com/doi/10.1002/smi.70070

Exploring outdoor workers' knowledge, attitudes, practices, and perceived risks of heatwaves in Nepal

Background: The rise in global temperatures due to climate change has intensified the frequency and severity of heat waves, disproportionately affecting outdoor workers. This is particularly concerning in low- and middle-income countries like Nepal, where inadequate policies and limited awareness leave outdoor workers highly vulnerable. This study explores the knowledge, attitudes, practices (KAP), and perceived risks of heatwaves among outdoor workers in Nepal. **Methods**: A cross-sectional mixed-method study was conducted across eight districts in five provinces of Nepal, surveying 356 outdoor workers from five occupational groups: street vendors, agricultural workers, rickshaw drivers/pullers, laborers, and service workers. Eleven focus group discussions (FGDs) were conducted to gain deeper insights. Descriptive statistics were used to assess KAP scores, while Kernel-Based Regularized Least Square (KRLS) analysis examined the variations in practice scores among groups. Thematic analysis was applied to FGDs. The quantitative analysis was done in STATA-14, and the qualitative analysis was conducted manually. **Results**: The average age of participants in the study was 37.2 years (SD = 10.5), and just over half (57%) were male. On average, they had worked outdoors for about 10.7 years (SD = 8.6). Among all participants, 43% had heard of heatwaves, 86.2% were aware of heat-related incidents, and 78.6% had personally experienced them. Awareness about heatwave was positively associated with the practices of heat protection for the overall sample (practice score = 1.46, $p < 0.001$). Age was found to be negatively associated with the practices of heat protection (practice score = -0.03, $p < 0.001$). Compared to females, males had lesser practices of heat protection (practice score = -0.97, $p < 0.001$). **Conclusion**: Heatwaves pose significant health risks, particularly for vulnerable outdoor workers who often lack knowledge about protective measures. This highlights an urgent need for government-led interventions and awareness programs at both community and policy levels to address and mitigate heat stress.

Sharma et al. 2025.

PLoS One, vol. 20, no. 8.

Keywords: Outdoor workers; knowledge; attitudes; heatwaves; Nepal.

Evidence Level: 4B

Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0329557

Prevalence and risk factors for the development of COPD among workers in stone quarries: A cross-sectional study

Background: Employees working in stone quarries are frequently exposed to dust, especially silica particles, which may increase the risk of developing various lung diseases, notably chronic obstructive pulmonary disease (COPD). This study aimed to evaluate pulmonary function and explore the prevalence and potential

risk factors associated with COPD among individuals in this occupational category. **Methods**: This Cross-sectional study recruited 200 workers from multiple stone quarries. Pulmonary function was evaluated through Spirometry, and sociodemographic information, current symptoms, and data on dust exposure were gathered using a prearranged questionnaire. Logistic regression analysis was performed to identify the factors contributing to the development of COPD. **Results**: The overall prevalence of COPD was 39%. The primary pattern observed in pulmonary function test was non-reversible obstructive. There was a consistent decrease in all spirometric parameters with an increase in years of service. Age (OR = 1.07, 95% CI = 1.04-1.10; p = 0.001), male gender (OR = 2.51, 95% CI = 1.23-5.08; p = 0.0106), smoking status (OR = 2.15, 95% CI = 1.12-4.11; p = 0.02), length of service (10-15 years) (OR = 67.3, 95% CI = 21.35-212.64; p < 0.001), and length of service (> 15 years) (OR = 112.8, 95% CI = 116.28-1095.58; p < 0.001) have been identified as significant risk factors for the development of COPD. **Conclusions**: The prevalence of COPD is significantly high among stone quarry workers, underscoring the necessity for implementing effective preventive measures to mitigate the impact of occupational lung diseases.

Rahman et al. 2025.

BMC Pulmonary Medicine, vol. 25, no. 1.

Keywords: COPD; occupational lung disease; silica; stone quarry.

Evidence Level: 4B

Link: https://bmcpulmmed.biomedcentral.com/articles/10.1186/s12890-025-03542-y

A qualitative study of the unique challenges faced by female police officers in Sweden

Background: Policing has traditionally been viewed as a masculine domain, which may influence how the job is perceived. While female police officers currently constitute an increasing part of the workforce, policing remains a male-dominated field globally, and gender-related challenges persist. The current study explores how female police officers in Sweden navigate the gendered norms and physical challenges they face. **Methods**: Semi-structured and cognitive interviews were conducted with 11 female Swedish police officers. Reflexive thematic analyses, as described by Braun and Clarke, were employed to analyse the data. The methods and results were reported in accordance with qualitative reporting standards. **Results**: The findings are presented through one overarching theme: 'Challenges with policing in a man's world: Gendered expectations and physical realities', describing how female officers in Sweden navigate physical and psychological demands in a profession designed for male bodies, finding creative solutions while facing ill-fitting equipment, physical strain, and challenges related to pregnancy and recovery. They also balance their roles as women, romantic partners, and mothers while managing the unique demands of policing and shift work. The results are separated into the following themes: 'Fitting the female body and mind into a traditionally male profession' and 'The dual identity: A police officer and a woman'. **Conclusion**: Swedish female police officers navigate physical demands, gendered expectations, and work-life imbalance in a male-dominated profession. While resourceful in managing these challenges, the findings highlight the need for structural reforms. Even in gender-progressive contexts, women continue to face double burdens and unequal expectations. Hence, the findings serve as applicable both nationally and internationally, and promoting equity and inclusion is crucial for the well-being and sustainability of female officers.

Degerstedt et al. 2025.

BMC Public Health, vol. 25, no. 1.

Keywords: Frontline services; gender; male-dominated profession; norms; shift work; work-life balance.

Evidence Level: 5B

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-23839-1

Is sitting really the new smoking? Health of North American workers exposed to prolonged static standing

In Canada and the United States, many low-paid service providers are required to work long hours in a static standing posture. Women, young people, and low-paid workers are significantly more likely to report standing without moving at work. Prolonged sitting has received negative publicity, being associated with low caloric expenditure and, in some studies, with heart disease. Standing is often recommended, with

static standing often conflated with walking. But prolonged standing has been associated with pain in the lower limbs and back, varicose veins, damage to arteries, heart disease, and problem pregnancies. Many US and Canadian jurisdictions such as the province of Quebec, Canada, include mandatory provision of seats in their occupational health regulations. Despite these regulations and subsequent jurisprudence, few cashiers, receptionists, or retail sales staff in these two countries can access seats at work. This article suggests some reasons for the lack of enforcement, describes efforts to transform this situation, and critically examines approaches to legislation, inspection, and intervention.

Messing et al. 2025.

A Journal of Environmental and Occupational Health Policy, vol. 35, no. 2.

Keywords: Cashiers; law; occupational health; sitting; static standing; women workers.

Evidence Level: 6B

Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC12222836/

Research on construction workers' job well-being and unsafe state: From the perspective of Maslow hierarchy of needs

To enhance construction workers' job well-being and reduce unsafe behaviors, this paper introduces Maslow hierarchy of needs theory. It deeply analyzes the intrinsic relationship between construction workers' job well-being and their unsafe conditions (both psychological and physiological states) and establishes a framework for understanding how job well-being impacts unsafe conditions. An indicator system for factors affecting construction workers' job well-being is constructed based on 5 dimensions: living conditions, working conditions, rights protection, safety development (stress), and career advancement. The DEMATEL-ISM model is utilized to identify key influencing factors and explore the hierarchical structural relationships among these factors. The results indicate a direct correlation between the level of job well-being among construction workers and their unsafe conditions. Key factors impacting job well-being include income, safety assurance, working environment, working hours, and work-related stress, which warrant focused attention.

Liu et al. 2025.

Medicine, vol. 104, no. 31.

Keywords: DEMATEL-ISM model; Maslow hierarchy of needs; job well-being; unsafe state.

Evidence Level: 6B

Link: https://journals.lww.com/md-journal/fulltext/2025/08010/research_on_construction_workers__job_well_being.100.aspx

Ergonomics

The effectiveness of ergonomic intervention in work-related postures and upper crossed syndrome of metal industry workers

Introduction: Upper Crossed Syndrome (UCS) is a musculoskeletal disorder that mainly occurs due to awkward posture in a static position. Considering the impact of musculoskeletal disorders on individual and social life, and the limited studies carried out in metal industries, this study evaluated the effect of ergonomic interventions using engineering controls on work-related postures and skeletal abnormalities caused by UCS in one of the metal industries. **Methods**: In this interventional study, 132 welders, press, and warehouse workers who had symptoms related to UCS were included. There were 78 participants in the experimental group (43 welders and 35 press operators) and 54 warehouse workers in the control group. Sitting and standing workstations were evaluated using the RULA and REBA methods, respectively. Then, with the technical committee's decision, the necessary ergonomics interventions were carried out. After three months of applying the interventions, the postures were re-evaluated. The paired t-test method was used for intra-group evaluation, and the independent t-test was used to compare the experimental and

control groups using SPSS. **Result**: This study showed that ergonomic interventions can significantly reduce the risk score of musculoskeletal disorders in different body segments in sitting and standing workstations. Examining the UCS of the experimental group with sitting activities after the intervention, the average angle of the forward head, round shoulder, and kyphosis was reduced by 3.89, 4.05, and 3.73 degrees, and with standing activities by 3.27, 2.70, and 3.10 degrees, respectively. **Conclusion**: The results of the study revealed that modifying the workstation has a significant role in reducing the UCS.

Hosseini et al. 2025.

La Medicina del Lavoro, vol. 116, no. 4.

Keywords: Ergonomic intervention; work-related postures; postures; metal industry.

Evidence Level: 3B

Link: https://mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16165

Occupational biomechanical risk factors for carpal tunnel syndrome surgery: A prospective cohort study on 203 866 Swedish male construction workers followed for 19 years

Objectives: To prospectively determine the association between occupational biomechanical exposures and the incidence of surgically treated carpal tunnel syndrome (CTS) in Swedish male construction workers. **Methods**: A cohort of 203 866 Swedish male construction workers who participated in a national occupational health surveillance programme between 1971 and 1993 were followed for CTS surgery between 2001 and 2019. Age, height, weight, smoking status and construction trade were obtained from programme records. CTS surgery cases were defined using the diagnostic code for CTS and surgical procedure code for peripheral median nerve decompression in the Swedish National Patient Register. Biomechanical exposure estimates were assigned by trade from a job-exposure matrix. The relative risk (RR) of CTS surgery for each biomechanical exposure was assessed with multivariable negative binomial regression modelling. **Results**: The study included 3851 cases and the total incidence rate of CTS surgery was 137.6 cases per 100 000 person-years. Associations were found for upper extremity load (RR 2.6; 95% CI 2.2 to 3.0), repetitive wrist flexion and extension (RR 2.6; 95% CI 2.2 to 3.0), full wrist extension (RR 2.3; 95% CI 1.9 to 2.6), power grip (RR 2.5; 95% CI 2.2 to 2.9), pinch grip (RR 2.0; 95% CI 1.7 to 2.4), handheld tool use (RR 2.3; 95% CI 2.0 to 2.7) and hand-arm vibration exposure (RR 2.3; 95% CI 1.9 to 2.7). **Conclusions**: Occupational upper extremity load and postural exposures were associated with increased risk for surgical treatment for CTS in this large construction worker cohort. Preventive actions and consideration of occupation on assessment are warranted.

Stjernbrandt et al. 2025.

Occupational and Environmental Medicine, vol. 82, no. 6.

Keywords: Ergonomics; occupational health; vibration.

Evidence Level: 4B

Link: https://oem.bmj.com/content/82/6/263.long

Biomechanical effects of a passive lower-limb exoskeleton designed for half-sitting work support on walking

The half-sitting posture is essential for many functional tasks performed by industrial workers. Thus, passive lower-limb exoskeletons, known as wearable chairs, are increasingly used to relieve lower-limb loading in such scenarios. However, although these devices lighten muscle effort during half-sitting tasks, they can disrupt walking mechanics and balance. Moreover, rigorous biomechanical data on joint moments and contact forces during walking with such a device remain scarce. Therefore, this study conducted a biomechanical evaluation of level walking with a wearable chair to quantify its effects on gait and joint loading. Participants performed walking experiments with and without the wearable chair. An optical motion capture system and force plates collected kinematic and ground reaction data. Six-axis force sensors measured contact forces and moments. These measurements were fed into a Newton-Euler inverse dynamics model to estimate lower-limb joint moments and assess joint loading. The contact

measurements showed that nearly all rotational load was absorbed at the thigh attachment, while the ankle attachment served mainly as a positional guide with minimal moment transfer. The inverse dynamics analysis revealed that the wearable chair introduced unintended rotational stresses at lower-limb joints, potentially elevating musculoskeletal risk. This detailed biomechanical evidence underpins targeted design refinements to redistribute loads and better protect lower-limb joints.
Li et al. 2025.
Sensors, vol. 25, no. 16.

Keywords: Biomechanical analysis; contact forces; contact moments; force sensors; gait; inverse dynamics; motion capture; passive lower-limb exoskeleton; wearable chair.
Evidence Level: 5B
Link: https://www.mdpi.com/1424-8220/25/16/4999

Chronic Health Issues

Impact of eating disorders on paid or unpaid work participation and performance: A systematic review

Objective: Eating disorders (EDs), including binge eating disorders (BEDs), bulimia nervosa (BN) and anorexia nervosa (AN), can inflict adverse effects on well-being, daily functioning, and workplace performance, presenting significant occupational, social, and economic challenges. This systematic review seeks to explore the relationship between ED symptomatology and their impacts on work performance. **Methods**: This systematic review adhered to The Preferred Reporting Items for Systematic Reviews and Meta-analyses. Formal methods of critical appraisal for both qualitative and quantitative studies were utilized. Six studies were included. **Results**: Participants across all studies (n = 20,367) exhibited heightened levels of presenteeism, absenteeism, work productivity impairment, and higher annual burden costs compared to their non-ED counterparts. **Conclusion**: Impaired decision-making, cognitive inflexibility, and poor executive functioning significantly impact work participation and performance, underscoring the need for workplace policies that reduce stigma and stress, and calls for further research into how environmental factors and interventions affect ED recovery.
Ubhi et al. 2025.
Eating and Weight Disorders - Studies on Anorexia, Bulimia and Obesity, vol. 30, no. 1.

Keywords: Anorexia nervosa; binge eating disorder; bulimia nervosa; eating disorders; work performance.
Evidence Level: 1A
Link: https://link.springer.com/article/10.1007/s40519-025-01783-8

Impact of migraine on productivity and efficiency among adult population in India: A scoping review

Background: Migraine is a common neurological disorder that has a major negative influence on productivity loss and quality of life. Significant socioeconomic consequences are associated with the condition, such as decreased productivity at work and increased medical expenses. The frequency is higher in women, especially in reproductive age, and the burden varies globally. In India, the prevalence of migraine is 25%; this is higher than the global prevalence of 14.7%. The scoping review is undertaken with an aim to synthesize existing literature that summarizes the impact of migraine on productivity among working professionals, with a focus on its determinants in India. **Methods**: A systematic scoping review, with a comprehensive search strategy, was conducted across major databases. Eligibility criteria for studies to be included focused on prevalence, economic and observational studies involving adults aged 18 and older diagnosed with migraines. Studies conducted from January 2014 to October 2024 in Low- and Middle-Income Countries (LMICs) were included. Data extraction was standardized, capturing key study characteristics. The methodological quality of included studies was assessed using the JBI score checklist for the assessment of cross-sectional and prevalence studies. The pooled estimates for productivity loss were

collated from individual studies and adjusted per capita national income. This pooled productivity loss was used to estimate the per day economic loss based on per capita income. **Results**: The systematic search identified 11 relevant articles for LMICs that provided insights into the impact of migraines on productivity and economic outcomes. The evidence highlighted that migraine-related productivity losses ranged from 3% to 4.3% of productive time, translating to significant financial implications. Evidence from India suggests one-year prevalence of migraines is approximately 14.12% to 28.99%, affecting around 213 million cases annually. The pooled analysis obtained from two studies shows that productivity loss due to migraine is 17.3 days per year. This was found to be INR 8731/- annually based on daily per capita income. Taking the prevalence of migraine in India, it leads to a total economic loss of about INR 18,674.35 crore (approximately USD 22.21 billion). This significant burden emphasizes the urgent need for effective healthcare interventions to address and manage migraine. **Conclusion**: Migraines impose a significant threat to the economy and productivity in India, especially for working professionals and women in their prime working years. Addressing migraine as a public health priority through awareness, early diagnosis, and effective management will not only improve quality of life but also enhance national productivity and economic growth of the country.

Saha et al. 2025.

The Journal of Headache and Pain, vol. 26, no. 1.

Keywords: Economic burden; migraine prevalence; productivity loss; quality of life; work place impact.

Evidence Level: 1A

Link: https://thejournalofheadacheandpain.biomedcentral.com/articles/10.1186/s10194-025-02112-1

Invisible burdens: Gender-specific associations between migraine and work-family conflict: Insights from the SMILE project - A cohort study

Background: Migraine, a neurovascular disorder that affects quality of life, with peak prevalence during individuals' most productive working years. Work-family conflict (WFC), a well-documented source of stress, occurs when work and family responsibilities interfere with each other. While migraine has been associated with occupational impairment, its association with WFC remains underexplored. The present study examines the association between migraine diagnosis, severity and WFC, stratified by gender. **Methods**: This study analyzed data from the SMILE cohort, a subset of the Negev Migraine Cohort. Participants with and without migraine were recruited and completed a structured questionnaire assessing WFC. The main exposures were migraine diagnosis and severity, measured using the Migraine Disability Assessment (MIDAS) score. The primary outcome was WFC. Covariates included sociodemographic characteristics, employment factors, and psychological distress (Depression, Anxiety and Stress Scale - 21 Items (DASS-21)). Statistical analyses involved multivariable gamma generalized linear mode regression models and quantile regression to examine associations, adjust for potential confounders and effect modification by gender. **Results**: In total, 675 migraine patients and 232 non-migraine participants were included in the study; 80.6% of migraine patients were female. Severe disability (MIDAS score ≥21) was reported by 65.0% of migraine patients, with employment rates of 89.2% for females and 93.1% for males. Migraine patients worked longer hours per week (median 40.0 vs. 36.0 hours for females, and 48.0 vs. 42.0 hours for males) and were more likely to work over 42 hours per week (18.2% vs. 7.0% for females and 32.8% vs. 8.7% for males, standardized mean difference = 0.487). Migraine diagnosis was associated with higher Work To Family and Family To Work strain-based conflict scores among males (β = 0.43, 95% confidence interval = 0.06-0.78, p = 0.03 and β = 0.35, 95% 95% confidence interval = 0.03-0.66, p = 0.04, respectively); however, no statistically significant associations were observed among females. Higher migraine severity (MIDAS) was correlated with greater WFC, with the effect more pronounced at higher levels of migraine disability and more strongly associated with men ($p < 0.01$ for all). **Conclusions**: Migraine is associated with higher WFC, especially in strain-based domains, with a stronger effect in men. Greater migraine severity further amplifies this conflict. These findings emphasize the need for workplace and clinical strategies to support migraine patients in managing work-life balance.

Peles et al. 2025.

Cephalalgia, vol. 45, no. 8.

Keywords: Absenteeism; gender differences; migraine severity; presenteeism; strain-based; work–-family conflict; work–family conflict.
Evidence Level: 4B
Link: https://pubmed.ncbi.nlm.nih.gov/40820314/

The impact of spinal cord stimulation on patients' ability to work and work-related outcomes

Introduction: Chronic low back pain is one of the most common causes of absence from work. This not only has economic consequences but also affects the mental health of patients. Furthermore, returning to work is one of the main concerns of patients with chronic pain. Spinal cord stimulation (SCS) has shown its effectiveness in pain reduction and quality of life in many studies. Work-related outcomes have often been neglected or only marginally documented. **Objective**: The aim of this study is to examine specific work-related data of the patients before and after surgery and to assess the influence of SCS on the ability to work with a review of the literature. **Materials and methods:** This is a single-center retrospective study with prospective data collection. All patients were operated on by the same surgeon at the University Hospital Bern between October 2018 and October 2022. Data were collected during postoperative follow-up and by telephone call. In addition, a literature search was conducted to identify previous research on this topic. **Results**: Of the 26 patients included in this study, 18 were on disability leave before SCS whereas eight were still working. After SCS, five of the 18 patients on disability leave were able to return to work within a mean period of 58.3 weeks with a standard deviation of 33.59 after surgery, with a workload of ≥20%. Two of these patients transitioned to a new profession. This corresponds to a return-to-work (RTW) rate of 27.8% for patients previously unemployed in our study. Among the eight patients who were employed before SCS, all were able to resume work. Those who had been working full-time (n = 4) maintained their full workload, whereas the four patients who had previously reduced their workload were able to sustain or even slightly increase their employment percentage. **Conclusion**: Our study shows a positive impact of SCS on the patients' work ability with an RTW rate of 27.8%. The findings not only indicate a favorable influence on patients' health and well-being but also create positive economic implications.

Gazozcu et al. 2025.
Neuromodulation, vol. 28, no. 6.

Keywords: Ability to work; chronic low back pain; persistent spinal pain syndrome; return to work; spinal cord stimulation.
Evidence Level: 4B
Link: https://www.neuromodulationjournal.org/article/S1094-7159(25)00143-6/fulltext

Employees' experiences of chronic pain in the workplace

Background: Between one-third and one-half of the UK population is affected by chronic pain. Effectively supporting people with chronic pain at work requires an understanding of employees' experiences and expressed support needs. **Aims**: To understand how chronic pain affects people in their place of work, their reported support needs with relation to self-managing their chronic pain at work, and views towards the support provided by their employers. **Methods**: Qualitative study involving semi-structured interviews conducted with working-age adults who experience chronic pain and are employed in organizations in England. Data were analysed thematically and inductively. **Results**: Thirteen employees were interviewed (12 female, 1 male; aged 19-58 years). Four themes and 12 sub-themes were identified: (i) flexibility (hybrid working, working hours, manager support), (ii) inadequate support services (underdeveloped policies, poorly trained staff, inaccessibility), (iii) working conditions (equipment and adjustments, nature of job, being overworked), and (iv) perception of pain (stigma and discrimination, awareness and knowledge, support networks). **Conclusions**: This study provides insights into a range of factors that are described as helping or hindering the self-management of chronic pain at work. While support needs vary, inequities in workplace provisions and support are described. Occupational health and well-being services are described as not uniformly accessible, and workplace policies relating to chronic conditions or disability as vague. Line

managers are described as playing a critical role in employee experiences, but are often perceived to lack the knowledge and training to address employees' support needs.
Blake et al. 2025.
Occupational Medicine, vol. 75, no. 5.

Keywords: Chronic pain; workplace; experience.
Evidence Level: 5B
Link: https://academic.oup.com/occmed/article/75/5/250/8178758?login=false

Occupational Exposure

Occupational benzene exposure and risk of male genital cancers: A systematic review and meta-analysis

Background: Benzene is an established Group 1 carcinogen due to its leukemogenic properties. Recent studies suggest that occupational benzene exposure may be associated with solid cancers. However, little is known about its association with male genital cancers. We aimed to summarize the scientific evidence on occupational benzene exposure and the risk of male genital cancers. **Methods**: We searched for relevant articles in three electronic databases. Methodological quality and the certainty of evidence were evaluated using a modified version of the Newcastle-Ottawa Scale (NOS) and Grading of Recommendations Assessment, Development and Evaluation (GRADE) assessment tool. We performed pooled and stratified meta-analyses, as well as meta-regressions to explore potential sources of heterogeneity. **Results**: Thirty-one publications were included. Pooled results of incidence and mortality for prostate and testis cancer did not indicate a significant association with occupational benzene exposure. A borderline association was found for the incidence of prostate cancer (standardized incidence ratio (SIR): 1.07, 95% CI 0.97-1.19). Subgroup analyses stratified by study design and study quality revealed significant heterogeneity, with case-control (relative risk (RR): 1.19, 95% CI 1.04-1.36) and high-quality studies (RR: 1.22, 95% CI 1.14-1.31) showing an increased risk. Both NOS and GRADE assessments yielded mostly low to very low-quality results. **Conclusions**: This review provides no clear evidence of an association between occupational exposure to benzene and the risk of male genital cancers. Subgroup analysis suggests an increased risk of prostate cancer in high-quality studies. Nevertheless, it is important to acknowledge the methodological limitations of the available studies. Further analyses including methodologically sound studies are needed to corroborate these findings
Godono et al. 2025.
American Journal of Industrial Medicine, vol. 68, no. 8.

Keywords: Benzene; male genital cancer; occupational exposure; occupational health; prostate cancer.
Evidence Level: 1A
Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.23740

An integrated strategy for preventing and rehabilitating dust-induced occupational bronchopulmonary diseases: A scoping review

Background: Occupational bronchopulmonary diseases (OBPDs)-including pneumoconiosis, silicosis, and occupational COPD-remain a pressing public health issue, especially in regions with intensive mining, metallurgy, and construction industries. Caused by chronic inhalation of fibrogenic dusts, these conditions are often diagnosed at late stages, resulting in irreversible lung damage and diminished work capacity. **Methods**: A scoping review was performed using the Arksey and O'Malley framework, with methodological refinements from the Joanna Briggs Institute. Following PRISMA-ScR guidelines, we searched PubMed, Scopus, and gray literature for publications from 2014 to 2024. After screening 1761 records and full-text review, nine studies were included in the final synthesis, comprising two systematic reviews, two narrative literature reviews, and five observational studies. **Results**: Key risk factors identified included prolonged exposure to silica and coal dust, tobacco use, and genetic susceptibility. Diagnostic delays were attributed

to the underuse of high-resolution CT and exhaled nitric oxide analysis. Several studies highlighted the diagnostic value of oxidative stress and inflammatory markers (e.g., IL-6, TNF-α). Nutritional rehabilitation and polyphenol-enriched herbal therapies were associated with improved respiratory function and quality of life. However, these strategies remain underutilized, particularly in low-resource settings. **Conclusions**: A coordinated, biomarker-driven approach integrating early diagnosis, dust exposure control, and tailored rehabilitation is urgently needed. Multidisciplinary models may reduce the clinical and socioeconomic burden of OBPDs.

Gulyayev et al. 2025.

Advances in Respiratory Medicine, vol. 93, no. 4.

Keywords: Chronic obstructive pulmonary disease; prevention; scoping review.

Evidence Level: 1A

Link: https://www.mdpi.com/2543-6031/93/4/30

Wearable device-based interventions in heat-exposed outdoor workers: A scoping review and an explanatory intervention model

Background: Global climate change poses a challenge to the health prevention of heat-exposed outdoor workers. Interventions with mobile or wearable devices monitoring physiological and environmental parameters may be one solution to maintain and promote their health. Based on the recognized potential of wearables in mitigating heat stress, a detailed analysis of the contextual factors, mechanisms, and outcomes of wearable device-based interventions is lacking. A scoping review was carried out to address the objectives of contextual analysis, fundamental mechanisms, and an assessment of outcomes to propose an explanatory intervention model based on the findings. **Methods**: Web of Science and PubMed databases were searched by search strings related to (1) wearables (2), outdoor workers, and (3) heat stress. Study characteristics and relevant data regarding the context-mechanism-outcome configurations were extracted and analyzed. **Results**: Out of 410 articles detected, 19 publications were eligible for in-depth review. Wearables are well-accepted for the prevention of heat stress symptoms. By recording relevant indicators, i.e., heart rate and temperature, real-time health alerts can be issued as risk-based early warnings, and personalized feedback or recommendations towards behavior adaptation can be generated. A high risk of occupational heat stress was identified for construction, agriculture, and groundwork workers. Heat-exposed outdoor workers were mainly young to middle-aged males and often overweight or obese, with increased heart and breathing rates in hot work environments. Wearable device-based interventions are particularly effective if a mindset of safety culture is present in the workplace and environmental health literacy is promoted to increase heat risk awareness and willingness to change work health behavior. **Conclusion**: Based on these findings, we developed an explanatory intervention model. This model draws on well-established frameworks, theories, and models. It helps to identify, describe, and explain what works, for whom, and under what circumstances in the context of wearable usage in heat-exposed outdoor workers. Incorporating environmental health literacy and precision prevention in occupational health approaches with continuous monitoring of environmental and physiological parameters will allow for real-time, tailored feedback, leading to more effective heat stress prevention.

Friedrich et al. 2025.

BMC Public Health, vol. 25, no. 1.

Keywords: Devices; environmental health literacy; health; heat strain; heat stress; heat-related illness; sensors; workplace.

Evidence Level: 1A

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-24262-2

Environmental and occupational exposure to erionite and related health risks: Progress and prospects

Objectives: Erionite, a naturally occurring fibrous zeolite classified as a human carcinogen, is believed to be more potent than asbestos in causing mesothelioma. However, unlike asbestos, erionite has rarely been used for commercial purposes and, as a result, knowledge about exposure pathways is limited. This paper

provides a narrative review of the current knowledge regarding the associations between erionite exposure, health effects and exposure circumstances. **Methods**: Medline/PubMed and Scopus were systematically searched up to the end of 2024 using keywords related to erionite exposure and health outcomes. **Results**: We identified 26 peer-reviewed journal articles reporting on the health effects of erionite exposure, specifically mesothelioma and lung cancer, with mesothelioma being the most extensively studied outcome. Of these, 12 studies focussed on erionite-exposed populations in Turkey, 8 examined health effects among Turkish migrants in northern Europe, and 6 investigated erionite-related health risks in North America (3 in the United States and 3 in Mexico). These studies showed a very high incidence of mesothelioma, often in relatively young individuals, from the Cappadocia region of Turkey, with well-documented environmental exposures to erionite, contributing to a high proportion of all deaths (21% to 51%) in affected villages. Evidence of lung cancer associated with erionite exposure was also found. There is also evidence of erionite exposure-associated mesothelioma in Guanajuato, central Mexico. In the United States, erionite exposure-associated health effects (not mesothelioma) have been reported among people occupationally exposed to erionite. Studies on environmental exposures have shown outdoor concentrations ranging from 0.001 f/ml to 0.3 f/ml, while indoor concentrations have ranged from 0.005 to 1.38 f/ml. Occupational exposure to erionite has been less studied, with only one study in forestry workers showing elevated exposures to erionite ranging from non-detectable to 0.36 f/cc. Erionite deposits have also been identified in other countries such as Italy and New Zealand, but exposures and associated health effects have not yet been studied in these regions. **Conclusion**: There is clear evidence that environmental exposure to erionite in the Cappadocia region of Turkey, and Guanajuato in central Mexico are causally associated with the high mesothelioma rates observed in these areas. Evidence for other parts of the world where there is naturally occurring erionite is limited. This review has highlighted significant knowledge gaps, and advocates for further research on occupational exposure to erionite fibres and associated health effects.

Chen et al. 2025.

Annals of Work Exposures and Health, vol. 67, no. 9.

Keywords: Asbestos; environmental exposure; erionite; exposure limits; mesothelioma; occupational exposure.

Evidence Level: 1A

Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC12313451/

Occupational risk factors for kidney disease: A comprehensive review

Chronic kidney disease (CKD) is a major global health concern, with traditional risk factors such as diabetes and hypertension well established. However, emerging evidence suggests that occupational exposures could play a significant role in CKD development. This review comprehensively summarizes the current evidence concerning occupational risk factors contributing to kidney disease, including exposure to heavy metals (lead, cadmium, mercury, chromium), organic solvents (trichloroethylene, methanol, ethylene glycol), heat stress, and job-related stress factors (occupational stress, long working hours, shift work). Epidemiological studies indicate that nephrotoxic agents contribute to renal dysfunction through oxidative stress, mitochondrial damage, and impaired ion transport. Industries such as manufacturing, agriculture, and mining pose particularly high risks due to hazardous exposures. While strong evidence links nephrotoxic metals and solvents to early renal dysfunction, the long-term effects of chronic low-dose exposure remain unclear. Additionally, heat stress-related CKD, particularly Meso-American nephropathy, highlights the growing concern of climate-related occupational risks. Job-related stress factors, including long working hours and shift work, may further accelerate CKD progression through stress-induced hypertension and metabolic disturbances. Given the substantial public health implications, preventive strategies should focus on reducing workplace exposures, implementing heat stress management programs, and addressing the impact of job-related stress factors.

Park et al. 2025.

Journal of Korean Medical Science, vol. 40, no. 31.

Keywords: Chronic kidney disease; occupational exposure; renal insufficiency, chronic; risk factors; workplace.
Evidence Level: 1A
Link: https://jkms.org/DOIx.php?id=10.3346/jkms.2025.40.e224

A review of lead exposure source attributional studies

Despite the global phase-out of leaded gasoline, lead poisoning is estimated to cause 5.5 million premature deaths and the loss of 765 million IQ points annually. However, the contributions of different lead exposure sources to blood lead levels (BLLs) are poorly understood. We conducted a systematic literature review using the Scopus database, examining 39 studies that attribute BLLs to specific sources of lead exposure, published since the year 2000 and with sample sizes >100. The 39 studies were from 26 countries; 22 were from low- and middle-income countries, with an average sample size of 1003 participants. Twenty-three of the studies reported absolute BLL impacts (µg/L) from lead exposure sources, other studies reported odds ratios for elevated BLLs (>50 or > 100 µg/L). Averaged across the studies, the BLL impacts were 42.3 µg/L from living near industrial lead pollution hotspots, 31.4 µg/L from occupational and take-home exposure, 28.0 µg/L from deteriorated paint, 19.8 µg/L from traditional medicines and cosmetics, 19.3 µg/L from foodware (glazed ceramics and melamine plates), 17.3 µg/L from smoking, 15.4 µg/L from foods, and 12.9 µg/L from geophagy. Only one of the reviewed studies assessed the BLL impact of metal cookware, and did not find a significant relationship with BLLs. However, the statistical power of the attributional studies to detect relationships with BLLs was often limited. Future studies should investigate the ingestion routes from industrial pollution, the contamination of foods and spices, BLL impacts of lead-contaminated metal cookware, and traditional medicines administered to young children and infants.

Kinally et al. 2025.
Science of The Total Environment, vol. 990.

Keywords: Blood lead level; burden of disease; lead exposure; lead poisoning; source attribution.
Evidence Level: 1A
Link: https://www.sciencedirect.com/science/article/pii/S0048969725014792?via%3Dihub

Welding fume in the Western Australian mining industry: Impact of a change to the workplace exposure standard

The aim of this study was to analyse the Western Australian (WA) Safety Regulatory System (SRS) database to assess compliance of the WA mining sector regarding workers exposure to welding fumes and to identify trends over time. De-identified data analysed to assess the impact of reducing workplace exposure standards (WES) for general welding fumes on industry compliance. Historical trend analysis shows a shift from 100% compliance to 100% non-compliance, based on mean values and 95% confidence intervals, with exposure levels remaining consistent over time. These findings highlight the need for current, innovative engineering solutions, and raise questions about the validity of current sampling methods. Powered air-purifying respirators (PAPRs) integrated with welding helmets can reduce exposures by up to 99.96%, making their adoption as industry best practice critical, yet current sampling methodologies measure welding fume levels outside PAPRs, thus potentially misclassifying workers who are adequately protected as non-compliant. The sampling method is also influenced by other particulate matter present in the workplace that may be due to grinding or other dust generating activities in the vicinity of the welder. Lower WES values necessitate a review of exposure assessment and reporting methods to accurately reflect worker exposures.

Oosthuizen et al. 2025.
International Journal of Environmental Research and Public Health, vol. 22, no. 8.

Keywords: Exposure assessment; sampling; welding fume.
Evidence Level: 4A

Link: https://www.mdpi.com/1660-4601/22/8/1238

Medical surveillance of occupational lead exposure using the EPA's toxics release inventory and adult blood lead epidemiology and surveillance Program: Illinois, 2016-2023

Background: Despite existing regulations mandating exposure control, training, and monitoring, many worksites continue to inadequately protect workers from lead exposure. The Environmental Protection Agency (EPA) requires facilities to report lead emissions to the Toxics Release Inventory (TRI), presenting a potential tool for identifying at-risk worksites. Research has demonstrated that facilities responsible for high levels of environmental pollution often have poor occupational hygiene controls. **Methods:** We linked EPA's TRI, the Illinois Adult Blood Lead Registry and business employer data. Using generalized estimating equation (GEE) models, we evaluated the relationship between lead emissions and blood lead testing to estimate the number of potentially exposed workers at sites without medical surveillance of lead exposures between 2016 and 2023. **Results:** Of 477 Illinois facilities reporting lead emissions, 8.2% (n = 39) were above-threshold polluters. Only 3.98% (n = 19) reported blood lead testing for 2 or more workers between 2016 and 2023. Average annual on-site emissions were 86 pounds for below-threshold polluters, 2601 pounds for facilities providing medical surveillance, and 16,917 pounds among above-threshold polluters without medical surveillance. Among the 39 above-threshold worksites without medical surveillance, the GEE model estimates that (range low-to-high) 7 to 684 workers annually had positive blood lead levels, and 10 to 256 workers had levels ≥ 25 µg/dL. The models indicate that the majority of estimated exposed workers would be employed at 15 worksites. **Conclusions:** Among facilities reporting above-threshold lead releases, workers rarely received blood lead testing. EPA's TRI data can identify facilities where compliance with the OSHA lead standards is inadequate and can help prioritize worksites for outreach.

Abasilim et al. 2025.

American Journal of Industrial Medicine, vol. 68, no. 8.

Keywords: ABLES; TRI; lead; lead testing; medical surveillance.

Evidence Level: 4B

Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.23738

Silica exposures and silicosis incidence in the Western Australia mining industry

Background: Silicosis has historically been an issue in the Western Australian mining industry. **Aims**: To determine the magnitude of exposures to atmospheric respirable crystalline silica (RCS) in mine workers recorded between 1986 and 2023 and if those exposures risk health effects. **Methods**: We used descriptive statistics to compare RCS exposures in mining job types. We identified high exposure occupations and modelled their resulting lung silica burden using known toxicokinetic parameters. These were compared with critical lung silica burdens for alveolar inflammation, soft macules, fibrosis and progressive massive fibrosis. We compared the miners' RCS exposures with historical silicosis cases in Western Australia's mine workers. **Results**: The geometric mean of more than 130 000 RCS results between 1986 and 2023 was 0.008 mg/m3. Exposures in exploration jobs were higher than in jobs on established mine operations (0.013 vs 0.007 mg/m3). Overall, exploration drilling assistant jobs and laboratory work were the two highest exposed cohorts, and modelling of steady state lung burden predicted 7.5 and 5.7 mg/lung, respectively, values an order of magnitude less than that associated with inflammation, and two orders of magnitude less than that associated with fibrosis. There have been 4 confirmed and 3 other possible cases of silicosis in more than 2 million person-years of mine work in WA since 1986. **Conclusions**: The low incidence of silicosis in the WA mining industry over the past 20 years is consistent with the estimated low silica lung burdens resulting from work-related exposures, which are significantly lower than the silica lung burdens typically associated with silicosis in the literature.

Harman et al. 2025.

Occupational Medicine, vol. 75, no. 5.

Keywords: Silica exposures; silicosis; Western Australia; mining industry.

Evidence Level: 4B

Link: https://academic.oup.com/occmed/article/75/5/227/8209985?login=false

Burden of laryngeal cancer attributable to occupational asbestos exposure in China: A comprehensive analysis from 1990 to 2021

Background: Laryngeal cancer attributable to occupational asbestos exposure remains a significant public health concern, particularly in industrialized regions. This study analyzes the burden, trends, and contributing factors of laryngeal cancer due to asbestos exposure in China from 1990 to 2021. **Methods**: Data were obtained from the Global Burden of Disease Study (1990-2021). We analyzed age-standardized death rates, disability-adjusted life years (DALYs), years lived with disability (YLDs), and years of life lost (YLLs). Temporal trends were assessed using joinpoint and decomposition analyses, and an age-period-cohort (APC) model was applied to examine mortality and DALY trends across different cohorts. **Results**: In 2021, there were 234 deaths and 4,430 DALYs due to laryngeal cancer attributable to occupational asbestos exposure, predominantly affecting males. Mortality rates declined from 1990 to 2008, followed by a rise until 2012, and a subsequent decline. YLDs showed a consistent increase over time. APC analysis revealed higher mortality and DALY rates in older age groups and earlier birth cohorts. Decomposition analysis indicated that epidemiological changes were the largest driver of increased deaths in men, followed by population growth and aging. For DALYs, aging and population growth were key drivers, while epidemiological changes mitigated the burden. **Conclusions**: The burden of laryngeal cancer attributable to asbestos exposure has declined overall, but disability rates continue to rise, particularly among males. Effective strategies targeting prevention, early detection, and management of asbestos exposure are needed to reduce the disease burden in China.

Chen et al. 2025.
PLoS One, vol. 20, no. 8.

Keywords: Laryngeal cancer; occupational asbestos exposure; China.
Evidence Level: 4B
Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0330878

Occupational exposure to bioaerosols in the Norwegian salmon processing industry

Objectives: Workers in salmon processing plants are at risk of respiratory diseases. The aim of this study was to describe the Norwegian salmon processing industry in respect to production-related factors that may influence the generation of bioaerosols in the work atmosphere, and to assess salmon processing workers' personal exposure to protein and endotoxin. **Methods**: The study comprised 222 workers from 9 plants. Fullshift personal exposure measurements of total protein (inhalable aerosol fraction, n = 380) and endotoxin (total aerosol sampler, n = 178) were collected on 4 consecutive workdays. Technical and process-related information was collected through plant visits and meetings with technical and production staff. Linear mixed-effect model was used, treating individuals as random effect and work area and work task within areas as fixed effects. **Results**: Plants differed in size, setup, processing procedures, and use of labor along the processing lines. Salmon processing overall geometric mean (GM) exposure to inhalable protein across the plants was highest in filleting area with 4.83 µg/m3 (geometric standard deviation [GSD] 3.16), followed by 3.91 µg/m3 (GSD 2.42) in slaughtering area, and 1.68 µg/m3 (GSD 2.40) in other areas. Endotoxin levels were generally low with the highest levels in slaughtering (GM 0.24 EU/m3; GSD 3.48), followed by other area (GM 0.19 EU/m3; GSD 4.05) and filleting (GM 0.10 EU/m3; GSD 2.51). The overall correlation between inhalable protein and endotoxin (total aerosol sampler) was poor (r = 0.13, P = 0.12). **Conclusions**: Salmon processing workers are exposed to airborne inhalable protein bioaerosols at levels similar to those measured over a decade ago, indicating that a systematic approach to reduce exposure levels is still needed. Given the known health risk, the industry and regulatory bodies need to intensify efforts to reduce exposure and protect workers' health. The variance in exposure levels to inhalable protein across plants, areas, and tasks might form the basis for better exposure-reducing strategies.

Thomassen et al. 2025.
Annals of Work Exposures and Health, vol. 69, no. 7.

Keywords: Bioaerosols; endotoxin; occupational exposure; protein; salmon; seafood processing; work tasks.
Evidence Level: 4B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC12313455/

Occupational exposure to combustion by-products and breast cancer risk in postmenopausal women

Objective: To estimate the association between lifetime occupational exposure to select combustion by-products and postmenopausal breast cancer (BC) risk. **Materials and methods:** Data from a population-based case-control study among postmenopausal women residing in Montréal, Quebec were used. Cases included 661 women aged between 47 and 75 yr, diagnosed with incident malignant BC between 2008 and 2011. Controls comprised 587 women randomly selected from the Quebec Electoral List, frequency-matched to cases by 5-year age groups. Information on risk factors and lifetime occupational histories was collected by interview. Two industrial hygienists used job histories to assign exposure to 293 agents, including 6 combustion by-products (cooking fumes, diesel engine emissions, leaded and unleaded engine emissions, natural gas combustion products, and polycyclic aromatic hydrocarbons [PAHs]). Unconditional logistic regression was used to estimate adjusted odds ratios (ORs) and 95% confidence intervals (CIs) for BC risk, both for all tumours and by tumour molecular subtypes, in relation to occupational exposure to the 6 selected combustion by-products. **Results**: No association was observed between occupational exposure to the 6 selected combustion by-products and postmenopausal BC. However, when considering molecular subtypes, women ever occupationally exposed to PAHs had a suggestive higher risk of Luminal B tumours (ORmodel6 = 2.09, 95% CI: 0.87 to 4.60) compared with those never exposed. Additionally, women ever occupationally exposed to cooking fumes compared with those never exposed had a suggestive higher risk of HER2-enriched tumours (ORmodel6 = 2.63, 95% CI: 0.98 to 6.40). **Conclusion**: Occupational exposure to the 6 selected combustion by-products was not associated with postmenopausal BC. Suggestive higher risks of certain molecular subtypes of BC were observed with exposure to PAHs and cooking fumes. Future larger studies should consider the role of occupational exposures in the aetiology of BC across different molecular subtypes.
Paul-Cole et al. 2025.
Annals of Work Exposures and Health, vol. 69, no. 7.

Keywords: Breast neoplasms; cooking fumes; diesel engine emissions; gasoline engine emissions; natural gas combustion products; polycyclic aromatic hydrocarbons; postmenopause.
Evidence Level: 4B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC12313464/

Risk of preeclampsia and gestational diabetes after occupational exposure to chemicals during pregnancy: A cohort study of births in Sweden 1994-2014

Many women are occupationally active during pregnancy. The aim of this study was to investigate associations between exposure to chemicals during pregnancy and the risk of gestational diabetes or preeclampsia. The cohort included singleton births in Sweden between 1994 and 2014. The cohort was limited to low-educated mothers to reduce potential confounding from unidentified life-style associated factors. Information on occupation (full-time employed) at beginning of pregnancy, demographic data, education, personal risk factors and medical diagnoses were obtained from national records. Occupational exposure to 20 chemicals/particles was assessed by a time-specific job exposure matrix (SweJEM). Relative risks (RR) were adjusted for birth year of the child and mother's age, parity, country of birth, smoking, BMI, and occupational exposure to physical strain, low decision authority, noise, and whole-body vibrations. There were 307,985 births in the cohort. The risk of preeclampsia was elevated after exposure to diesel engine exhaust (RR 1.19; 95 % CI 1.03-1.37), gasoline engine exhaust (RR 1.26; 1.05-1.52) or to carbon monoxide (RR 1.21; 1.03-1.42). Exposure to lead was associated with an elevated risk of gestational diabetes, (RR 2.41; 1.05-5.55), based on six cases only, though. An elevated risk of preeclampsia in association with combustion products is corroborated by studies of traffic-related urban air pollution and of

smoke from wildfires. Exposure to motor exhaust during pregnancy should be minimised. Exposure to lead during pregnancy should be avoided also because of serious neurodevelopmental effects for the child.
Gustavsson et al. 2025.
Environmental Research, vol. 279.

Keywords: Chemical exposure; occupational exposure; pregnancy; pregnancy complications.
Evidence Level: 4B
Link: https://linkinghub.elsevier.com/retrieve/pii/S0013-9351(25)01053-9

Challenges to estimating and managing risks with hexavalent chromium exposure: A mixed-methods study of Swedish workplaces

Using a mixed-methods approach, we assessed understanding of risks from exposure to the non-threshold carcinogen hexavalent chromium (Cr(VI)) among workers (n = 113) and occupational health and safety managers (n = 13) at 14 worksites with potential exposure to Cr(VI). We found that 55% of the workers had a measurable concentration of inhalable Cr(VI), with 19% exceeding 1 µg/m3, a level that corresponds to an "upper risk level" for future EU binding occupational exposure limits over a working lifetime. Additionally, 52% of workers had red blood cell (RBC) Cr concentrations exceeding the 95th percentile of an unexposed control group. Among responding workers (n = 91), 35% reported to perceive to be at no or low risk due to Cr(VI) exposure, 47% to be at some or large risk while 18% stated to be unsure. No correlations were found between reported risk perceptions and measured inhalable Cr(VI), urinary Cr, or RBC-Cr, but a weak correlation to years employed was found. Observations indicated that the hierarchy of controls was not strictly followed. Furthermore, 42% of respiratory protective equipment users used it incorrectly, and only two out the 50 (4%) needing a fit-test reported having performed one. Interviews with the managers revealed a lack of knowledge about the health risks of Cr(VI), and that expectations about exposure levels did not always match measured exposures. Our findings identify knowledge gaps regarding the health hazards of Cr(VI) and highlight the difficulty of estimating workplace exposure and risk without measurements. Based on our findings we recommend efforts to improve knowledge about Cr(VI) health hazards, strengthen the adherence to the hierarchy of controls, and incentivize quantitative exposure assessments.
Schenk et al. 2025.
Annals of Work Exposures and Health, vol. 69, no. 7.

Keywords: Bath plating; carcinogens; mutagens and reprotoxic substances directive; occupational exposure limit values; steel production; welding.
Evidence Level: 4B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC12313444/

The practical impact of indoor temperature on the productivity of prefabricated construction workers using electroencephalogram data

Comprehending the optimal indoor temperature to augment the productivity and cognitive well-being of prefabricated construction workers (PCWs) is essential for enhancing efficiency and safety in construction. Twenty-four workers participated in experiments conducted at indoor temperatures of 24℃, 27℃, 30℃, and 33℃. During the experiments, workers underwent neurobehavioral tests at different indoor temperatures, and thermal sensation and comfort questionnaires were administered post-test to evaluate thermal comfort. Productivity was measured by the accuracy and reaction time in the neurobehavioral tests. Electroencephalogram (EEG) recordings during the tests provided data on attention, mental workload, vigilance, and mental fatigue. The results demonstrate that indoor temperature directly affects workers' productivity and indirectly impacts it through cognitive states and thermal comfort. Analyzing correlations of cognitive state indicators and their changes over time, 27℃ and 30℃ are more conducive to enhancing PCWs' productivity. Furthermore, it was observed that workers' productivity is higher in longer tasks at the same indoor temperature compared to shorter tasks. These results offer practical

guidelines for optimizing indoor temperature to better PCWs' working conditions. By identifying productivity-enhancing temperature ranges, the study provides actionable insights to boost worker efficiency, reduce cognitive strain, and sustain performance.
Bai et al. 2025.
Scientific Reports, vol. 15, no. 1.

Keywords: Cognitive state; electroencephalogram; indoor temperature; prefabricated construction workers; productivity.
Evidence Level: 5B
Link: https://www.nature.com/articles/s41598-025-12024-4

Protecting firefighters from carcinogenic exposure: Emerging tools for PAH detection and decontamination

Polycyclic aromatic hydrocarbons (PAHs) are increasingly recognized as a major contributor to the occupational cancer risk among firefighters. In response, the National Fire Protection Association (NFPA) and other regulatory bodies have recommended rigorous decontamination protocols to minimize PAH exposure. Despite these efforts, a critical gap persists: the absence of real-time, field-deployable devices capable of detecting these invisible and toxic compounds during firefighting operations or within fire stations. Additionally, the lack of effective and optimized methods for the removal of these hazardous substances from the immediate environments of firefighters continues to pose a serious occupational health challenge. Although numerous studies have investigated PAH detection in environmental contexts, current technologies are still largely confined to laboratory settings and are unsuitable for field use. This review critically examines recent advances in PAH decontamination strategies for firefighting and explores alternative sensing solutions. We evaluate both conventional analytical methods, such as gas chromatography, high-performance liquid chromatography, and mass spectrometry, and emerging portable PAH detection technologies. By highlighting the limitations of existing systems and presenting novel sensing approaches, this paper aims to catalyze innovation in sensor development. Our ultimate goal is to inspire the creation of robust, field-deployable tools that enhance decontamination practices and significantly improve the health and safety of firefighters by reducing their long-term risks of cancer.
Ghafar-Zadeh et al. 2025.
Biosensors, vol. 15, no. 8.

Keywords: PAH decontamination; carcinogenic exposure; field-deployable sensors; firefighter health and safety; polycyclic aromatic hydrocarbons (PAHs); portable sensing technologies.
Evidence Level: 6B
Link: https://www.mdpi.com/2079-6374/15/8/547

Sedentary Practices

Impact of occupational sedentary behavior on mental health: A systematic review and meta-analysis

Background: Despite numerous meta-analyses on the effects of leisure time sedentary behavior, the effect of sedentary behavior at work on mental health is largely under debate. We aimed to systematically identify and synthetize the literature examining the association between sedentary behavior at work on mental health. **Method**: PubMed, Embase, Cochrane, and Psycinfo databases were searched for articles reporting risks for mental health due to occupational sedentary behavior. We computed random-effects meta-analysis using all risks and both intermediate and severe levels of mental health issues, following by sensitivity analysis on severe mental health issues using 1) all risks, then only 2) fully adjusted and 3) crude or less adjusted lowest risks (pessimistic models), and 4) fully adjusted and 5) crude or less adjusted highest risks (optimistic models). We conducted meta-regression on possible influencing factors. **Results**: We included 12 studies in the systematic review and 7 in the meta-analysis, for a total of 40,314 workers (35 years old, 65.5% men). Exposure to sedentary behavior at work increased the risk of intermediate and

severe mental health issues by +34% (95 CI 18-49%). All sensitivity analyses on severe mental health issues were also significant, whatever the model: + 35% (12-58%) using all risks, 39% (15-63%) using fully adjusted pessimistic model, + 36% (13-59%) using crude or less adjusted pessimistic model, 85% (27-143%) using fully adjusted optimistic model, + 85% (26-143%) using crude or less adjusted optimistic model. Age may have an increased risk of mental health issue when exposed to occupational sedentary behavior, while high education reduced the risk. **Conclusion**: Our meta-analysis shows that occupational sedentary behavior increases the risk of mental health issue. Inconsistent results precluded robust conclusion for variables that may further influence this risk.

Nasir et al. 2025.

PLoS One, vol. 20, no. 8.

Keywords: Occupational sedentary behavior; mental health.

Evidence Level: 1A

Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0328678

Physical Activity

Does the intervention approach matter for improving 24-hour physical behaviours among overweight and obese Brazilian office workers?

Background: Physical behaviours over a 24-hour period are important for health. However, we do not know if interventions using a "24-hour time-use approach" are more effective in improving 24-hour time-use behaviours than the traditional "reduce sitting at work approach". Thus, the aim of our non-randomised controlled study was to investigate this in a high-risk group of overweight and obese Brazilian office workers. **Methods**: Forty-five office workers were allocated to three non-randomised controlled groups; "Reduce sitting at work" (n = 15) receiving an intervention focused on reducing sitting time at work; the "24-hour" (n = 15) receiving an intervention aiming to reduce sitting at work as well as promoting behavioural changes around 24 hours (e.g., sedentary lifestyle, benefits of physical activity, and healthy sleep hygiene); or "control" (n = 15) without any intervention. Daily time spent in physical behaviours (sitting, standing, active, and in bed) was monitored for 7 days using a thigh-worn accelerometer at baseline, and at the 3- and 6-month follow-ups. Intervention effects were analysed using linear mixed models, adjusted for baseline values, age, and sex, with a compositional data analysis approach. **Results**: At baseline, the demographic characteristics and 24-hour physical behaviours of the groups were similar. No significant intervention effect was observed between the intervention groups for the overall 24-hour composition, except for time-in-bed, which decreased for Reduce sitting at work compared to 24-hour group from baseline to the 6-month follow-up (p-value = 0.02). Compared to the control group, both intervention approaches resulted in less time spent sitting, more time standing, and less time-in-bed from baseline to the 3-month follow-up, but these effects were not sustained at the 6-month follow-up. Notably, domain-specific (i.e., work and leisure) analysis revealed that most changes in the overall 24-hour composition occurred due to changes in behaviours during working hours. **Conclusions**: Among Brazilian overweight and obese office workers, the "24-hour time-use approach" may not lead to better improvements in overall 24-hour composition of physical behaviours compared to the traditional "reduce sitting at work approach".

Brusaca et al. 2025.

BMC Public Health, vol. 25, no. 1.

Keywords: 24-hour physical behaviour; accelerometry; compositional data analysis; obesity; occupational health; public health.

Evidence Level: 3B

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-23957-w

Musculoskeletal Health

Effect of manual handling weight for lifting and carrying on the severity of acute occupational low back pain

Purpose: Preventing the progression of occupational low back pain (LBP) is a critical occupational safety and health concern, alongside reducing its incidence. Manual handling of heavy loads may increase LBP severity. This study investigates the impact of lifting and carrying weights on LBP severity in affected workers. **Methods**: A total of 2418 cases of acute occupational LBP, each resulting in more than four days of absence from work, were analyzed. These cases, reported as industrial accidents in Japan 2018-2019, were categorized into four weight-handling groups: < 10, 10-20, 20-30, and ≥ 30 kg. LBP severity was defined based on the duration of work absence, as determined by a physician's diagnosis at the onset, and was categorized into four groups: 4-7, 8-14, 15-30, and ≥ 31 days. Multinomial logistic regression analysis was conducted to assess the relationship between handling weights and absence duration. **Results**: The odds ratio (OR) for absence of ≥ 31 days compared with 4-7 days increased with heavier handling weights. Notably, workers handling 30 kg or more weights had a significantly higher OR than those under 10 kg (OR: 1.75; 95% CI: 1.11-2.77). The ORs for absence of 8-14 and 15-30 days compared with 4-7 days showed no significant association with handling weight. **Conclusion**: Lifting and carrying heavier loads were associated with increased LBP severity and prolonged work absences. Minimizing manual handling loads may be a practical strategy to reduce the severity of acute occupational LBP and prevent prolonged work absences.
Iwakiri et al. 2025.
International Archives of Occupational and Environmental Health, vol. 98, no. 6.

Keywords:
Evidence Level: 4B
Link: https://link.springer.com/article/10.1007/s00420-025-02148-5

Productivity losses due to long-term back problems in working-age Australians

Importance: Long-term back problems impact an individual's ability to participate in the workforce productively, potentially resulting in financial stress and furthering inequities. Estimates of future productivity losses could inform advocacy and policy making. **Objective**: To estimate the productivity losses of long-term back problems in working-age Australians (aged 15-64 years) over the next 10 years (2024-2033). **Design, setting, and participants**: This modeling study used a dynamic population-level model to simulate the population of working Australians with long-term back problems. Age- and sex-specific prevalence and workforce participation data were obtained from the 2022 National Health Survey. Excess all-cause mortality, absenteeism, and presenteeism data due to long-term back problems were derived from published sources. **Main outcomes and measures:** Primary outcomes were years of life lost, full-time equivalent workers lost, and productivity losses due to long-term back problems. Productivity losses were estimated as productivity-adjusted life-years and associated costs to Australia's gross domestic product (GDP). **Results**: In 2024, 2 950 538 Australians had long-term back problems, which was projected to increase to 3 258 612 million by 2033. Long-term back problems resulted in an estimated loss of 3 394 255 productivity-adjusted life-years over the 10-year period, equating to a loss of more than 638 billion Australian dollars in Australia's GDP. Reducing the relative prevalence and incidence of long-term back problems by 10% was estimated to result in a gain of 41.4 billion Australian dollars in GDP over the 10-year period. **Conclusions and relevance**: In this modeling study estimating future productivity losses from long-term back problems, substantial economic gains could be achieved from reducing the prevalence and impact of the condition. This model highlights the need to assess the effectiveness of interventions on work-related outcomes
Docking et al. 2025.
JAMA Network Open, vol. 8, no. 8.

Keywords: Low-back; productivity; working-age Australians.
Evidence Level: 4B
Link: https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2837937

Strength and perceived effort in repetitive upper-limb tasks: An OCRA method analysis of 900 workers

Background: Work-related musculoskeletal disorders pose a significant burden on the population. The OCRA method plays a key role in assessing the risk associated with repetitive actions of the upper limbs. In this method, muscular force is evaluated based on the rate of perceived effort (RPE) reported by the worker, which can introduce subjective bias into the assessment. This study aims to determine whether testing the worker's handgrip strength can improve the accuracy of the force assessment in the OCRA method. **Methods**: Handgrip strength was measured during the risk assessment process following the OCRA method. Data were divided into specific percentile ranks based on age, gender, height, and handedness.**Results**: 903 workers from 43 different Italian companies were surveyed. There was a significant difference in handgrip strength percentiles stratified by report of an RPE > 2 and those without ($p = 0.047$). Additionally, significant differences were found in perceived effort rates (based on the OCRA method) among workers with different levels of stratified handgrip strength (dominant hand: $p = 0.04$, non-dominant hand: $p = 0.02$). **Conclusions**: Workers performing repetitive upper limb actions at various strength levels experience different perceived effort rates during tasks. These findings suggest that measuring handgrip strength is a crucial component of risk assessments using the OCRA method. To date, this study's sample size is among the largest for this evaluation method; we believe these results could be a significant step forward in improving the risk assessment process for biomechanical overload.

Gobbo et al. 2025.
La Medicina del Lavoro, vol. 116, no. 4.

Keywords: Repetitive upper limb tasks; workers; strength.
Evidence Level: 5B
Link: https://mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16856

Guiding and Supporting Mental Health and Wellbeing

Mental Health

Exploring the link between perceived job insecurity and sickness absence for common mental disorders

Perceived job insecurity is associated with poor mental health, but whether it affects sickness absence is not well understood. The present study examines the association between perceived job insecurity and sickness absence due to common mental disorders and whether changes in perceived job insecurity affects the risk of sickness absence due to common mental disorders. Data are from the Swedish Longitudinal Occupational Survey of Health and include those who participated at least once between 2010 and 2020 (n = 24 049). Two different types of analyses were conducted: (1) logistic regression with adjustments for baseline covariates and (2) pooled logistic regression with inverse probability weights, across 5 emulated target trials assessing onsets and/or offsets of job insecurity versus stable security or stable insecurity, on the risk of sickness absence for common mental disorders. Perceived job insecurity was associated with increased odds of sickness absence for common mental disorders over a 2-year period (odds ratio = 1.38, 95% confidence intervals (CI) 1.13-1.68). We found no statistically significant associations for an onset of job insecurity versus being stably secure (risk ratio (RR) 1.484, 95% CI 0.913-2.055) nor for offset versus stable insecurity (RR 0.855, 95% CI 0.308-1.402). The findings from our emulated target trials were, however, uncertain. Findings suggest that perceived job insecurity increases the risk of sickness absence for common mental disorders. The study implies that efforts to increase employee's sense of security may help reduce rates of sickness absence for common mental disorders if job insecurity is reduced long-term.

Blomqvist et al. 2025.
European Journal of Public Health, vol. 35, no. 4.

Keywords: Job insecurity; sickness; absence; mental disorders.
Evidence Level: 4B
Link: https://academic.oup.com/eurpub/article/35/4/650/8159906?login=false

Socio-demographic, health, treatment, and labour market characteristics of sick-listed employees diagnosed with and treated for a mental disorder in Germany

Purpose: To examine the socio-demographic, health, treatment, organisation, job, and labour market characteristics of 484 German sick-listed employees diagnosed with a mental disorder (MD), along with gender differences. **Methods**: This cross-sectional study used online baseline self-report data from sick-listed employees diagnosed with and treated for a MD, recruited as part of an evaluation trial for a return to work (RTW) intervention (DRKS00026232). Descriptives and t-tests/chi-squared tests were performed. **Results**: Mean age was 42.6 years (range 20-60 years). Nearly 60% were female, 31% highly educated, and more than half fell into lower gross household income groups. Recurrent depression was a common diagnosis. The employees reported moderate depressive symptoms, low RTW self-efficacy, and poor work ability. Gradual RTW was rated the most common workplace accommodation need for RTW. Significant gender differences were found regarding socio-demographic, health, job, and labour market characteristics. **Conclusions**: Despite the majority having permanent, fulltime, white-collar jobs, the results highlight the vulnerability of persons with a diagnosed MD in the labour market, suggesting an urgent need for more clinical and work-directed aftercare. Women seem more disadvantaged than men but not regarding treatment and organisation characteristics, emphasising the importance of addressing gender differences in mental health and practice.
Starke et al. 2025.
Disability and Rehabilitation, vol. 47, no. 17.

Keywords: Germany; mental disorders; clinical treatment; employees; gender; labour market; sickness absence.
Evidence Level: 4B
Link: https://www.tandfonline.com/doi/full/10.1080/09638288.2024.2447376?src=

Bullying, Harassment and Occupational Violence

Gender disparities in workplace violence among Italian healthcare workers: A cross-sectional study

Background: Workplace violence (WPV) is a prevalent issue globally among Healthcare Workers (HCWs). Moreover, WPV may disproportionately impact marginalized groups within the healthcare workforce, such as women and gender minorities. This study aims to examine the prevalence of WPV experienced by HCWs through a gender-focused lens and to investigate factors influencing the risk of WPV. **Methods**: A cross-sectional observational study was conducted over a month in Apulia, Italy, involving employees from major healthcare institutions, including hospitals, Local Health Authorities, selected correctional facilities, and Residences for Execution of Security Measures. The study used the Italian-validated WHO Workplace Violence in the Health Sector questionnaire, modified to include 'Other' in the gender definition. **Results**: 3,259 HCWs participated, representing 88.8% of the 3,670 invited participants. The prevalence of violence incidents within the last 12 months was 29.6% in the HAW group and 57.1% in the CRW group. Within the HAW group, transgender and gender expansive (TGE) workers exhibited a higher prevalence of verbal, physical, and sexual harassment. Logistic regression analysis identified gender, job type, night shifts, interactions with specific patients, and the type of medical settings as significant predictors of experiencing various kinds of violence. **Conclusions**: The study underscores the vulnerability of TGE and female HCWs to workplace violence. These findings underscore the imperative for comprehensive yet gender-sensitive interventions promoting safety, equity, and inclusion in the healthcare workplace.
Stufano et al. 2025.

La Medicina del Lavoro, vol. 116, no. 4.
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Keywords: Gender; gender disparity; workplace violence; healthcare workers; Italian.
Evidence Level: 4B
Link: https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16795

Violence in healthcare workers is associated with disordered eating

Workplace violence (WV) is a ubiquitous risk in healthcare settings where it has been associated with physical and mental health problems. We aimed to investigate the relationship between the violence experienced by healthcare workers (HCWs) and the presence of eating disorders (EDs). During routine health surveillance, 1215 HCWs were questioned about their experience of WV and the short version of the Eating Disorder Examination Questionnaire (EDE-QS) was used to assess their eating behaviors. Sleep quality, stress, and the presence of common mental illnesses and metabolic disorders were also evaluated. HCWs who had experienced one or more assaults in the previous year had a significantly higher EDE score than their colleagues. In a multivariate model, WV doubled the risk of EDs (odds ratio 2.33, confidence intervals 95% 1.30; 4.18, $p < 0.01$). A very significant association was observed between common mental disorders and EDs (OR 1.13, CI 95% 1.04; 1.23, $p < 0.01$), while low sleep quality almost reached a significant level (OR 1.09, CI 95% 0.99; 1.20). The higher frequency of EDs among workers subjected to violence may result from maladaptive coping mechanisms used when stress and mental health problems caused by WV lead to compensatory overeating. However, reverse causation, where WV is induced by stigmatization, cannot be ruled out. Because of the considerable impact EDs have on physical and mental health, productivity, and patient care, healthcare organizations should adopt programs designed to prevent these disorders in HCWs.
Magnavita et al. 2025.
International Journal of Environmental Research and Public Health, vol. 22, no. 8.
User License: *Creative Commons Attribution (CC BY 4.0) (https://creativecommons.org/licenses/by/4.0/)*
Keywords: Anxiety; binge eating; depression; feeding and eating disorder; health promotion; health surveillance; night work; sleep quality; work-related stress.
Evidence Level: 4B
Link: https://www.mdpi.com/1660-4601/22/8/1221

Effect of work organization and demands, violence, health problems and job satisfaction in relation to work stress and social support in prison officers: A cross-sectional study; São Paulo, 2019

Objective: Analyze the effect of work organization and demands, violence, health problems and job satisfaction in relation to work stress and social support in prison officers. **Methods**: This is a cross-sectional study with prison police officers from four penitentiaries in São Paulo. The Demand-Control-Support Questionnaire was used and adjusted multinomial regressions were performed to obtain the odds ratio (OR) and 95% confidence interval (95%CI). **Results**: A total of 265 prison officers participated in the study, and poor satisfaction levels with temperature (OR 4.88; 95%CI 2.02; 11.81) and ventilation (OR 3.12; 95%CI 1.31; 7.41) were found to be associated with high-demand work. Furthermore, working more than 15 years as a prison officer (OR 2.59; 95%CI 1.33; 5.08), reporting physical violence (OR 2.84; 95%CI 1.02; 7.93), psychological violence (OR 2.93; 95%CI 1.55; 5.53), poor satisfaction level with lighting (OR 2.80; 95%CI 1.11; 7.08), noise (OR 3.94; 95%CI 2.15; 7.21), ventilation (OR 2.15; 95%CI 1.20; 3.85), and furniture (OR 2.92; 95%CI 1.52; 5.60) in the workplace were associated with lower social support. **Conclusion**: The worst level of satisfaction with temperature and ventilation was associated with highly demanding work. Furthermore, suffering violence, greater physical demands, and a lower level of satisfaction with workplace conditions were associated with less social support. The need for improvements in infrastructure and in the organization of the work process is highlighted.
Gonçalves et al. 2025.
Epidemiologia e Serviços de Saúde, vol. 34.
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Keywords: Work organization; demands; violence; health problems; job satisfaction; work stress; social support; prison officers.
Evidence Level: 4B
Link: https://www.scielo.br/j/ress/a/dMCTyv8MY8Lg99w4JG4Hhxn/?lang=en

Short-term effects of exposure to workplace bullying on objective sleep: An actigraphy diary study

Exposure to bullying behaviours has been associated with a variety of negative health outcomes, such as sleep complaints. However, the current state of the knowledge is limited regarding the association with objective sleep. The present study investigated the short-term effects of workplace bullying on objective sleep patterns using an actigraphy diary approach. Participants (N = 55) wore actigraphy devices for 10 days to measure sleep parameters such as duration, wake-after-sleep onset (WASO), and the number of awakenings. Multilevel analyses showed that exposure to workplace bullying was directly associated with the three parameters of sleep disturbances, with higher levels of bullying linked to poorer sleep outcomes. Anxiety was also found to mediate this relationship. Specifically, anxiety mediated the association between bullying and WASO and sleep duration. The study contributes valuable insights into the detrimental impact of workplace bullying on objective sleep quality, highlighting the importance of addressing psychosocial stressors in the workplace to promote healthy sleep patterns.
Rodríguez-Muñoz et al. 2025.
Journal of Sleep Research, vol. 34, no. 4.

Keywords: Anxiety; diary; objective sleep; workplace bullying.
Evidence Level: 5B
Link: https://onlinelibrary.wiley.com/doi/10.1111/jsr.14412

Psychosocial Issues

Workload, work-life conflict, and stress amongst mental health professionals: The moderating role of segmentation preference

The nature of the mental health profession inherently puts its workers at risk of heightened psychological stress. This raises the importance of understanding why some mental health professionals show greater resilience when faced with common work stressors than others. One work stressor that has been consistently linked with stress is workload. Research has found that higher workload generally leads to greater work-life conflict, which, in turn, leads to greater stress. The current study aimed to test this mediation model amongst mental health professionals and examined how individuals' preference for segmentation versus integration of work and private life moderates the strength of the pathways in this mediation model. Research participants, consisting of 152 Australian mental health professionals aged 18-69 years (M = 37.58, SD = 12.12), voluntarily completed a 30-min survey capturing workload, work-life conflict, segmentation preference, and stress. In line with expectations, higher workload predicted greater stress via higher levels of work-life conflict. Furthermore, segmentation preference moderated the path between workload and work-life conflict as well as the path between work-life conflict and stress. Simple slopes analyses showed that a stronger (vs. weaker) preference for segmentation was associated with a stronger positive relationship between workload and work-life conflict as well as a stronger positive relationship between work-life conflict and stress. Segmentation preference may thus influence the workload-work-life conflict-stress relationship through two distinct mechanisms. Improving our understanding of such mechanisms facilitates creation of targeted strategies to reduce work-induced stress amongst mental health professionals.
McNeill et al. 2025.
Stress and Health, vol. 41, no. 4.

Keywords: Boundary theory; person environment fit; time pressure; workload; work-family border theory; work-family conflict (WFC).
Evidence Level: 4A
Link: https://onlinelibrary.wiley.com/doi/10.1002/smi.70095

Organizational cronyism and employee psychological withdrawal behavior: The mediating role of disidentification and moderating effect of employability

Grounded in the conservation of the resource theory, this study aims to investigate the impact of organizational cronyism on the psychological withdrawal behavior of employees with the mediating role of organizational disidentification and moderating role of employability. Data were collected in two-time waves from 267 IT employees. The study's findings revealed organizational cronyism increases psychological withdrawal behavior through organizational disidentification. Moreover, employability reduces the negative impact of organizational cronyism on organizational disidentification. This study contributes to the literature on organizational cronyism by highlighting the mediating role of organizational disidentification and the moderating role of employability. The study concludes by highlighting the conclusion, managerial and theoretical implications along with limitations and future research directions.
Xu et al. 2025.
BMC Psychology, vol. 13, no. 1.
User License: *Creative Commons Attribution (CC BY 4.0) (https://creativecommons.org/licenses/by/4.0/)*
Keywords: Conservation of resource theory; employability; organizational cronyism; organizational disidentification; psychological withdrawal behavior.
Evidence Level: 4B
Link: https://bmcpsychology.biomedcentral.com/articles/10.1186/s40359-025-03279-7

Exploration of psychosocial hazards: Core values, justice and fairness, and social support to address workforce well-being

Objectives: Institutions of higher learning have been challenged with high rates of turnover among faculty, administrators, and staff. Pharmacy educators face unique challenges linked to workplace stress and burnout. Efforts from the year-long work of a Council of Faculties and Council of Deans Taskforce led to the adoption of the 6 areas of work-life definitions as they apply to pharmacy academia and the identification of psychosocial hazards within these work-life areas. **Findings**: In this narrative review, we provide example assessments, interventions, monitoring, and additional resources and recommendations within 3 of the 6 work-life areas that include Core Values/Work Boundaries, Social Support, and Justice/Fairness. **Summary**: Within each of these 3 areas of focus, we provide evidence-based recommendations for pharmacy programs to support their employees. For Core Values/Work Boundaries, organizational leaders are encouraged to explore personal values and work-life boundary preferences with employees, with a focus on better integration. For Social Support, institutions should consider ways to integrate social connection into their curriculum and strive to create a culture of connection that brings people together for meaningful contact. For Justice/Fairness, we encourage employers to maintain transparent and consistent practices when distributing workload, salaries, and performance appraisals, and this process should be openly communicated to all employees. A proactive and holistic approach that encompasses individual, departmental, and institutional levels to address psychosocial hazards can create a more supportive and healthier environment to improve employee well-being and reduce turnover rates.
Haines et al. 2025.
American Journal of Pharmaceutical Education, vol. 89, no. 8.
User License: *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) (https://creativecommons.org/licenses/by-nc-nd/4.0/)*
Keywords: Academia; pharmacy faculty; psychosocial hazards; well-being.
Evidence Level: 6B
Link: https://linkinghub.elsevier.com/retrieve/pii/S0002-9459(25)00105-6

Fostering Work Participation

Return to Work

Return to work 10 years after severe trauma

Background: Severe trauma continues to pose a substantial burden on survivors, particularly in terms of long-term physical, psychological, and social functioning. While survival rates have improved, data on long-term outcomes remain limited. This study evaluates ten-year post-injury outcomes in patients with major trauma, focusing on return to work and social participation. **Methods**: In this single-center, retrospective cohort study, adult patients (≥ 18 years) with an Injury Severity Score (ISS) ≥ 9 treated between 2010 and 2013 were surveyed and distributed minimally 10 years later. Patients completed standardized questionnaires assessing sociodemographic and occupational data, functional status, and psychological well-being using the Trauma Outcome Profile (TOP). **Results**: Ninety-one patients completed the follow-up. The mean age at injury was 43.0 years, with a mean ISS of 20.8. Ten years post-trauma, 82.4% of patients had returned to work; 10.6% required vocational retraining, and 25.3% changed occupations. Failure to return to work was significantly associated with higher ISS ($p = 0.027$), increased anxiety ($p = 0.005$), post-traumatic stress disorder (PTSD, $p = 0.039$), and reduced mental functioning ($p = 0.009$), but not with physical functioning ten years after the trauma. Patients with mental health impairments were more likely to experience reduced independence, impaired social participation, and difficulties in activities of daily living. **Conclusion**: A majority of patients successfully reintegrated into the workforce ten years after trauma. Mental health, rather than physical disability, emerged as the primary determinant of long-term occupational reintegration. These findings underscore the necessity for comprehensive, long-term rehabilitation programs that prioritize psychosocial support.

Rusche et al. 2025.

European Journal of Trauma and Emergency Surgery, vol. 51, no. 1.

Keywords: Mental health; polytrauma; quality of life; rehabilitation; return to work.

Evidence Level: 4B

Link: https://link.springer.com/article/10.1007/s00068-025-02950-3

Return to work within 2 years of lumbar fusion: A prospective cohort study

Background and purpose: Return to work is an important objective and measure of treatment success in the working-age population. Many patient-related factors have been shown to be associated with failure to resume working postoperatively. The aim of this longitudinal database study was to determine return to work rates in a 24-month follow-up after lumbar fusion. We also evaluated whether return to work was affected by the physical demand of work or the preoperative dominance of leg or back pain. **Methods**: 348 consecutive patients available to the workforce underwent lumbar fusion. Return to work at 12 and 24 months was evaluated by patient questionnaires. Patients rated the physical demand of work into 3 categories: light, moderately demanding, or demanding. The surgeon identified the predominant symptom preoperatively, dividing patients into back and leg pain groups. **Results**: Return to work was 69% (95% confidence interval [CI] 64-73) and 76% (CI 71-81), at 12- and 24-month follow-ups, respectively. Patients in physically demanding work were less likely to resume working than patients in light work (63% vs 86% at 24 months, respectively). The predominant symptom did not affect return to work. **Conclusion**: In patients of working age, three-quarters of lumbar spine fusion patients returned to work within 2 years of surgery. Work absenteeism was higher in physically demanding occupations and only 60% of the patients with predominant leg pain returned to their physically heavy occupation in the first year following lumbar fusion.

Laurén et al. 2025.

Acta Orthopaedica, vol. 96.

Keywords: Return to work; lumbar fusion.

Evidence Level: 4B

Link: https://actaorthop.org/actao/article/view/43751

Presenteeism and Absenteeism

Multifaceted analysis of presenteeism: Contributions of pain, psychological factors and daily functioning: A cross-sectional study in Japan

Objective: Presenteeism, defined as reduced work efficiency due to health issues despite attending work, accounts for a substantial proportion of labour productivity loss. Although pain significantly impacts presenteeism, the relationship between pain and presenteeism remains poorly understood due to the multifaceted nature of pain, encompassing psychosocial factors and daily functioning. This study aimed to identify which of these factors are significantly associated with presenteeism among employees. **Design**: Cross-sectional study using self-administered questionnaires and generalised additive model analysis. **Setting**: Multiple workplaces (including a university and hospitals) in Japan. **Participants**: Employed individuals (n=212, age range: 20-65 years; 59 males and 153 females) participated. They were recruited through workplace bulletin boards, email announcements and direct invitations. Participants with and without chronic pain were included. **Primary and secondary outcome measures**: Participants completed self-report measures, including the Health and Work Performance Questionnaire (HPQ), Short-Form McGill Pain Questionnaire (SF-MPQ), Pain Catastrophising Scale (PCS), Beck Depression Inventory-second edition (BDI-II), State-Trait Anxiety Inventory (STAI) and WHO Disability Assessment Schedule 2.0 (WHODAS 2.0). **Results**: The results indicated that absolute HPQ was significantly associated with BDI-II scores (F=4.51, p=0.035). On the other hand, relative HPQ was influenced by SF-MPQ (F=3.76, p=0.005), PCS (F=4.16, p=0.014), STAI (F=5.62, p=0.019) and limited daily activities (F=13.25, p=0.00035). **Conclusions**: These findings suggest that presenteeism is multifactorial, with pain, psychosocial factors and daily functioning playing critical roles. Moreover, the impact of depression on presenteeism differs from that of pain and anxiety. Therefore, tailored intervention approaches may be required for each factor, ultimately improving workplace productivity. **Trial registration number:** This study was preregistered at UMIN-CTR (UMIN000054797).

Yoshino et al. 2025.

BMJ Open, vol. 15, no. 8.

Keywords: Back pain; health; psychiatry.

Evidence Level: 4B

Link: https://bmjopen.bmj.com/content/15/8/e100243.long

Wellness Programs

Improving heat stress prevention through targeted education in hot and humid workplaces: A study in a foundry industry

Background: Heat-related illnesses and deaths are predictable and preventable, while lack of education can increase the associated risks. The aim of this study was to improve heat stress prevention through targeted education in hot and humid workplaces. **Method**: This intervention study with a pre-posttest design was conducted in 2023 on 50 workers in a foundry industry. Initially, by literature reviewing valid scientific databases, factors related to the perception and awareness, knowledge, and functionality (PAKF) of the workers were identified. Subsequently, the face validity of the questionnaire was determined based on the opinions of nine experts in the field of occupational heat stress. The content validity and reliability of the questionnaire were determined using the Content Validity Ratio (CVR), Content Validity Index (CVI), and Cronbach's alpha coefficient. A two-session (180 min each) educational intervention related to preventing occupational heat stress was implemented, and the results were compared using covariance analysis. Gathered data were analyzed using Excel v.2019 and SPSS v.26 software. **Result**: The study results indicated that out of 53 items designed, ultimately 27 items were confirmed, with CVI, CVR, and Cronbach's alpha coefficient values of 0.94, 0.78, and 0.76, respectively. Conducting exploratory factor analysis led to the confirmation of 7 factors explaining 50% of the total variance, and all 27 questionnaire items showed acceptable intercorrelations. Furthermore, implementing a heat stress management program resulted in improvement in the PAKF of the intervention group compared to the control group ($P < 0.001$).

Conclusions: The results of this study demonstrate that a comprehensive educational program related to the prevention of heat stress can lead to an improvement in the level of the PAKF of workers in hot working environments. Therefore, there is a need to enhance the PAKF of workers regarding heat-related hazards, strengthen training, and update current heat prevention policies to ensure compliance and implementation.
Esmaeili et al. 2025.
BMC Public Health, vol. 25, no. 1.
User License: *Creative Commons Attribution (CC BY 4.0) (https://creativecommons.org/licenses/by/4.0/)*
Keywords: Educational intervention; functionality; heat stress; knowledge; perception and awareness.
Evidence Level: 3B
Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-23851-5

Organisational Issues

Advancing employer cultures of health and well-being: Lessons for business coalitions and employers

Objective: The aim of the study was to determine the impact of a collaborative effort by employers to improve their organizations' cultures of health and well-being. **Methods**: The Centers for Disease Control and Prevention Foundation partnered with two organizations to help employers use an established methodology-an industry-validated baseline assessment, along with a strategic roadmap and guidance from physician executive experts. Employers implemented this approach and simultaneously participated in a structured monthly learning collaborative. **Results**: The average projected improvement in the culture of health scores from baseline to year end was 80 points, moving from 60% to 71% achievement of the benchmark score. **Conclusions**: This research demonstrates that employers working collaboratively and following an appropriate sequence of scientific-based approaches can demonstrate a positive trend in organizational cultures of health and well-being scores pointing to the possibility of sustainable culture change.
Fabius et al. 2025.
Journal of Occupational and Environmental Medicine, vol. 67, no. 8.
User License: *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) (https://creativecommons.org/licenses/by-nc-nd/4.0/)*
Keywords: Collaborative approach; community health; culture of health; employers; occupational health; population health; well-being.
Evidence Level: 5B
Link:
https://journals.lww.com/joem/fulltext/2025/08000/advancing_employer_cultures_of_health_and.1.aspx

Shift Work

Which individually-directed non-pharmacological interventions are effective at improving sleep outcomes in shift workers? A systematic review of systematic reviews

Shift work can result in sleepiness, increasing risks of accidents, absenteeism and illness. Systematic reviews have examined individually-directed non-pharmacological interventions (e.g., light therapy, napping) for shift workers, but the diversity of interventions, settings and review conclusions make it difficult to determine which interventions work. We conducted a systematic review of systematic reviews to appraise evidence for such interventions to improve sleep or reduce sleepiness in shift workers. Six databases were searched and screened with good reliability. Two reviewers independently extracted data from all identified reviews, and a narrative synthesis was conducted. Twenty-eight systematic reviews were included, containing 69 primary studies involving 4947 participants. Twenty-three reviews were critically low-quality. The most-investigated interventions were light therapy (n = 8 reviews) and napping (n = 7 reviews). High-quality reviews suggested inconclusive evidence for which interventions improved sleep quality, sleep quantity and subjective sleepiness in shift workers, although lower quality reviews indicated

light therapy, napping, physical activity, dietary supplements, mobile health apps and mindfulness may be effective. We have identified several promising interventions to improve sleep or reduce sleepiness in shift workers, although none met high-quality thresholds. More rigorous and high-quality trials should focus on these promising interventions.
Hawkes et al. 2025.
Sleep Medicine Reviews, vol. 82.

Keywords: Occupational health; shift work; shift work related sleep disturbance; sleep.
Evidence Level: 1A
Link: https://www.sciencedirect.com/science/article/pii/S1087079225000632?via%3Dihub

Alertness after night shifts among workers in the aluminium industry

Objective: This case-crossover study aimed to evaluate changes in alertness following night shifts among workers in the aluminium industry, and the potential impact of the number of consecutive night shifts and shift length. **Methods**: We estimated alertness on 87 aluminium workers by a 3-minute version of the Psychomotor Vigilance Test after both day and night shifts. Linear mixed models were used for statistical analysis. **Results**: The level of alertness was significantly lower after three and four consecutive night shifts, compared with after a day shift. No significant differences in alertness were observed between three and four consecutive night shifts, nor between periods of three consecutive 8 + 8 + 8-hour versus 8 + 12 + 12-hour night shifts. **Conclusions**: Our findings indicate reduced alertness after three and four consecutive night shifts, compared with after day work. No significant dose-response effect was observed.
Pedersen et al. 2025.
Journal of Occupational and Environmental Medicine, vol. 67, no. 8.

Keywords: Neurobehavioral performance; night work; occupational health; psychomotor vigilance task; reaction time; shift work; working time.
Evidence Level: 3B
Link:
https://journals.lww.com/joem/fulltext/2025/08000/alertness_after_night_shifts_among_workers_in_the.22.aspx

Association between shift/night work and irregular periods and period pain among two cohorts of Australian women 16 years apart: Findings from the Australian longitudinal study on women's health

Purpose: To examine the associations between shift or night work and irregular periods and period pain among two cohorts of Australian women, using data collected 16 years apart. **Methods:** We used data from the 1989-95 (n = 6,767) and 1973-78 (n = 7,527) cohorts from the Australian Longitudinal Study on Women's Health, when participants were aged 24-30 years. Logistic regression models were used to assess the association between night or shift work and severe period pain and irregular periods, and to compare them to non-shift or night workers. **Results:** Women from the 1989-95 cohort who did night work reported higher odds of having experienced irregular periods (AOR = 1.28, 95% CI: 1.03, 1.59) compared to those who undertook shift work. However, there was no association between night work and severe period pain (AOR = 1.10, 95% CI: 0.86, 1.41). Among women in the 1973-78 cohort, neither severe period pain (AOR = 1.20, 95% CI: 0.82, 1.76) nor irregular periods (AOR = 1.38, 95% CI: 0.92, 2.06) were associated with night work. Across both cohorts, no associations were found between shift or night work and irregular or severe period pain when comparing shift or night workers combined to non-shift or night workers.
Conclusions: Night workers reported higher odds of irregular periods compared to shift workers in the 1989-95 cohort; however, no consistent association was found with severe period pain. Future research should investigate whether this association is causal. Supportive workplace practices may benefit night workers experiencing irregular periods.
Alemu et al. 2025.
International Archives of Occupational and Environmental Health, vol. 98, no. 6.

Keywords: Irregular periods; night work; period pain; shift work; women's health.
Evidence Level: 4A
Link: https://link.springer.com/article/10.1007/s00420-025-02152-9

Night shift work and lung cancer risk: A prospective cohort study with mediator analysis from the UK Biobank

Study objectives: This study investigated the association between night shift work and lung cancer risk using data from the UK Biobank cohort of 278 650 participants, while exploring potential biological mediators and gene-environment interactions. **Methods**: Cox proportional hazards models assessed relationships between current night shift status, lifetime duration, and frequency of night shifts with lung cancer incidence. Mediation analyses examined physical measurements, lifestyle habits, blood immune cell parameters, and plasma proteins as potential mediating pathways. Polygenic risk scores evaluated genetic predisposition interactions. **Results**: During a median follow-up of 10.64 years, 1524 incident lung cancer cases were identified. A significant dose-response relationship was observed between increasing categories of current night shift work and lung cancer risk (Shift but never/rarely night shifts HR 1.18, 95% CI = 1.00 to 1.39, p = .047; Some night shifts HR 1.28, 95% CI = 1.06 to 1.55, p = .010; Some night shifts HR 1.19, 95% CI = 0.90 to 1.57, p = .220; p for trend = .004). Smoking plays a significant mediating role in this association. Mediation analysis also identified prostasin (PRSS8), alkaline phosphatase (ALPP), and carcinoembryonic antigen-related cell adhesion molecule 5 (CEACAM5) as key mediators, collectively explaining over 25 per cent of the total effect. **Conclusions**: This study suggests that night shift work, particularly when combined with smoking, is associated with an increased risk of lung cancer. The identification of potential mediators such as prostasin, ALPP and CEACAM5 provides insights into the underlying biological mechanisms. Future research should validate these findings and explore targeted prevention strategies for high-risk populations.
Zheng et al. 2025.
Sleep, vol. 48, no. 8.

Keywords: UK Biobank; lung cancer; night shift work; proteomic mediators.
Evidence Level: 4B
Link: https://academic.oup.com/sleep/article/48/8/zsaf159/8158650?login=false

Health problems, unhealthy behaviors and occupational carcinogens exposures among night shift Brazilian workers: Results from National Health Survey, 2019

Introduction: Night shift work (NSW) has been increasingly addressed in the scientific literature, as it is considered a probable carcinogen. In this study, we investigated the association of NSW with health problems, unhealthy behaviors, and occupational carcinogens. **Methods**: Cross-sectional study with a sample of 47,953 workers from the 2019 National Health Survey. NSW prevalence was estimated according to sociodemographic characteristics. To investigate the associations of NSW with all study variables, gender stratified logistic regression models were used. The odds-ratio and 95% confidence intervals were estimated. **Results**: Among men, there was a significant association of NSW with sleep disorders (OR = 1.39; 95% CI: 1.17-1.65), tiredness (OR = 1.68; 95% CI: 1.41-2.00), obesity (OR = 1.41; 95% CI: 1.20-1.66), unhealthy food consumption (OR = 1.28; 95% CI: 1.12-1.46), handling of radioactive material (OR = 2.45; 95% CI: 1.61-3.72), and biological material (OR = 3.18; 95% CI: 3.15-4.80). Among females, NSW was associated with the same variables except obesity, but depressive feelings (OR = 1.35 95% CI: 1.09-1.67), frequent alcohol intake (OR = 1.48; 95% CI: 1.23-1.78), handling of chemical substances (OR = 1.54; OR = 1.54; 95% CI: 1.20-1.97), and passive smoking at work (OR = 1.45; 95% CI: 1.12-1.86) were highly significant. **Conclusion**: Night shift workers are more vulnerable to occupational carcinogen exposure, experience greater impacts on their well-being, and are more likely to engage in unhealthy behaviors. These findings should be considered in managing and organizing night work in the workplace. Actions to promote healthy work environments should be encouraged to protect workers' health.
Nogueira et al. 2025.
International Journal of Environmental Research and Public Health, vol. 22, no. 8.

Keywords: Lifestyles; night shift work; occupational carcinogens; survey; well-being.
Evidence Level: 4B
Link: https://www.mdpi.com/1660-4601/22/8/1215

A qualitative study on nutrition and well-being of healthcare shift workers

Shift work presents a variety of health challenges. Despite the acknowledged significance of nutrition in supporting health, there is limited qualitative research on the specific dietary habits and nutritional challenges by healthcare shift workers. The present study aimed to explore challenges in maintaining optimum lifestyle behaviours among healthcare shift workers. Forty healthcare shift workers were interviewed in depth individually. The session was audio recorded and transcribed verbatim, and the interviews were conducted either face-to-face or via video call, depending on the participants' preferences. Three key themes emerged: food intake, sleep quality, and physical activity. The participants expressed concerns about meal skipping, irregular meal schedules, food accessibility, lack of sleep, and barriers to physical activity. This study highlighted significant challenges faced by healthcare shift workers in maintaining optimal dietary and other lifestyle behaviours, emphasising the interconnectedness of food intake, sleep quality, and physical activity. Addressing such issues is crucial for improving the overall health and well-being of this workforce.

Teng et al. 2025.
Scientific Reports, vol. 15, no. 1.

Keywords: Healthcare; nutrition; qualitative; shift workers; well-being.
Evidence Level: 5B
Link: https://www.nature.com/articles/s41598-025-11534-5

Management and Leadership

Safety-specific transformational leadership and safety outcomes at workplaces: A scoping review study

Background and aim: Safety-specific transformational leadership (SSTL) has garnered much attention in recent years. This scoping review aims to explore; (1) the industries within which the impacts of SSTL are investigated; (2) the impacts of SSTL on the leading and lagging safety indicators; (3) mechanisms through which SSTL can affect safety outcomes; (4) the safety impacts of SSTL compared with other leadership styles; and (5) research gap to be covered by future studies. **Materials and methods**: This review was conducted in accordance with the standard procedure proposed by PRISMA-ScR. Three major databases including Web of Science, PubMed, and SCOPUS were searched. After removing duplications, initial screening, and eligibility assessment steps, 28 articles were included in the study. **Results**: Coined in 2002, SSTL is a distinct construct from general transformational leadership with a greater influence on safety outcomes. Most studies are conducted in Canada and among construction workers. SSTL could affect both leading and lagging safety indicators, particularly safety behavior and occupational accidents. Safety climate and safety motivation mediate the impact of SSTL on safety outcomes. Social exchange theory and leader-member exchange theory explain how SSTL can modify the safety behavior of employees. SSTL is much stronger than passive leadership in affecting safety, and its effects are comparable with safety-specific active transactional leadership. **Conclusion**: SSTL appears to be a significant factor influencing workplace safety outcomes, affecting both leading and lagging safety indicators. However, long-term longitudinal studies are needed to fully understand the impact of SSTL on these safety outcomes. Additionally, safety knowledge could serve as a mediator in the relationship between SSTL and safety results. Future research should compare the effectiveness of SSTL with authentic leadership style in enhancing safety outcomes. It would also be beneficial to assess how well SSTL can mitigate the negative effects of factors such as occupational fatigue, work-family imbalance, and production pressure on workplace safety.

Ghasemi et al. 2025.

BMC Public Health, vol. 25, no. 1.

Keywords: Lagging indicator; leading indicator; occupational accident; safety leadership; safety performance.
Evidence Level: 1A
Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-24044-w

Leader prohibitive voice shapes employee voice through psychological safety moderated by self-efficacy and generational differences

This study examines how leader prohibitive voice behavior shapes employees' own prohibitive voice under conditions of uncertainty. Drawing on Uncertainty Management Theory, we explore the mediating role of psychological safety and the moderating effects of self-efficacy and generational cohort. Using matched survey data from 302 leader-follower dyads in Chinese organizations, we tested a moderated mediation model. Results indicate that leader prohibitive voice promotes follower prohibitive voice both directly and indirectly via enhanced psychological safety. This indirect effect is stronger for employees with lower self-efficacy, who are more sensitive to contextual cues. Moreover, generational differences emerged: for Generation Z employees, leader modeling had a weaker effect, whereas psychological safety more strongly predicted their voice behavior compared to Millennials. These findings highlight that leaders reduce uncertainty not only through behavior modeling but also by fostering a psychologically safe climate, and that employee characteristics shape how such cues are interpreted. The study contributes to theory by integrating behavioral, cognitive, and generational perspectives on voice behavior and offers practical implications for leadership training, climate management, and generationally responsive organizational practices.
Tian et al. 2025.
Scientific Reports, vol. 15, no. 1.

Keywords: Follower prohibitive voice behavior; leader prohibitive voice behavior; millennials; psychological safety; self-efficacy; uncertainty management theory.
Evidence Level: 4B
Link: https://www.nature.com/articles/s41598-025-17500-5

Integrating occupational health and safety into enterprise risk management: A structural evaluation

Introduction: This study aims to investigate the extent to which Occupational Health and Safety (OHS) risks can be incorporated into the broader framework of Enterprise Risk Management (ERM). Although both systems were developed with similar goals-identifying, assessing, and mitigating risks-they have often operated independently. The research explores whether aligning OHS practices with ERM strategies, particularly through internal audit mechanisms, can foster a more unified and efficient approach to organizational risk management. **Method**: A qualitative document analysis was conducted, examining current national legislation, international standards such as ISO 31000 (Risk Management) and ISO 45001 (Occupational Health and Safety), and selected academic studies. The evaluation focused on structural similarities, procedural intersections, and the functional roles of personnel involved in ERM, Internal Audit (IA), and OHS processes. **Results**: The analysis revealed a substantial convergence between ERM and OHS in terms of risk identification techniques, prevention-based methodologies, and monitoring processes. The responsibilities of internal auditors and occupational safety specialists display notable overlaps, particularly in areas such as compliance, documentation, hazard assessment, and performance reporting. These parallels support the feasibility of integrating OHS risk management into the ERM structure. **Conclusion**: For a more effective and holistic approach to enterprise-level risk governance, it is essential to include Occupational Health and Safety risks within the ERM framework. This integration would not only streamline risk management activities but also enhance audit efficiency and organizational resilience. Establishing a closer operational relationship between OHS units and internal audit systems would contribute to safer working environments and more strategic risk oversight.
Kılıç et al. 2025.

Frontiers in Public Health, vol.13.

Keywords: Enterprise Risk Management (ERM); Occupational Health and Safety (OHS); compliance; internal audit; organizational resilience; risk governance; risk integration; workplace safety.
Evidence Level: 5B
Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1608227/full

Work Ability

Mapping the lacunae between neurodivergent individuals and work organizations

The evolving workplace landscape necessitates a shift from conventional talent acquisition and retention strategies to practices that foster genuine Diversity, Equity, and Inclusion (DEI). This study examines neurodiversity within Human Resource Management (HRM) through a comprehensive scoping review of literature, aiming to (i) identify critical gaps in the integration of neurodivergent individuals into workplaces and (ii) propose actionable strategies to promote inclusivity and organizational adaptability. Analyzing 17 studies from an initial pool of 60, the authors have identified six key psychosocial domains that highlight significant barriers neurodivergent individuals face, including stigma, fear, and inadequate accommodations, inter alia. Simultaneously, the findings underscore the unique strengths of neurodivergent employees, such as pattern recognition and innovative problem-solving skills, which are increasingly valuable in modern organizations. The review emphasizes the need for nuanced HRM practices that go beyond deficit-based approaches, advocating for proactive interventions such as manager training, tailored accommodations, and cultural shifts to foster neurodivergent inclusive workplaces. By synthesizing existing research and identifying pressing gaps, this study provides a roadmap for future research and practical interventions, contributing to a deeper understanding of neurodiversity's role in reshaping modern organizational DEI practices.
Nair et al. 2025.
Acta Psychologica, vol. 258.

Keywords: DEI (diversity, equity and inclusion); neurodivergent individuals; neurodiversity; reasonable accommodation; scoping review.
Evidence Level: 1B
Link: https://www.sciencedirect.com/science/article/pii/S0001691825004469?via%3Dihub

Association of migraine comorbidities with quality of life, work productivity and daily activities: Survey and medical claims data in Japan

Introduction: Migraine compromises the quality of life (QOL) and work productivity and daily activities (WPAI). Among those with migraine, comorbidities are relatively common and diverse and are expected to elevate the disease burden. Most previous studies focused on specific psychiatric diseases or conditions and did not encompass common comorbidities. This study aimed to explore the association between various migraine comorbidities, migraine-specific quality of life (MSQ), and WPAI**. Methods**: This was a post hoc analysis of an observational study using a pre-existing database of individuals covered by public employment-based health insurance in Japan. This analysis included respondents who participated in a previous study using online survey data (response rate 14.1% [21,704/153,545]) and linked medical claims data, and had migraine and at least 1 year of claims data. The MSQ Questionnaire version 2.1 score was compared, and the odds of having worse WPAI Questionnaire-General Health scores were explored between the subgroups with and without each comorbidity (e.g., depression, sleep disorders, cerebrovascular disorders, and schizophrenia). **Results**: Of the 674 respondents, a few had cerebrovascular disorders (n = 6 [0.9%]) or schizophrenia (n = 8 [1.2%]). Except for these comorbidities, the MSQ domain score was significantly lower in participants with depression (n = 43 [6.4%]) (estimated difference [95% confidence interval, CI], role function-restrictive - 6.9 [- 13.4, - 0.5]; role function-preventive - 7.7 [- 13.9, - 1.5]) and sleep disorders (n = 55 [8.2%]) (emotional function - 7.2 [- 13.7, - 0.7]). The odds ratio (95% CI) for

having a worse WPAI was significantly higher in those with depression (activity impairment 2.85 [1.13, 7.2]) and sleep disorders (presenteeism 3.01 [1.33, 6.8]; overall work impairment 2.84 [1.24, 6.5]). **Conclusion**: Among the various common comorbidities, MSQ and WPAI may be worse in patients with depression and sleep disorders comorbid with migraine. In particular, the MSQ RR and RP domain score differences between those with and without comorbid depression exceeded the minimum important difference.
Takeshima et al. 2025.
Advances in Therapy, vol. 42, no. 8.

Keywords: Comorbid disease; headache; patient-reported outcome.
Evidence Level: 4B
Link: https://link.springer.com/article/10.1007/s12325-025-03236-1

Impact of uterine fibroid symptoms on functional work impairment among employed women working in healthcare in the United States

Objective: The aim of the study was to quantify the impact of uterine fibroids (UFs) on work productivity among employed women in the US. **Methods**: Adult women working in health care who reported either being diagnosed with or having UF symptoms completed a survey incorporating the Work Productivity and Activity Impairment Questionnaire specific for UFs. **Results**: Among 67 respondents (mean age 43.2 years; 43% in executive/professional roles), 84% reported receiving a UF diagnosis from a health care provider; 16% reported symptoms consistent with UF. Forty-nine (73%) respondents reported a mean overall work impairment score of 33% during the past week due to UF driven by presenteeism (28%) relative to absenteeism (6%). Lost productivity costs were estimated at $387/week. **Conclusions**: Women with UF symptoms report substantial lost productivity, driven primarily by impairment while at work, which also has economic implications.
Sell et al. 2025.
Journal of Occupational and Environmental Medicine, vol. 67, no. 8.

Keywords: WPAI; burden; health care resources; uterine fibroids; women's health; work productivity**.**
Evidence Level: 5B
Link:
https://journals.lww.com/joem/fulltext/2025/08000/impact_of_uterine_fibroid_symptoms_on_functional.4.aspx

Adapting to the Future of Work

Aging Workforce

Association of workplace support for health with occupational health literacy and illness avoidance: Moderated mediation by functioning through a salutogenic lens

Background: An increase in the proportion of older employees over the coming decades is an outcome of ageing of the world's population. Workplace interventions that enable older employees to maintain work productivity and avoid illness are, therefore, increasingly important. An aspect of these interventions is Workplace Support for Health (WSH), which fosters Occupational Health Literacy (OHL) and encourages health behaviours in an organization. Common health behaviours are healthy diet and physical activity, both of which protect physical functioning and well-being. Employees are more likely to avoid illness and maintain physical functioning if they receive enough WSH and improve their OHL. **Aim**: This study aimed to investigate whether there is a moderated mediation by functioning in the relationship between WSH, OHL, and illness avoidance. **Methods**: A cross-sectional design with sensitivity analyses and measures against common methods bias was adopted. The participants were 1015 middle-aged and older adult employees aged 50 to 85 years. The participants were workers of public and private organizations in Accra, Ghana. The

main variables (i.e., WSH, OHL, functioning, and illness avoidance) were measured with Likert-type scales adopted in whole from the literature. Data were analysed with Hayes' Process Model through structural equation modelling. **Results**: WSH had a positive effect on functioning (β = 0.29; p < 0.001) and illness avoidance (β = 0.25; p < 0.001) in the whole sample. Functioning had a positive effect on illness avoidance (β = 0.45; p < 0.001). A positive indirect effect of WSH (through functioning) on illness avoidance was confirmed. Evidence of a moderated mediation was found, suggesting that the indirect effect of WSH on illness avoidance was stronger at higher OHL. Our sensitivity analysis yielded similar effects in men and women. **Conclusion**: WSH can enable older employees to improve their physical functioning and avoid illness, especially if it fosters higher OHL. WSH can be an appropriate way to protect employee health in response to ageing of the workforce.

Asiamah et al. 2025.

BMC Public Health, vol. 25, no. 1.

Keywords: Functioning; illness avoidance; occupational health literacy; older adults; sex; workplace support for health.

Evidence Level: 4B

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-21831-3

Longitudinal changes in work ability, well-being, and psychosocial risk factors among older workers: The ProAgeing study

Background: As the workforce ages, older employees face increasing challenges in adapting to changing job demands, including technological advances and ongoing occupational risks such as shift work and physically demanding tasks. Work ability is a reliable indicator of older workers' capacity to meet both physical and mental requirements of their jobs. The ProAgeing study, a multicenter investigation specifically focused on workers over 50 years old, examined long-term patterns in work ability, perceived health, and psychosocial risk factors, along with their interactions across this demographic. **Methods**: Participants completed self-reported questionnaires at baseline and after one year, including the Work Ability Index (WAI), technostress, sleep quality, perceived stress, health, and psychosocial risk factors. A first-difference linear regression model was used to assess predictors of changes in WAI. Subgroup analyses examined differences across occupational roles (bank employees, administrative employees, and manual workers). **Results**: Of the 470 workers enrolled, 356 (76%) completed the follow-up. A significant decline in average WAI score was observed over 12 months (-1.2 points, p<0.001), mainly in subscales related to work demands and physical illness. Technostress levels slightly decreased, suggesting adaptation over time. Bank employees showed less favorable trends than manual workers, indicating that digitalization and higher job demands significantly affected employees' well-being, especially older workers. Improvements in perceived health and reduced stress mostly contributed to enhanced work ability. **Conclusions**: These findings highlight the importance of targeted interventions to enhance health and lower stress among aging workers, supporting their well-being and subsequently their work ability.

Fattori et al. 2025.

La Medicina del Lavoro, vol. 116, no. 4.

Keywords: Work ability; well-being; psychosocial risk; older workers.

Evidence Level: 4B

Link: https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/17195

Analyses of the characteristics and prognosis of elderly patients visiting a high-capacity Turkish emergency department due to an occupational accident: A cross-sectional study

Background: Most elderly people live in low- and middle-income countries and are required to continue working. With the increasing number of elderly individuals in the workforce, occupational accidents among the elderly are predicted to remain a significant patient group for emergency departments. This study aimed to examine the descriptive characteristics of elderly individuals admitted to a tertiary-care emergency department due to occupational accidents and to identify factors that could predict their

prognosis. **Materials & methods**: Patients aged 65 years and older who presented to the emergency department due to an occupational accident between June 1, 2019, and June 30, 2023, were retrospectively reviewed. Data on demographic characteristics, trauma-related details, injury severity scores, ED and hospital stay durations, and mortality rates were analyzed and compared. **Results**: In total, 92 elderly patients with occupational accidents were evaluated. The most common trauma mechanism was lacerations (n = 34, 37%), and the upper extremities were the most frequently affected body parts (n = 39, 42.4%). Patients with thoracic trauma, injuries from falls from heights, and higher injury severity scores had significantly longer emergency department and hospital stays ($p = 0.045$, $p = 0.003$, and $p < 0.001$, respectively). **Conclusions**: Occupational accidents in elderly individuals most commonly result in upper extremity injuries, with lacerations being the predominant trauma mechanism. Among elderly patients with occupational accidents, those with thoracic trauma due to falls from heights and those with high injury severity scores are associated with worse prognoses.

Guru et al. 2025.

BMC Geriatrics, vol. 25, no. 1.

Keywords: Elderly; emergency departments; occupational accidents.

Evidence Level: 4B

Link: https://bmcgeriatr.biomedcentral.com/articles/10.1186/s12877-025-06312-x

Technology

Advancing occupational medicine through wearable technology: A review of sensor systems for biomechanical risk assessment and work-related musculoskeletal disorder prevention

Work-related musculoskeletal disorders (WRMSDs) remain a major occupational health concern globally, and the conventional techniques for assessing them suffer some drawbacks. Indeed, conventional observational techniques are faced with subjectivity and the absence of real-time quantitative data; these emphasize the need for improved biomechanical risk assessment tools. Wearable sensor technology, which is considered an improved assessment tool, has received considerable acceptance in the occupational health field for evaluating biomechanical risk and preventing WRMSDs, focusing on their essential features and workplace significance. However, studies that have documented wearable sensors for biomechanical risk assessment focus mainly on the established sensing mechanisms, while the emerging wearable sensors are still in their infancy. This work aims to offer a comprehensive review of existing sensing mechanisms for biomechanical risk assessments, highlighting both established and emerging technologies for the advancement of wearable sensor systems that minimize ergonomic risks. Additionally, it serves as a guide for future research in wearable sensing technology for biomechanical risk evaluation. A comprehensive literature search was conducted across three databases, namely, Web of Science, PubMed, and Scopus; after the initial screening and removal of duplicates, 522 articles were identified, with 176 being included in the review. This Account discusses the working principles, applications, and limitations in occupational medicine, focusing on various types of wearable sensors, such as optoelectronics, soft wearable sensors, inertial sensors, pressure sensors, and electromyography (EMG) sensors. Moreover, this study offers an exhaustive classification of wearable sensors, emphasizing their development and incorporation into personal protective equipment (PPE). To improve ergonomic interventions and techniques for biomechanical risk assessment, this work promotes the incentive of quantifying ergonomic frameworks, real-time feedback systems, and standalone wearable devices. Our review also identifies key challenges, such as sensor placement, data processing, and worker acceptance, and proposes future directions for improving wearable sensor systems, including sensor fusion, miniaturization, and integration with PPE.

Babangida et al. 2025.

ACS Sensors, vol. 10, no. 8.

Keywords: Biomechanical risk assessment; electromyography (EMG); ergonomics; inertial measurement units (IMUs); occupational health; personal protective equipment (PPE); wearable sensors; work-related musculoskeletal disorders (WRMSDs).

Evidence Level: 1A
Link: https://pubs.acs.org/doi/10.1021/acssensors.5c01578

Understanding workers' well-being and cognitive load in human-cobot collaboration: Systematic review

Background: Industry 5.0 emphasizes human centricity by prioritizing human well-being alongside technological advancements. Collaborative robots (cobots) in industrial settings represent one such advancement, and their integration, particularly in manufacturing, is reshaping production processes. Although previous studies have addressed these issues, no systematic review has yet synthesized findings on how cobots impact operators' affective well-being and cognitive workload. **Objective**: This study focused on psychological dimensions, which are often overlooked, particularly affective states, addressing a gap in the existing literature that has mainly emphasized the impact of cobots on the physical and cognitive workload. Specifically, we aimed to systematically review empirical studies investigating affective well-being (ie, anxiety, stress, and depression symptoms) and cognitive workload in human-cobot collaboration (HCC) within industrial settings. **Methods**: We conducted a comprehensive systematic search of the literature using several databases (Web of Science, Scopus, ACM Digital Library, and IEEE Xplore). Eligibility criteria included peer-reviewed empirical studies reporting quantitative or qualitative data on cognitive workload or affective well-being in HCC. Two reviewers independently conducted study selection and data extraction. **Results**: This review included a total of 46 studies. Findings indicated a significant increase in publications from 2020 onward, reflecting the growing interest in HCC. Most studies (28/46, 61%) were conducted in controlled laboratory settings with university students or researchers, highlighting a gap in real-world industrial research. Results indicated that, while cobots have been shown to alleviate physical fatigue and enhance job satisfaction, they also introduce new psychological challenges, including stress and anxiety symptoms due to concerns about job security and the pressures of high-paced operations. The speed at which cobots operate represents a factor affecting operators' affective well-being and cognitive workload alongside the proximity of cobots, the system usability, and the complexity of the tasks assigned. With regard to cognitive workload, studies using physiological and self-report measures (38/46, 83%) consistently found that higher task complexity significantly raised both cognitive workload and stress levels. **Conclusions**: This review identified key factors that influence operators' affective well-being and cognitive workload when working with cobots. These insights can guide the development of longitudinal research and intervention strategies, ensuring that the integration of cobots supports both productivity and operators' well-being in manufacturing environments. To support effective implementation, future studies should be conducted in real-world settings using standardized assessment instruments, physiological measures, and qualitative interviews.
Bassi et al. 2025.
Journal of Medical Internet Research, vol. 27.

Keywords: Industry 5.0; affective well-being; cobots; cognitive workload; collaborative robots; manufacturing; operators; systematic review.
Evidence Level: 1A
Link: https://www.jmir.org/2025/1/e75658

Innovative technologies to improve occupational safety in mining and construction industries: Part I

Innovative technologies have been helping to improve comfort and safety at work in high-risk sectors for years. The study analysed the impact, along with an assessment of potential implementations (opportunities and limitations) of innovative technological solutions for improving occupational safety in two selected sectors of the economy: mining and construction. The technologies evaluated included unmanned aerial vehicles and inspection robots, the Internet of Things and sensors, artificial intelligence, virtual and augmented reality, innovative individual and collective protective equipment, and exoskeletons. Due to the extensive nature of the obtained materials, the research description has been divided into two articles (Part I and Part II). This article presents the first three technologies. After the scientific literature from the Scopus database was analysed, some research gaps that need to be filled were identified. In

addition to the obvious benefits of increased occupational safety for workers, innovative technological solutions also offer employers several economic advantages that affect the industry's sustainability. Innovative technologies are playing an increasingly important role in improving safety in mining and construction. However, further integration and overcoming implementation barriers, such as the need for changes in education, are needed to realise their full potential.

Bęś et al. 2025.

Sensors, vol. 25, no. 16.

Keywords: Construction; innovative technologies; mining; occupational safety.

Evidence Level: 1B

Link: https://www.mdpi.com/1424-8220/25/16/5201

Exploring the effectiveness of virtual reality-based training for sustainable health and occupational safety in industry 4.0

Nowadays, the use of virtual reality (VR) for training purposes has increased manifold among organizations due to better integration of both cognitive and emotional dimensions. VR-based training surpasses traditional methods in Industry 4.0 by increasing safety awareness by 30%, enhancing risk perception, and improving self-efficacy. A quasi-experimental study involving 200 participants confirmed the superiority of VR through statistical analysis, highlighting its role in fostering a proactive safety culture and promoting sustainable workplace health. The research primarily focuses on how VR-based training can enhance the sustainability of occupational safety for industrial workers, thereby reducing the likelihood of human errors and industrial accidents. A quasi-experimental design was employed in the current study, with 200 participants divided into two groups: intervention and control. The effectiveness of VR-based training was judged based on participants' self-efficacy toward leadership support, training resources, and communication channels. Findings revealed statistically significant differences between the groups, as shown by the Mann-Whitney U test. Compared to the control group, the intervention group performed significantly better on several indicators, such as the efficacy of the VR training (mean rank = 30.00) and how participants perceived their ability after completing the OSH training based on VR (mean rank = 74.0); further, the findings from the current study revealed that participants who had VR training resources available felt that these were more accessible and better quality than those in the control group (median = 65) than intervention group (median = 72) significant at (p = 000). These results show that VR technology can improve sustainable health and safety measures in the 4.0 industrial sector. Practical implications include encouraging a sustainable, safety-first attitude among coworkers, enhancing the efficacy of workplace sustainable health and safety training, and improving employees' self-confidence.

Qawqzeh et al. 2025.

Scientific Reports, vol. 15, no. 1.

Keywords: Industry 4.0; occupational safety; safety awareness; technology; training; virtual reality.

Evidence Level: 3B

Link: https://www.nature.com/articles/s41598-025-14173-y

Invulnerability bias in perceptions of artificial intelligence's future impact on employment

The adoption of Artificial Intelligence (AI) is reshaping the labor market; however, individuals' perceptions of its impact remain inconsistent. This study investigates the presence of the Invulnerability Bias (IB), where workers perceive that AI will have a greater impact on others' jobs than on their own, and Optimism Bias by Type of Impact (OBTI), where individuals perceive AI's future impact on their own job as more positive than on others'. The study analyzes survey data collected from 201 participants, recruited through social media using convenience sampling. The data were analyzed using a combination of statistical and machine learning methods, including the Wilcoxon test, ordinary least squares regression, clustering, random forests, and decision trees. Results confirm a significant IB, but not OBTI; only 31.8% perceived AI's future impact on their own job as more positive than on others'. Analysis shows that greater knowledge of AI correlates with lower IB, suggesting that familiarity with AI reduces the tendency to externalize perceived risk. Furthermore, bias levels vary across professional sectors: healthcare, law, and public administration

exhibit the highest IB, while technology-related professions show lower levels. These findings highlight the need for interventions to improve workers' awareness of AI's potential future impact on employment.

Barrera-Jimenez et al. 2025.
Scientific Reports, vol. 15, no. 1.

Keywords: AI biases; artificial intelligence; future of work; invulnerability bias; optimism bias; unrealistic optimism.
Evidence Level: 4B
Link: https://www.nature.com/articles/s41598-025-14698-2