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Workplace Research Monthly

August 2026

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 July 2026 only.

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Search

Open access, English language article abstracts related to the broad Work, Health and Safety and Rehabilitation/Return To Work themes of Enabling Healthy & Safe Workplaces, Enhancing Employer Capability, Fostering Work Participation, Promoting Mental Health and Adapting to the Future of Work, published in the preceding month are sourced from PubMed© , Emcare©, Ergonomic Abstracts© and Psychinfo© databases at the start of the month. Results are screened, critically reviewed in terms of level of evidence and relevance to an Australian context, and collated.

Description of Evidence Levels Definitions Used in this Review

Articles are arranged from highest to lowest quality based on levels of evidence and relevance, as outlined in table 1 and 2.

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 used 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

The demands-control-support work stress model and risk of ischemic heart disease: Causal inference based on observational epidemiology

Objective: Reviews consistently suggest an association between job strain and ischemic heart disease (IHD), but causality remains uncertain. This study aimed to critically assess causal inference using the most informative epidemiological studies. **Methods**: A systematic search in PubMed and Embase up to 15 November 2024 identified observational studies reporting quantitative estimates of associations between job strain (defined by job demands and control) and IHD. Eligible studies were cohort or case-control designs with exposure data obtained independently by medically verified IHD (ICD-8/9: 410-414; ICD-10: I20-I25) and risk estimates adjusted at least for age, sex, and socio-economic status. One estimate per study was included in inverse-variance weighted random-effects meta-analyses. We evaluated main sources of upward and downward bias, potential confounding, and key criteria for causal inference including outcome specificity, exposure-response, and consistency. **Results**: This review comprised 25 cohort and 1 case-control study (122 risk estimates). The fully adjusted pooled relative risk estimate (RRE) for job strain and all IHD outcomes combined was 1.14 [95% confidence interval (CI) 1.06-1.23; 21 studies]. For myocardial infarction, the RRE was 1.08 (95% CI 1.00-1.15; 11 studies), and, in studies using job-exposure matrices, it was 1.06 (95% CI 0.99-1.13; 7 studies). Strong heterogeneity, small effect sizes, limited exposure-response evidence, net bias in unpredictable directions, and lack of confirmation of findings in studies using alternatives to self-reported exposure assessment preclude causal inference. **Conclusion**: Evidence for a causal relationship between job strain and IHD is limited. At most, any true effect appears to be small.

Bonde et al. 2026.

Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Work stress; ischemic heart disease; casual inference.

Evidence Level: 1A

Link: https://www.sjweh.fi/article/4299

Work preferences and well-being in emerging economies: A latent class analysis of employment patterns and leadership

The transformation of work in the post-pandemic era has intensified the need to understand how individuals evaluate employment opportunities and anticipate their future well-being. Drawing on expectancy-value theory and research on affective forecasting, this study conceptualizes job choice as a psychologically grounded process in which individuals integrate structural and relational job attributes when forming expectations about anticipated job-related well-being. We conducted a discrete choice experiment (DCE) with 322 participants in Chile, examining preferences across work modality (face-to-face, remote, hybrid), leadership style, working hours, and compensation. Random parameter logit models and latent class analysis were used to identify both average preferences and heterogeneity across individuals. Results indicate strong preferences for hybrid work, democratic leadership, shorter working hours, and higher compensation. Critically, authoritarian leadership significantly undermines the attractiveness of hybrid work arrangements, revealing asymmetric interaction effects in which negative relational climates attenuate the anticipated well-being benefits of structural flexibility. Latent class analysis further identifies three distinct motivational profiles, demonstrating that job preferences are shaped by heterogeneous anticipatory frameworks linked to age, education, and telework experience. These findings contribute directly to psychological research by positioning anticipated job-related well-being as a core cognitive-motivational mechanism underlying employment decisions. By integrating expectancy-value theory with affective forecasting, the study advances understanding of how individuals mentally simulate future work experiences and translate these anticipations into preferences, highlighting the psychological processes that shape job choice behavior in emerging economies.

Carrasco-Garcés et al. 2026.

Acta Psychologica, vol. 267.

Keywords: Anticipatory wellbeing; hybrid work; job preferences; latent class analysis; leadership style.
Evidence Level: 4B
Link: https://www.sciencedirect.com/science/article/pii/S0001691826007791?via%3Dihub

Secondary traumatic stress among healthcare workers in Egypt and the mediating role of workplace protective factors

Healthcare workers are occupationally exposed to traumatic events, placing them at risk of secondary traumatic stress (STS) a condition characterized by intrusion, avoidance, and arousal symptoms. To determine the prevalence of STS among healthcare workers, identify early warning signs, evaluate the effectiveness of workplace preventive measures, and identify factors associated with STS. A cross-sectional study was conducted from October to December 2025 among 783 healthcare workers in critical care units at Tanta University Hospitals, Egypt. Data were collected using a structured self-administered questionnaire including the Secondary Traumatic Stress Scale (STSS), an early warning signs scale, and a preventive measures scale. Multivariate logistic regression was used to identify associated factors with STS. The frequency of STS was 64.5%, with a total mean score of 58.16 ± 11.18. The most frequent early warning signs were chronic exhaustion (3.43 ± 1.126), increased anxiety about safety (3.18 ± 1.156), and difficulty maintaining work-life boundaries (3.17 ± 1.206). A strong positive correlation was observed between STS score and warning signs score ($r = 0.76$, $p < 0.01$). Multivariate logistic regression identified physicians (AOR = 2.14), working > 40 h/week (AOR = 2.07), > 8-night shifts/month (AOR = 2.56), absence of preventive measures (AOR = 2.87), and sick leave history (AOR = 1.89) as significant associated factors of severe STS. Mediation analysis revealed that social support mediated the relationship between occupational stressors and secondary traumatic stress, with a significant indirect effect (0.105, 95% CI: 0.062-0.148) accounting for 23.4% of the total effect. STS is highly prevalent among Egyptian healthcare workers and is significantly associated with modifiable workplace factors. The absence of essential organizational interventions highlights critical gaps in occupational health protection. Routine surveillance, mandatory debriefing, and enhanced organizational support are urgently needed.
El-Feky et al. 2026.
Scientific Reports, vol. 16, no. 1.

Keywords: Associated factors; healthcare workers; secondary traumatic stress; workplace interventions.
Evidence Level: 4B
Link: https://www.nature.com/articles/s41598-026-61079-4

Workplace wellbeing in Ontario's public sector: Employee and employer perspectives on workplace supports

Background: Workplace wellbeing has become a key focus of occupational and public health, with increasing attention to mental health, psychosocial risks, fatigue, and work-life balance. However, limited evidence compares employee and employer perspectives, distinguishes support availability from support use, or examines whether wellbeing is more closely associated with isolated interventions or the broader support environment. **Method**: Cross-sectional survey data were collected from public-sector employees (N = 1307) and employers (N = 321) in Ontario, Canada. Analyses compared employee and employer ratings of workplace wellbeing dimensions and supports, examined support availability and use, and assessed associations between support use and perceived workplace impact on personal wellbeing using linear regression models. **Results**: Employees consistently rated workplace wellbeing dimensions and supports as more important and more effective than employers. Several supports were widely available, but availability varied across sectors and did not consistently translate into use, particularly for mental health, psychological health and safety, and fatigue-related supports. Among employees using at least one support, the cumulative number of supports used was positively associated with wellbeing ($B = 0.196$, $p < 0.01$), whereas few individual supports demonstrated independent associations. Fatigue management programs showed a consistent positive association across model specifications. **Conclusions**: Findings

suggest that workplace wellbeing is associated with the broader support environment, not only with individual programs. Employee-informed, integrated approaches that improve both access and uptake may strengthen workplace wellbeing; however, causal interpretation is limited by the cross-sectional design.
Scott-Marshall et al. 2026.
International Journal of Environmental Research and Public Health, vol. 23, no. 7.

Keywords: Employee–employer perceptions; fatigue management; mental health; occupational health; psychosocial risks; public sector; support availability; workplace supports; workplace wellbeing.
Evidence Level: 4B
Link: https://www.mdpi.com/1660-4601/23/7/909

Work Health and Safety

Does job rotation lead to changes in physical exposure and health? A systematic review of studies reporting objective exposure data

Although job rotation is widely used to prevent injuries and promote worker health, there is currently insufficient high-quality evidence to determine its effectiveness. Existing research has been limited by weaknesses in study design and exposure measurement. Future studies should involve collaboration between researchers and organizations, use more comprehensive measures of exposure across the entire job rotation cycle, and examine resulting health outcomes. Improved study methods and assessment approaches are needed to generate stronger evidence about the benefits of job rotation.
Jackson et al. 2026.
IISE Transactions on Occupational Ergonomics and Human Factors, vol. 14, no. 3.

Keywords: Variability; task rotation; work organization.
Evidence Level: 1A
Link: http://pubmed.ncbi.nlm.nih.gov/41382378/

Limited efficacy of low-volume ice slurry ingestion on physiological heat strain in Japanese outdoor workers during summer

Background: Occupational heat exposure is a growing public health concern in Japan, where hot, humid summers contribute to heat-related illnesses (HRIs). **Aim**: To characterise the thermophysiological responses of Japanese outdoor workers to summer heat exposure and explore the effect of a practical pre-cooling approach. **Subjects and methods:** Two field-based experiments were conducted in August-September. In Experiment 1, heart rate (HR) and core body temperature (CT) were continuously monitored under routine working conditions. In Experiment 2, workers performed their duties after pre-work ingestion of a 100 g carbohydrate-electrolyte ice slurry. HR and CT were assessed using non-invasive wearable sensors, and subjective thermal perception was recorded during the workday. **Results**: Under high environmental heat stress (maximum Wet Bulb Globe Temperature: 30.2 ± 2.4 °C and 29.4 ± 2.1 °C), both CT and HR increased significantly during midday and afternoon periods. No significant differences were observed between the conditions in terms of HR, CT, or subjective thermal perception. **Conclusion**: Japanese outdoor workers exhibited a sustained elevation in thermo-physiological strain during summer. A low-volume pre-cooling strategy did not measurably modify these responses, indicating a limited physiological impact under real-world conditions.
Mani et al. 2026.
Annals of Human Biology, vol. 53, no. 1.

Keywords: Heat-related illness; core body temperature; heart rate; outdoor workers; pre-cooling.
Evidence Level: 3B
Link: https://www.tandfonline.com/doi/full/10.1080/03014460.2026.2705279

Associations between training experiences, job stress, personal achievement, and emotional exhaustion among peer support workers in the substance use disorder recovery field

Background: Peer support workers (PSWs) play a critical role in addressing the substance use crisis, and PSWs' training experiences may influence important occupational outcomes such as job stress and burnout. This cross-sectional study examined associations between PSWs' training experiences, job stress, and 2 dimensions that contribute to burnout - a lack of personal achievement and emotional exhaustion - in a sample of 25 PSWs (Mage = 49.3, SD = 12.9; 64% cisgender women; 80% white) from South Carolina. **Methods**: Participants completed the Subjective Stress Scale and the Abbreviated Maslach Burnout Inventory. While burnout is typically characterized by 3 dimensions, this study was only able to measure personal achievement and emotional exhaustion due to low reliability of the depersonalization scale. Participants also reported the total number of training hours they received prior to becoming a PSW and what topics they received training in, which were categorized as knowledge-based, skill-based, or value-based. Sum counts for each topic category were calculated. **Results**: Adjusted-regression analyses revealed that total number of training hours was not associated with personal achievement or emotional exhaustion (p's > .131) but was positively associated with job stress (B = 0.031, SE = 0.014, 95% CI [0.001, 0.060], p = .042, ηp2 = .200). Total number of training topics was not associated with job stress or emotional exhaustion (p's > .248) but was positively associated with personal achievement (B = 0.577, SE = 0.245, 95% CI [0.065, 1.090], p = .029, ηp2 = .226). Having received more knowledge-based training (B = 1.494, SE = 0.592, 95% CI [0.254, 2.734], p = .021, ηp2 = .270) and value-based training (B = 1.627, SE = 0.722, 95% CI [0.116, 3.138], p = .036, ηp2 = .211), but not skill-based training, was associated with greater personal achievement. **Conclusions**: High-quality training curricula that cover a range of topics, particularly knowledge- and value-based topics, may enhance PSWs' sense of personal accomplishment. Improving content and quality over quantity may also reduce PSWs' job stress. These efforts can support positive work experiences and engagement among PSWs in the substance use disorder recovery field.

Chu et al. 2026.
Substance Use & Addiction Journal, vol. 47, no. 3.

Keywords: Burnout; education; job stress; peer support workers; substance use disorder; training.
Evidence Level: 4B
Link: https://pubmed.ncbi.nlm.nih.gov/41762104/

Exploring the benefits and challenges of lived and living experience among support workers in the alcohol, drug and mental health workforce in Australia

For individuals with lived or living experience (LLE), working in the alcohol and other drug (AOD) and mental health sector can provide personal fulfilment and strengthen recovery goals, while also presenting unique challenges. Drawing on lived experience can foster deep trust, empathy and shared understanding with clients, but this emotional proximity may also contribute to stress, vicarious trauma, and emotional distress. This study examined how AOD and mental health workers across peer-designated and non-designated roles with LLE perceived the value of their experience and the organisational supports needed to sustain safe and effective practice. Analysis of semi-structured interview data from 36 workers with LLE identified three themes: (1) benefits and opportunities of LLE, (2) complexities in LLE work, and (3) maximising LLE in workplace practices. Participants described strong relational benefits of using lived experience in their roles, including enhanced trust and increased client engagement. Workers were careful in how, and to whom, they disclosed, balancing authenticity with professional boundaries and self-protection. Many also discussed experiences of stigma within services, which could undermine their expertise and role legitimacy. Findings indicate that services should include clear role expectations for LLE workers, reflective supervision, guidance on safe sharing, and recognition of the expertise of LLE workers to avoid tokenism. Meaningful inclusion of LLE requires structural and organisational support, not just individual skills or resilience. Organisational policies that reduce stigma and provide guidance around safe disclosure are needed to assist workers in using their lived experience as a strength within their work.

Brener et al. 2026.
International Journal of Drug Policy, vol. 153.

Keywords: Drug and alcohol; lived and living experience; mental health; workforce development.
Evidence Level: 5A
Link: https://www.sciencedirect.com/science/article/pii/S0955395926001775?via%3Dihub

Sensorimotor network hyperactivity and impaired psychomotor performance associated with cumulative occupational stress in firefighters

Firefighters face chronic occupational stressors including trauma exposure, sleep disruption, and substantial physical demands that can compromise brain function and cognition. Despite increasing concern regarding stress-related cognitive decline in this population, limited evidence is available on whether occupational stress is associated with alterations in resting-state networks (RSNs) or whether such neural changes relate to cognitive outcomes. This study investigated occupational stress-related alterations in functional connectivity (FC) across major RSNs and examined their associations with cognitive performance in firefighters. Ninety-eight actively employed firefighters and 98 demographically matched non-firefighter controls underwent resting-state functional magnetic resonance imaging. RSN-specific FC was derived using independent component analysis. Group comparisons identified significantly higher FC within the sensorimotor network (SMN) in firefighters relative to controls (family-wise error-corrected $P < 0.05$). Within the firefighter group, both longer cumulative duration of emergency duties ($\beta = 0.45$, $P = 0.013$) and higher alcohol use levels ($\beta = 0.37$, $P = 0.003$) were independently associated with increased SMN connectivity. Moreover, SMN hyperconnectivity was significantly correlated with poorer psychomotor performance ($\beta = -0.19$, $P = 0.023$), indicating potential behavioral consequences. These findings provide evidence that chronic occupational stress and maladaptive coping behaviors such as alcohol misuse may contribute to functional reorganization of the SMN in firefighters which may be linked to diminished psychomotor efficiency. The results highlight a potential neurobiological mechanism through which occupational stress influences cognitive functioning and underscore the need for early identification of at-risk individuals and targeted interventions to mitigate cumulative stress burdens in this vulnerable occupational group.
Suh et al. 2026.
Brain Research Bulletin, vol. 241.

Keywords: Alcohol use; chronic occupational stress; cognition; firefighter; functional connectivity; functional magnetic resonance imaging; resting-state network.
Evidence Level: 5B
Link: https://www.sciencedirect.com/science/article/pii/S0361923026002364?via%3Dihub

Mental health first aid in the workplace: A reflexive thematic analysis of UK workers' experiences

Background: Mental Health First Aid (MHFA) is used in workplaces to improve mental health literacy, reduce stigma, and promote help-seeking. This paper explores how employees perceive and engage with MHFA in work settings. **Methods**: This qualitative study was embedded within the EMPOWER cluster randomised controlled trial (Atanda et al., 2020). Twenty-four participants, including Mental Health First Aiders, recipients of MHFA support, employees, and senior managers, took part in semi-structured interviews. Guided by a relativist epistemological position, data were analysed using reflexive thematic analysis.(Atanda et al., 2020). **Findings**: Three themes were identified: (1) ambiguity surrounding the purpose of MHFA; (2) uncertainty and scepticism regarding the role and effectiveness of MHFA (subthemes: Anticipated Stigma, MHFA not addressing core concerns affecting staff well-being); and (3) risks to personal relationships following disclosure. Participants questioned the purpose, boundaries, and organisational value of MHFA, contributing to reluctance to engage. Disclosure decisions were shaped by concerns about stigma, confidentiality, and potential impacts on workplace relationships and career progression. **Discussion**: The findings suggest MHFA is most effective when part of a broader organisational commitment to employee wellbeing. Clarifying MHFA's purpose, addressing workplace stigma, and tackling organisational sources of distress may improve engagement and strengthen mental health initiatives.

Clinical trial registration: Clinicaltrials.gov NCT04311203. Registered on 17 March 2020, protocol published in 2020.
Atanda et al. 2026.
International Journal of Qualitative Studies on Health and Well-being, vol. 21, no. 1.

Keywords: Reflexive thematic analysis; help-seeking; mental health first aid; organisational culture; workplace mental health.
Evidence Level: 5B
Link: https://www.tandfonline.com/doi/full/10.1080/17482631.2026.2706909

Ergonomics

Safety boots' impact on comfort, mobility, performance, musculoskeletal disorders, slips, and falls in Canadian construction

Construction is a hazardous industry, with slips, falls, and musculoskeletal disorders (MSDs) among the most common occupational hazards. Safety boots are vital for reducing these risks and enhancing workers' comfort, mobility, and overall performance. Therefore, this study examines associations between winter safety boot features and construction workers' comfort, performance and mobility, slips, falls, and MSDs due to slips and falls. Cross-sectional survey data from 110 Canadian construction workers were analyzed using descriptive, bivariate, and multivariable logistic regression analyses. Boots' arch support, shaft flexibility, and inside warmth were the most consistently associated features across outcomes. Poor arch support was associated with lower comfort (OR = 0.09) and performance and mobility (OR = 0.089), and higher odds of falls (OR = 4.843) and MSDs due to slips and falls (OR = 3.255). Limited ankle inversion was linked to higher risks of slips, falls, and MSDs; the corresponding ORs for workers with "no limitation" were 0.126, 0.286, and 0.161, respectively, while boots with cold interiors were associated with higher odds of slips (OR = 5.657) and lower comfort (OR = 0.213). These findings suggest the potential importance of prioritizing adequate arch support, balanced shaft flexibility, and inside warmth in safety boot design, which may help enhance comfort and performance and mobility while reducing slips, falls, and MSD-related risks.
Shirzadeh et al. 2026.
Applied Ergonomics, vol. 134.

Keywords: Construction workers' health and safety; personal protective equipment (PPE); safety boot; slips and falls.
Evidence Level: 4B
Link: https://www.sciencedirect.com/science/article/pii/S0003687026000098?via%3Dihub

Chronic Health Issues

Adverse occupational outcome among workers with occupational asthma: A systematic review and meta-analysis of influencing factors

Objectives: Occupational asthma (OA) often interferes with workers' ability to maintain employment. We synthesized the prevalence of adverse occupational outcome (AOO)-unemployment, chronic sick leave, disability, and early retirement-caused by OA. **Methods**: Following PRISMA methodological recommendations and PROSPERO registration (CRD42024528750), we searched PubMed, Scopus, and Web of Science for studies published between January 1980 and September 2024 that reported quantitative employment outcomes in adults with OA. Risk of bias was assessed using the Joanna Briggs Institute Checklist for Prevalence Studies. Pooled prevalences were calculated using random-effects generalized linear mixed models on the logit scale with Hartung-Knapp 95% confidence and prediction intervals (CI and PI). **Results**: A total of 25 studies comprising 3393 participants were included. The pooled prevalence of AOO was 35.9% (95% CI 28.6-43.9; I2=86.0%; 95% PI 10.2-73.4). Prevalence of AOO varied by: (i) data sources (registry/compensation: 50.1% versus clinic: 32.0%; P=0.015); (ii) study size (>80 participants: 43.4% versus ≤80: 27.9%; P=0.033); (iii) baseline forced expiratory volume in 1 second (FEV1) (≤85% predicted: 38.2% versus >85% predicted: 13.8%; P=0.008); and (iv) exposure duration before symptom

onset (>7.1 years: 35.7% versus ≤7.1 years: 15.7%; P=0.015). Heterogeneity across studies was substantial and several subgroups included fewer than five studies. **Conclusions**: More than one-third of workers with OA experience an AOO. The findings highlight the need for harmonized outcome definitions and for interventions integrating early referral, exposure control, and structured return-to-work programs to avoid AOO.

Damerau et al. 2026.

Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Occupational asthma; occupational outcome; workers.

Evidence Level: 1A

Link: https://www.sjweh.fi/article/4282

"Shining a light on chronic pain": A qualitative study of stakeholder views towards chronic pain at work and the Pain-at-Work Toolkit

Purpose: The study explored the views of organisational stakeholders who participated in the feasibility trial of the Pain-at-Work Toolkit towards the implementation of the toolkit in 'real-world' workplace settings. This digital toolkit was co-created with healthcare professionals, employers, and people with chronic pain and aimed to inform and enable individuals to self-manage their chronic pain at work. **Design/methodology/approach:** A qualitative study using semi-structured interviews with 15 stakeholders from 12 organisations that participated in a feasibility trial of the Pain-at-Work Toolkit. Purposive sampling was used to ensure the inclusion of stakeholders with management or supportive roles who have responsibility for the health and wellbeing of employees. **Findings**: The findings illuminate three key themes: not all disabilities are visible; not all line managers are equal; and who has control? These surmise that invisible disabilities such as chronic pain are underestimated, poorly understood, and inconsistently provisioned for in organisational policies. It highlights the key role that line managers play in employee disclosure and access to support but demonstrates that line managers vary in their delivery of support to employees. Lastly, it explores stakeholder perceptions of the roles of the employer relative to the employee with chronic pain. It confirms the need for additional resources to plug organisational gaps and give workers tools to self-manage their pain at work. **Originality**: This study indicates the need for resources / supports to upskill line managers so they can intervene to proactively support employees with chronic pain to reduce sickness absence and presenteeism (working when unwell). The research demonstrates organisational stakeholders' interest in a multi-faceted approach to help employees self-manage chronic pain in all types at work, such as that provided by the Pain-at-Work Toolkit. In addition, it clearly identifies the potential for complementary resources to educate and facilitate line managers to better support their staff.

Thornton et al. 2026.

PLoS One, vol. 21, no. 7.

Keywords: Chronic pain; work.

Evidence Level: 5B

Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0351938

Occupational Exposure

Occupational heat stress in hospital settings: A combined assessment of staff perceptions and indoor climate to support heat action planning

Background and aims: Occupational heat stress in healthcare settings is an emerging public health concern, yet evidence on indoor heat exposure and perception in hospitals remains limited. This study assessed perceived occupational heat stress among hospital employees by integrating staff-reported heat perceptions with indoor temperature measurements to identify associations between perceived heat stress, workplace characteristics, preventive behaviors, heat-related knowledge, and indoor thermal conditions. **Methods**: A cross-sectional study was conducted at a large tertiary care hospital in southern Germany. An anonymous online survey collected data on heat perception, heat-related symptoms, work

impairment, preventive behaviors, knowledge, training and heat warning practices among hospital employees. Multiple survey items resulted in a perceived occupational heat stress index (POHSI). Indoor air temperature was measured continuously during the summer periods 2024 and 2025 using calibrated sensor loggers placed in staff rooms across the hospital. Associations between POHSI, workplace factors, preventive measures, and environmental conditions were analyzed descriptively and inferentially. **Results**: A total of 681 employees participated. 38.7% of the participants scored high or very high POHSI. Frequently reported symptoms included fatigue, concentration difficulties, and dizziness, accompanied by reduced work performance. Higher POHSIs were observed among physically active staff and clustered spatially in upper floors with elevated indoor temperatures. Lower levels of heat-related knowledge and training were associated with higher POHSIs (ANOVA: $F = 15.33$, $p < 0.001$; Kruskal-Wallis: $\chi^2 = 54.05$, $p < 0.001$) with moderate effect sizes ($\eta^2 \approx 0.09$). While some individual preventive measures were associated with lower POHSI, participants predominantly requested structural and organizational interventions. Subjective heat perceptions corresponded closely with measured indoor temperature patterns. **Conclusion**: Occupational heat stress represents a relevant indoor environmental and occupational health challenge in hospital settings. The combination of subjective and objective indicators enabled the identification of heat-vulnerable work environments and associated workplace, knowledge-related, and environmental factors. The findings further indicate that individual coping strategies alone may be insufficient under sustained indoor heat exposure and support the development of hospital-specific heat prevention and adaptation strategies.

Scheidl et al. 2026.

BMC Public Health, vol. 26, no. 1.

Keywords: Climate change adaptation; healthcare workers; heat action planning; hospital settings; indoor heat exposure; occupational health.

Evidence Level: 4B

Link: https://link.springer.com/article/10.1186/s12889-026-28452-4

Environmental exposures at home and in the workplace in relation to inhaled corticosteroid medication: The population-based REGAL study

Background: Diverse environmental exposures - home, occupational, and traffic-related - may impact asthma, but population-based studies on objectively assessed asthma are lacking. We aimed to investigate the impact of these exposures on future inhaled corticosteroid (ICS) use. **Methods**: Data from two Swedish population-based cohorts (performed in 2008-2010) were linked to the National Prescribed Drug Registry from 2005 to 2018 to form the REGAL study. This analysis included 31,768 participants from Stockholm, Gothenburg, Uppsala, and Umeå. Participants reported asthma diagnosis, asthma-related symptoms, and home and occupational exposures via questionnaires, while ICS prescriptions were retrieved from registry. **Results**: Among 31,768 participants, 6.9% (n = 2,103) reported asthma medication via questionnaire at baseline, and 5.3% (n = 1,679) initiated ICS therapy during the follow-up period (median follow-up time: 10.7 years). The prevalence of floor dampness, irritating air at home, traffic exposure at home, and occupational exposure to gas, smoke, or dust were 3.8%, 17.9%, 4.0%, and 36.7%, respectively. Floor dampness (odds ratio OR = 1.32, 95%CI 1.06-1.63), irritating air (OR = 2.08, 95%CI 1.85-2.33), traffic exposure at home (OR = 1.48, 95%CI 1.21-1.81), and occupational exposure to gas, smoke, or dust (OR = 1.55, 95%CI 1.39-1.72) were associated with self-reported asthma medication. An increased risk of initiating ICS therapy during the follow-up period was found for floor dampness at home (hazard ratio HR = 1.42, 95%CI 1.14-1.77), irritating air at home (HR = 1.46, 95%CI 1.29-1.65), and previous occupational exposure to gas, smoke, or dust (HR = 1.25, 95%CI 1.12-1.40). **Conclusions**: Indoor dampness, irritating air at home, and occupational exposure to gas/smoke/dust were associated with self-reported asthma medication at baseline and future initiation of ICS.

Wang et al. 2026.

BMC Pulmonary Medicine, vol. 26, no. 1.

Keywords: ICS prescription; indoor dampness; irritating air; occupational exposure to fumes; traffic-related air pollution.

Evidence Level: 4B
Link: https://link.springer.com/article/10.1186/s12890-026-04502-w

Civilian occupational exposure to vapors, gas, dust, or fumes and respiratory health among United States military veterans

Background: We investigated associations of self-reported and job exposure matrix (JEM) assigned civilian occupational exposure to vapors, gas, dust, or fumes (VGDF) with respiratory symptoms among previously deployed US Veterans. **Methods**: An interviewer-administered questionnaire ascertained self-reported civilian occupational VGDF exposure. A JEM categorized occupational VGDF based on longest-held civilian occupation and industry of employment. Models tested associations of self-reported and JEM-assigned VGDF with dyspnea, chronic bronchitis (CB), or wheeze, adjusting for smoking and other covariates. **Results**: Among 1868 participants (mean age 37.8 ± 13.1 years); 1654 (89%) males; the median occupational duration was 6 years. The prevalence of JEM-assigned VGDF exposure or self-reported civilian occupational VGDF exposure was 31% for both, with modest agreement between them (kappa 0.48). Any JEM VGDF exposure was statistically significantly associated with increased odds of CB (odds ratio [OR]) 1.75; 95% Confidence Interval [CI] 1.05-2.20). Self-reported VGDF exposure was less strongly associated with increased CB odds (OR 1.18; 95% CI 0.85-1.86). JEM alone demonstrated a statistically significant association with CB (OR 1.77; 95% CI 1.31-2.68); combined JEM and self-reported VGDF demonstrated a similar but not statistically significant association with CB (OR 1.68; 95% CI 0.90-2.35). Self-reported VGDF alone was not positively associated with CB, dyspnea, or wheeze. **Conclusions**: Civilian occupational VGDF exposures (assessed by self-report and JEM) were common. Exposure to VGDF was most consistently associated with increased odds of CB, underscoring the need to consider civilian occupational factors when assessing Veterans' health.
Mohazzab-Hosseinian et al. 2026.
American Journal of Industrial Medicine, vol. 69, no. 7.

Keywords: Veterans; asthma; chronic bronchitis; job exposure matrix; military deployment; occupational exposure; shortness of breath; vapors, gas, dust or fumes (VGDF).
Evidence Level: 4B
Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.70083

Occupational contact urticaria, protein contact dermatitis and concomitant airway diseases in the Finnish Register of Occupational Diseases in 2005-2020: Main causes and occupations at risk

Background: Occupational contact urticaria (OCU) and protein contact dermatitis (PCD) may co-exist with occupational asthma (OA) and occupational rhinitis (OR) and be caused by the same allergen. These diseases are commonly caused by immediate (immunoglobulin E (IgE)-mediated) allergic sensitisation. Limited data exist on the prevalence and causes of concomitant occupational skin and airway diseases (CSAD). **Objectives**: To analyse data from the Finnish Register of Occupational Diseases (FROD) for prevalence, main causes, and at-risk occupations for concomitant occupational skin and airway diseases. **Methods**: Data on recognised cases of OCU, PCD, OA and OR in the years 2005-2020 (n = 2413) were retrieved from FROD and analysed. **Results**: Among OCU/PCD cases, 27% had OA, OR, or both. Conversely, 10% of OA cases and 14% of OR cases had OCU/PCD. Concomitant diseases were most common in farming, animal care, and food-related jobs. Shared causative exposures were identified in 89% of cases, with cow dander, wheat flour, and chemicals being the most frequent. **Conclusions**: Concomitant occupational skin and airway diseases caused by shared work-related allergens are relatively common. When evaluating patients with occupational immediate allergy, both skin and airway symptoms should be considered.
Ojanen et al. 2026.
Contact Dermatitis, vol. 95, no. 1.

Keywords: Contact urticaria; occupational asthma; occupational rhinitis; protein contact dermatitis; registry study.
Evidence Level: 4B

Link: https://onlinelibrary.wiley.com/doi/10.1111/cod.70137

Occupational exposure to carcinogenic substances in night versus day shift jobs

Objectives: This study aimed to determine whether night shift work was associated with exposure to carcinogenic hazards, independent of occupation and industry. **Methods**: We conducted a cross-sectional analysis of 16 250 job records reported by 7023 participants. Participants provided lifetime job histories, including shift schedules and exposures to hazardous agents. Carcinogenic agents included established carcinogens classified by the International Agency for Research on Cancer, as well as broader exposure categories that may potentially contain carcinogenic constituents. Jobs involving ≥1 and ≥7 night shifts/month were compared with day-shift jobs. Occupations and industries were coded using National Occupational Classification (2016) and North American Industry Classification System (2017) codes. Generalized linear mixed models with random intercepts for participant, occupation code (2-digit level), and industry code (2-digit level) were used to estimate odds ratios (OR) for exposures associated with night- versus day-shift work, adjusting for biological sex and job start year. **Results**: Night shifts were associated with greater odds of any hazardous exposure [≥1 night shift/month: OR 3.1, 95% confidence interval (CI) 2.6-3.8; ≥7 night shifts/month: OR 3.1, 95% CI 2.5-3.8]. Significant associations were observed for multiple agents, including asbestos, degreasing agents, diesel engine exhaust, gasoline engine exhaust, ionizing radiation, mineral/cutting/lubricating oil, paints/stains/varnish, welding fume, and wood dust. **Conclusions**: Night-shift work was associated with an increased likelihood of self-reported exposure to multiple potentially carcinogenic agents, independent of broad occupational and industry groupings. Future research with more granular task-level information and quantitative exposure assessment will be important for clarifying the mechanisms underlying these differences.

Parks et al. 2026.
Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Occupational exposure; carcinogenic substances; night shift; day shift.
Evidence Level: 4B
Link: https://www.sjweh.fi/article/4307

Using social media to highlight inhaled occupational exposures as a cause of lung disease

Introduction: The risks to lung health from workplace hazards remain incompletely understood and may still be overlooked by workers, employers and healthcare professionals. We used an online tool to collect European population-based data relating to workplace exposures, training and lung health. **Methods**: A targeted industry-specific digital tool, enquiring about the link between respiratory symptoms and work, was made accessible online over a 24-month period. **Results**: 22 393 individuals (mean age 43.6 years) responded; 55.7% were female, 46.7% completed in English, 19.9% in Portuguese, 17.8% in French, 10.5% in Dutch and 5% in German. 47% reported nasal symptoms, 42% cough, 21% chest tightness and 20% wheeze. 8412 (37.6%) reported at least one work-related symptom. The use of workplace training (11%) and guidance (17%) to prevent respiratory ill health was uncommon. 980 (5.9%) had changed their job because it had affected their breathing. Increasing age (OR 1.02 per year age increase), completion language (English (OR 0.66), French (OR 0.39)), workplace (bakery (OR 1.64), mine (OR 1.91), sports centre (OR 3.03) and farm (OR 1.77)) and workplace training (OR 0.71) were significantly associated with this outcome. These workers also had more work-related symptoms ($p<0.001$) and complained of more wheeze ($p<0.001$) and nasal symptoms ($p<0.001$). 919 (5.6%) workers with a more likely diagnosis of occupational asthma were more female, had less workplace guidance and training and had co-workers with health complaints. **Conclusion**: This tool has reached real-world working populations and these findings identify the need for further awareness raising, education and social media interventions.

Fishwick et al. 2026.
Occupational and Environmental Medicine, vol. 83, no. 4.

Keywords: Asthma; epidemiology; occupational health.
Evidence Level: 4B

Link: https://oem.bmj.com/content/83/4/217.long

Occupational particle exposure and diabetes: A cohort study in Swedish construction workers

Purpose: Diabetes is a growing global health concern. Environmental exposure to airborne particles has recently been identified as a risk factor for type 2 diabetes. Despite hundred- or thousandfold concentrations in many occupational settings, epidemiological studies in workers are very scarce. This study aims to quantify the association between occupational inorganic particle exposure and incident type 2 diabetes among Swedish construction workers. **Methods**: This was a retrospective cohort analysis in the Swedish Construction Workers' Cohort (Bygghälsokohorten), with data from occupational health examinations between 1971 and 1993. Exposure assessment was based on a cohort-specific job-exposure matrix. Data from the National Patient Register, the National Diabetes Register, and the National Prescribed Drug Register were combined to identify incident type 2 diabetes cases. Longitudinal, multivariable Cox proportional hazards regression models were fit to estimate adjusted hazard ratios (aHR). **Results**: We included 275,941 male workers with a mean follow-up time of 31 years. Slightly more than half were exposed to inorganic dusts or fumes. In crude analyses, workers exposed to inorganic dust and fumes were at an increased risk of type 2 diabetes. After confounder adjustment, only workers exposed to high levels of cement, concrete, and quartz dust were associated with an increased risk of type 2 diabetes (strongest for high levels of cement dust, aHR 1.12, 95% CI 1.02–1.24). **Conclusions**: In this large cohort of construction workers with long follow-up, workers with high exposure to cement, concrete, and quartz dust were at a moderately increased risk of type 2 diabetes.

Kilbo Edlund et al. 2026.

International Archives of Occupational and Environmental Health, vol. 99, no. 5.

Keywords: Air pollutants, occupational; construction industry; Diabetes mellitus, type 2; occupational exposure; particulate matter.

Evidence Level: 4B

Link: https://link.springer.com/article/10.1007/s00420-026-02224-4

Cardiovascular composite events and the healthy worker effect among noise-exposed workers: A retrospective cohort study

Background: Occupational noise exposure is prevalent, but its cardiovascular effects are under recognized. Most studies are cross-sectional, focus on single endpoints, and rarely account for the healthy worker effect (HWE). This study aimed to identify risk factors for cardiovascular composite events in noise-exposed workers and further assess this effect. **Methods**: This retrospective cohort study enrolled 1,381 noise-exposed workers with normal blood pressure and normal electrocardiogram at baseline in 2020. All participants were followed annually through 2023. The primary endpoint was a composite cardiovascular event (hypertension or electrocardiographic abnormality). Cox proportional hazards models were used to identify associated factors. Restriction analysis, restricted cubic spline analysis, and sensitivity analyses were performed to assess robustness. **Results**: Multivariable Cox regression identified systolic blood pressure (SBP) (HR = 1.012, 95% CI 1.005-1.020, $p < 0.001$) and smoking (HR = 1.191, 95% CI 1.029-1.377, $p = 0.019$) as independent risk factors. Work duration >120 months showed an apparent protective effect (HR = 0.621, 95% CI 0.466-0.826, $p = 0.001$). After excluding pre-employment workers, the reduced risk for >120 months persisted (HR = 0.787, 95% CI 0.638-0.969, $p = 0.024$). Forcing age into the multivariable model did not materially change the effect estimates. Sensitivity analysis showed that baseline SBP ≥ 130 mmHg was associated with a 66.3% increased risk of composite events (HR = 1.663, 95% CI 1.327-2.085, $p < 0.001$). For the hypertension endpoint, combined exposure to noise and dust (HR = 1.896, 95% CI 1.219-2.949, $p = 0.005$) and combined exposure to noise and chemical agents (HR = 1.580, 95% CI 1.013-2.463, $p = 0.044$) significantly increased risk. **Conclusion**: Smoking and elevated SBP are independent risk factors for cardiovascular composite events in noise-exposed workers. The apparent protective effect of work duration is consistent with the HWE. Combined exposure to noise with dust or chemical agents significantly increases the risk of hypertension.

Liu et al. 2026.

Frontiers in Public Health, vol. 14.

Keywords: Cox regression; cardiovascular disease; healthy worker effect; occupational noise exposure; retrospective cohort study.
Evidence Level: 4B
Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2026.1889187/full

Beyond the badge: Bridging physical and biological monitoring to strengthen occupational radiation safety

Cytogenetic dosimetry (CD) provides biological evidence of radiation exposure and is particularly valuable in emergencies. However, its routine use in occupational protection remains limited globally. This study examines the barriers to institutionalization of CD within Brazil's occupational health and safety (OHS) framework. A qualitative analysis was conducted through a critical examination of international standards, Brazilian regulations, and scientific literature. The study mapped national guidelines, identified regulatory gaps, and evaluated the implications for worker health surveillance, with a specific focus on the potential role of CD. Our analysis shows that cytogenetic dosimetry is a technically feasible, accessible, and cost-effective method for biological monitoring. Its implementation in Brazilian occupational settings is constrained by the absence of standardized protocols, a lack of professional training among OHS practitioners, and low awareness of its clinical applicability. The findings from the Brazilian context highlight the need for updated OHS policies that integrate physical dosimetry with the biological effects of radiation, providing broader insights for advancing evidence-based occupational health policies and promoting a stronger global culture of radiation protection.
Lacerda-Alves et al. 2026.
Anais da Academia Brasileira de Ciências, vol. 98, no. 2.

Keywords: Radiation exposure; emergencies; safety.
Evidence Level: 5B
Link: https://www.scielo.br/j/aabc/a/9pZm6D87T4Wz345qrQVyZkx/?lang=en

Impact of preventive measures on welding fume exposure among welders, robot operators, and bystanders: Air and biomonitoring

Objective: This study assessed occupational exposure to mild steel welding fumes among manual welders, welding-robot operators, and bystanders in two Swedish manufacturing companies, and evaluated the impact of preventive measures. **Methods**: Welding aerosol was characterized by size distributions and number concentration, size-fractionated mass and metal composition, and morphology. Exposure to respirable aerosol and metals was measured at baseline and follow-up after company-led preventive measures. Different local exhaust ventilation solutions and the effective protection factor of powered air-purifying respirators were evaluated. Metals in blood and urine were assessed in exposed workers sampled on Monday and Friday at baseline and follow-up, and in an unexposed reference group. **Results**: Welding aerosol was dominated by ultrafine particles, and substantial far-field exposure highlighted potential second-hand risks. At baseline, manual welders were highly exposed, with median Mn concentrations exceeding the EU occupational exposure limit (Company 1: 68.6 µg/m3; Company 2: 146.6 µg/m3). Robot operators (Company 1: 15.3 µg/m3; Company 2: 25.2 µg/m3) and bystanders (Company 1: 10.3 µg/m3; Company 2: 16.8 µg/m3) also experienced notable exposure. Following preventive measures, Mn exposure decreased, particularly among manual welders at Company 2 (from 146.6 to 13.3 µg/m3; a 91 % reduction). Median Mn levels were below limit values for all groups at follow-up. Urinary Mn broadly reflected these trends. Powered air-purifying respirators provided low effective protection and point exhaust ventilation was more efficient than alternative solutions. **Conclusion**: Comprehensive preventive measures reduced welding aerosol exposure across worker groups. Continued improvements are needed to ensure long-term protection for welders and bystanders.
Assenhöj et al. 2026.
International Journal of Hygiene and Environmental Health, vol. 276.

Keywords: Biomonitoring; Manganese; Mild steel; Occupational exposure; Particle characterization; Welding.
Evidence Level: 5B
Link: https://www.sciencedirect.com/science/article/pii/S1438463926000908?via%3Dihub

Occupational exposure limits for psychosocial hazards: A promising concept or a premature leap?

Objectives: We critically examined the proposal to establish occupational exposure limits (OEL) for psychosocial hazards, evaluating its scientific feasibility, methodological challenges, and implications for occupational health practice. **Methods**: We reviewed the conceptual framework and recommendations by Pauli et al and compared them with established approaches for chemical and physical hazards. Key obstacles were analyzed, including the reliance on latent constructs, terminological ambiguity, and the absence of objective exposure metrics, while considering the advent of the exposome in epidemiology, emerging technologies and political economy factors. **Results**: Our analysis shows that analogies with physical and chemical OEL offer useful insights but cannot be directly applied to psychosocial hazards. Unlike traditional hazards, psychosocial hazards are context-dependent, socially constructed, and often measured through self-reported surveys, limiting the derivation of adverse effect levels. Current psychosocial models of occupational stress aggregate diverse stressors under broad constructs, impeding actionable risk assessment. While organizational hazards such as shift work and long working hours can be objectively quantified using human resource data and sensors, social and moral dimensions remain elusive. Individual biomarkers might not offer adequate diagnostic value, while using multiple biomarkers in combination introduces challenges related to cost and feasibility. Furthermore, regulatory decisions are shaped by economic interests and stakeholder conflicts, complicating consensus and OEL adoption. **Conclusions**: A paradigm shift is required: moving from generic theoretical models to specific, measurable indicators, integrating multi-source data, and harmonizing methodologies. Without this transformation, OEL risk over-simplifying complex psychosocial phenomena and failing to achieve meaningful preventive outcomes. For occupational safety and health practice, work organizations should prioritize the more specific identification and measurement of psychosocial hazards, using context-specific data and harmonized methods, to enable more effective risk management and prevention, pending the establishment of formal occupational exposure limits for psychosocial hazards.
Guseva Canu et al. 2026.
Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Occupational exposure limits; psychosocial hazards.
Evidence Level: 6B
Link: https://www.sjweh.fi/article/4280

Sedentary Practices

Associations between room function, office design, workplace spatial layout, and sitting patterns during office work: A field study

Objective: We investigated associations between room function, office design, workplace spatial layout, and office workers' sitting behavior. **Methods**: We analyzed sit-to-stand and stand-to-sit transitions of 48 office workers during one work week (accelerometry), all office locations that those workers visited (end-of-day questionnaire), and physical features of those office locations (coded). **Results**: Office workers sat longer in offices than in meeting rooms; stood longer in large, shared offices; stood longer in offices with two workstations compared to one; stood longer in offices that had additional chairs; and sat longer when waste paper bins were out of arm's reach. **Conclusions**: Office workers' sitting patterns are-to some extent-related to workplace design. However, workplace design may impact sitting mainly through the work tasks and/or opportunities for collegial interactions that room designs afford.
Ten Broeke et al. 2026.
Journal of Occupational and Environmental Medicine, vol. 68, no. 7.

Keywords: Environment; sedentary behavior; time-to-event analysis; work characteristics; workplace design.
Evidence Level: 3b
Link: https://www.ovid.com/jnls/joem/fulltext/10.1097/jom.0000000000003660~associations-between-room-function-office-design-workplace

Physical Activity

The effects of occupational and leisure time physical activity on health-related quality of life: A repeated-measures longitudinal study

Background: High leisure time physical activity (LTPA) is consistently linked to health benefits, whereas high occupational physical activity (OPA) has been associated with adverse health outcomes, a phenomenon known as the "physical activity health paradox." This study examined how OPA and LTPA interact to influence health-related quality of life (HRQL), a measure of physical and mental well-being. **Methods**: A repeated-measures longitudinal study was conducted using data from 7382 Canadian workers (aged 18-75 years) in the National Population Health Survey (1994-2011). Multilevel growth curve models were used to assess associations between self-reported measures of LTPA (active, inactive), OPA (sit, walk/light loads, heavy loads), and OLTPA, a composite variable of their combined effects, with the Health Utility Index score (HRQL), adjusting for sociodemographic and health covariates. **Results**: Active LTPA was associated with better HRQL, whereas OPA was not. Results suggested a curvilinear response between OLTPA and HRQL with age whereby middle-aged workers lifting heavy loads at work and active LTPA have lower HRQL than older workers in the same group. Findings were similar among males, but among older females (60 + years) who lifted heavy loads at work, being inactive rather than active in leisure resulted in higher HRQL. **Conclusion**: The association between LTPA, OPA, and HRQL is complex, varying across age and sex. These findings highlight the need for physical activity recommendations that are sensitive to occupational demands when promoting health and well-being.
Prince et al. 2026.
Sports Medicine, vol. 56, no. 7.

Keywords: Occupational physical activity; leisure physical activity; quality of life.
Evidence Level: 4B
Link: https://link.springer.com/article/10.1007/s40279-025-02382-4

Musculoskeletal Health

Regional musculoskeletal pain in workers: Is the traditional medical model increasing disability?

Introduction: Musculoskeletal disorders frequently cause work disability. For low back pain, a de-medicalized approach is advocated, whereas a biomedical approach is taken for shoulder and elbow/forearm pain. **Sources of data:** PubMed, Cochrane Library, Google Scholar. **Areas of agreement:** Guidelines for the management of low back pain recommend de-medicalization, rapid mobilization, avoidance of imaging, second-line use of pharmacological treatments, and an emphasis on self-management and remaining in or rapidly returning to work. **Areas of controversy:** Despite evidence for many treatment modalities, shoulder pain and elbow/forearm pain are still managed using a biomedical model that separates conditions into distinct diseases and treats them accordingly. **Growing points:** Should pain at the shoulder and elbow/forearm be de-medicalized, with greater emphasis on maintaining mobility and work participation? **Areas timely for developing research:** Testing integrated occupational and health interventions for musculoskeletal disorders, focusing on their effectiveness in work rehabilitation and reducing disability.
Walker-Bone et al. 2026.
British Medical Bulletin, vol. 159, no. 1.

Keywords: Back pain; elbow/forearm pain; musculoskeletal disorders; musculoskeletal pain; non-specific arm pain; sickness absence; work participation.
Evidence Level: 1A
Link: https://academic.oup.com/bmb/article/159/1/ldag017/8724535?login=true

Predicting pain outcomes after digital care in chronic spinal pain: The roles of disability, work impairment, and occupation in a secondary analysis of a prospective clinical study

Objective: To evaluate whether baseline disability, work impairment, and job occupation predicted post-pain levels of a digital care program (DCP) for chronic spinal pain. **Design**: Ad hoc analysis of a real-world clinical registry of patients undergoing a DCP. **Setting**: DCP delivered remotely across the United States. **Subjects**: Adults with chronic spinal pain (N = 13 330) enrolled in a DCP through employer-sponsored health plans. **Methods**: Predictors included baseline disability (Oswestry Disability Index or Neck Disability Index), work impairment (Work Productivity and Activity Impairment questionnaire-WPAI), and occupation (job type group). Primary outcome was the last pain score reported during the intervention (11-point Numeric Pain Rating Scale). Structural equation modeling was used, adjusted for demographic and clinical covariates. Moderation analysis assessed whether effects varied by pain location (neck vs low back). **Results**: Baseline disability and occupation significantly predicted post-treatment pain. Greater disability was associated with higher last pain scores (β = 0.30, SE 0.02, P<.001). Business-related occupations were non-significantly different from trade, transportation, and utilities, but showed higher last pain score than those in goods-producing (β=-0.18, SE 0.07, P=.015) and healthcare/education (β=-0.14, SE 0.04, P=.001) jobs. WPAI Overall and WPAI Activity were not significant predictors after adjustment. Predictor effects were consistent across spinal locations. Final model explained 21.3% of variance. **Conclusions**: Baseline disability and occupation were predictors of outcomes post-digital rehabilitation for chronic spinal pain, while work impairment was non-significant. Integrating these factors into routine screening may enhance predictive accuracy, patient communication, and facilitate personalized care pathways. These results encourage confirmatory studies to reinforce these findings.
Janela et al. 2026.
Pain Medicine, vol. 27, no. 7.

Keywords: Digital therapeutic; eHealth; physical therapy; predictor; prognosis; telerehabilitation.
Evidence Level: 4B
Link: https://academic.oup.com/painmedicine/article/27/7/828/8455711?login=true

Guiding and Supporting Mental Health and Wellbeing

Mental Health

Mental health impacts of oil spill response: Insights from a global survey of emergency responders

Oil spill response operations are inherently high-stress environments that expose responders to a range of physical and psychological challenges. Despite the known mental health risks associated with emergency response work, to date there was limited research focused specifically on oil spill responders. This study aimed to identify key stressors that may affect responders as well as support that could be provided to them during and after deployment. A survey was designed and distributed to responders worldwide, yielding 272 responses from a wide range of backgrounds and experiences. The survey collected data on demographics, response roles, stressors experienced during deployment, post-deployment challenges, and desired mental health resources. Quantitative analysis included descriptive statistics, exploratory factor analysis, and subscale scoring for posttraumatic stress disorder (PTSD)-related symptoms. The most frequently reported stressors included exposure to injury or casualty, working long hours, extended deployments without time off, and stress from incident management or parent organization. Post-deployment challenges such as emotional struggles and difficulty readjusting to normal life were also

reported. Approximately 18% of respondents exhibited PTSD-type of symptoms. Responders expressed a strong desire for peer support programs, follow-up mental health services, and leadership training on mental health awareness. The findings highlight a critical need for structured mental health support before, during, and after oil spill response deployments. Integrating mental health professionals into the response, developing tailored support tools, and providing proactive training could significantly improve responder well-being and operational resilience.

Broje et al. 2026.

Marine Pollution Bulletin, vol. 228.

Keywords: Mental health; oil spill; emergency responders.

Evidence Level: 4A

Link: https://www.sciencedirect.com/science/article/pii/S0025326X26004078?via%3Dihub

Economic evaluation of a problem-solving intervention with workplace involvement among employees with common mental disorder in Swedish primary care: Results from a cluster-randomized controlled trial

Objectives: The aim of this study was to evaluate the cost-effectiveness of a problem-solving intervention with workplace involvement (PSI-WPI) compared with care as usual (CAU) among employees on sick leave due to common mental disorders in Swedish primary healthcare centers. **Methods**: Employees aged 18 to 59 years on sick leave for common mental disorders (n = 197) were included in a controlled cluster-randomized trial by coordinators (n = 19) recruited at primary care centers in Region Västra Götaland, Sweden. The study was conducted between February 2018 and August 2021, with 18 months of follow-up per participant. The economic evaluation included a cost-effectiveness analysis comparing changes in sick leave with direct costs from a healthcare perspective, calculated from register data, and intervention costs; a cost-utility analysis based on EQ-5D questionnaires and a societal perspective included indirect costs calculated from registered sick leave. Sensitivity analyses explored robustness to alternative missingness assumptions. **Results**: The PSI-WPI resulted in more sickness absence (average 40 extra days; 95% confidence interval, 3-77 days) compared with CAU and higher healthcare costs (SEK 21 650, SEK 4962-48 262) over 18 months. At 12 months, the cost of care was SEK 23 734 (SEK 537-46 931) higher in the PSI-WPI group. The difference in quality-adjusted life-years between the groups was negligible. The sensitivity analysis indicated robust results, and diagnoses not targeted by the study were important cost drivers. **Conclusions**: The PSI-WPI was not cost-effective for employees on sick leave due to common mental disorders compared with CAU only.

Gyllensten et al. 2026.

Value in Health Regional Issues, vol. 54.

Keywords: Cluster-randomized trial; common mental disorders; economic evaluation; primary care; problem-solving; sick leave; workplace involvement.

Evidence Level: 4B

Link: https://www.valuehealthregionalissues.com/article/S2212-1099(25)00484-4/fulltext

Low-burden data-driven work addiction screening: Comparing demographic and psychosocial predictors using machine learning

Background and aims: Identifying employees at risk for work addiction is critical for early intervention, yet systematic screening approaches face practical challenges for organizations. This study compared two screening strategies: a demographic-only model that requires no additional data collection versus a psychosocial model that incorporates job satisfaction and job stress assessments. **Methods**: We analyzed data from employees across 85 countries or territories. Dataset 1 (psychosocial model, n = 22,136) included demographic, occupational, and psychosocial variables. Dataset 2 (demographic model, n = 23,219) used only readily available information. Work addiction risk was assessed using the International Work Addiction Scale. Five machine learning algorithms (Logistic Regression, Random Forest, XGBoost, Neural Networks, Ensemble Voting) were evaluated on both full and Elastic Net-selected feature sets using cross-validation.

Results: The psychosocial model demonstrated superior performance. The best-balanced model (Logistic Regression with Elastic Net selection) achieved balanced accuracy of 0.72 ± 0.01, AUC-ROC of 0.80 ± 0.01, and Youden's J of 0.45 ± 0.02, correctly identifying 72.7% of at-risk individuals while maintaining 72.2% specificity. The demographic model demonstrated moderate performance (Ensemble Voting: balanced accuracy 0.61 ± 0.01, AUC-ROC 0.65 ± 0.01), yet retained practical utility, detecting 57.0% of at-risk cases. High-sensitivity configurations achieved detection rates of 71%, but with elevated false-positive rates, presenting important trade-offs for screening design. **Discussion and conclusions:** While psychosocial variables provide superior prediction, demographic-only models offer a practical screening alternative that can identify over half of at-risk individuals without an additional data-collection burden. This trade-off between predictive performance and implementation feasibility has important implications for organizational screening programs.
Woropay-Hordziejewicz et al. 2026.
Journal of Behavioral Addictions, vol. 15, no. 2.

Keywords: Job stress; machine learning; occupational health; screening; work addiction; workaholism.
Evidence Level: 4B
Link: https://www.akjournals.com/view/journals/2006/15/2/article-p900.xml

Fixing work, not workers: Leveraging artificial intelligence to combat burnout in Canadian healthcare

Burnout among healthcare workers in Canada remains a critical challenge with implications for workforce retention, patient safety, and system sustainability. Traditional responses have often emphasized individual coping strategies rather than structural change. This article argues that Artificial Intelligence (AI) might offer new opportunities to address some of the organizational drivers of burnout. We outline three domains where AI may provide value: (1) enhancing the measurement and understanding of burnout, (2) strengthening workforce planning and operational decision-making, and (3) mitigating workplace risks through process redesign and automation. By shifting attention from "fixing workers" to "fixing work," AI might be part of the "solution" to support healthier, more sustainable healthcare environments.
Martin et al. 2026.
Healthcare Management Forum, vol. 39, no. 4.

Keywords: Burnout; artificial intelligence.
Evidence Level: 6B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC13272829/

Bullying, Harassment and Occupational Violence

Associations of workplace violence with depression and anxiety among health-care workers: The mediating role of perceived work stress

Background: Workplace violence (WPV) is a pervasive occupational hazard in health-care settings and has increasingly been recognized as a major threat to health-care workers' mental health. Previous studies have consistently shown that WPV is associated with a range of adverse psychological outcomes, including depression and anxiety. However, despite the growing body of evidence documenting these associations, the underlying mechanisms through which WPV affects mental health remain insufficiently understood. **Objectives**: This study aims to examine the associations between WPV and depression and anxiety among health-care workers and to assess whether perceived work stress mediates these associations. **Methods**: A cross-sectional survey was conducted among health-care workers in Xi'an, China, using a multistage stratified cluster sampling design. Logistic regression models were used to assess associations between WPV and mental health outcomes, and the Karlson-Holm-Breen method was applied to assess the mediating role of perceived work stress. **Results**: A total of 39,773 participants were included in the final analysis, of whom 46.18% reported experiencing WPV. WPV was associated with higher odds of depression (OR = 3.79, 95% CI: 1.76-8.15) and anxiety (OR = 3.81, 95% CI: 2.11-6.90). Perceived work stress partially

mediated these relationships, accounting for 18.90% of the association with depression and 15.63% with anxiety. **Conclusions**: WPV was significantly associated with depression and anxiety among health-care workers and perceived work stress may represent a potential pathway linking WPV to these outcomes. Interventions should focus on preventing WPV and strengthening mental health support for affected staff.
Zhai et al. 2026.
Global Health Action, vol. 19, no. 1.

Keywords: Workplace violence; cross-sectional study; health—care workers; mediation; mental health.
Evidence Level: 4B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC13425534/

Sexual harassment at work: Targets' perspectives on prevention and response

Harassment, including sexual harassment, in the workplace poses a significant threat to workers' wellbeing and contributes to social inequities. Organizations play a pivotal role in both enabling and preventing workplace harassment. We use a grounded theory approach to understand how workers experience workplace sexual harassment. Drawing on semi-structured interviews with thirty U.S. workers, most from the service industry in the San Francisco Bay Area, who have experienced sexual harassment at work, we describe organizational practices that workers believe effectively prevent and respond to harassment. Findings demonstrate that workplaces may better support workers by (1) setting clear expectations that harassment will not be tolerated and (2) responding effectively to incidents of harassment by establishing an independent entity to whom victims can report incidents, providing verbal support, and taking appropriate actions to support and protect victims.
Corbett et al. 2026.
PLoS One, vol. 21, no. 7.

Keywords: Sexual harassment; work; prevention; response.
Evidence Level: 5B
Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0352783

Psychosocial Issues

Workplace stress and its associated outcomes: Ethical responsibilities of healthcare organisations

Workplace stress has a substantial impact on healthcare professionals' job performance, wellbeing and patient care. Long working hours, heavy patient loads, emergency obligations, and professional dangers contribute to chronic stress, which causes burnout, anxiety and depression. Poor leadership and toxic work environments exacerbate these issues. Implementing stress management techniques, such as workload optimisation, mental health assistance, and flexible scheduling, is necessary for ethical healthcare organisations to address these problems. In Pakistan, systemic inefficiencies, labour shortages, and poor infrastructure exacerbate workplace stress, necessitating immediate policy adjustments. A literature review was conducted across Google Scholar, PubMed, Medical Literature Analysis and Retrieval System Online and Scopus databases without language or temporal restrictions. Studies examining occupational stress, burnout or psychological wellbeing among healthcare workers were included if published in peer-reviewed journals. Authoritative health organisation reports were also included. Data was thematically analysed to identify stress-related factors, organisational responses, and ethical considerations in healthcare settings. Studies focusing on non-healthcare sectors, or lacking direct relevance to occupational stress were excluded. Adopting the World Health Organisation's workplace wellbeing paradigm could enhance healthcare infrastructure, and encouraging ethical leadership can help reduce stress and increase job satisfaction. In order to improve patient outcomes and overall healthcare efficiency, addressing workplace stress through organisational and policy initiatives will help create a healthier and more resilient healthcare mechanism.
Khan et al. 2026.
Journal of the Pakistan Medical Association, vol. 76, no. 7.

Keywords: Occupational stress, health services administration, mental health, workplace, ethics, organisational, burnout, professional.
Evidence Level: 1A
Link: https://jpma.org.pk/index.php/public_html/article/view/30833

Machine learning analysis of the association between psychosocial risks and burnout syndrome in mining workers

Introduction: Burnout syndrome represents a critical issue in occupational health, particularly in high-demand contexts such as mining, where physical, environmental, and psychosocial risks converge and affect workers' wellbeing and job performance. In this context, the study objective is to analyze the association between psychosocial risk factors and burnout syndrome among mining workers in Moquegua, Peru. **Methods**: A quantitative, analytical cross-sectional study with a non-experimental design was conducted. The study population consisted of 65 workers from a mining unit in Moquegua, Peru. Given the complete accessibility of the target population, a census approach was adopted, and all eligible workers were included in the study (N = 65). Validated instruments were used, including the SUSESO/ISTAS21 questionnaire for psychosocial risks and the Maslach Burnout Inventory. Data analysis involved descriptive and correlational statistics, multiple linear regression, and machine learning techniques. **Results**: The findings revealed significant associations between psychosocial factors particularly social support, leadership, and work-family conflict (double presence) and burnout. All analyzed factors demonstrated significant associations capacity, with double presence emerging as the most influential predictor. Furthermore, machine learning analyses identified relevant burnout-related patterns within the analyzed dataset, highlighting their effectiveness in identifying burnout-related patterns. **Discussion**: Burnout in mining is a multifactorial phenomenon influenced by organizational and psychosocial conditions. The results support the use of machine learning as an useful tool for identifying psychosocial risk patterns that may support prevention strategies, contributing to improved occupational health strategies in high-risk industrial settings.

Ramirez et al. 2026.
Frontiers in Public Health, vol. 14.

Keywords: Artificial intelligence; mining; occupational health; psychosocial risks; work-related stress.
Evidence Level: 4B
Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2026.1871339/full

Work scheduling through communication tools and job satisfaction: The roles of work-family conflict and perceived work pressure

The expansion of digital communication has increasingly blurred the boundaries between work and personal life, making work scheduling through communication tools more common. In China, mobile platforms such as WeChat are widely used to facilitate work-related scheduling and coordination, allowing work instructions and messages to be communicated without being confined to fixed time periods. Using nationally representative data from the 2021 China General Social Survey (CGSS), this study examines the association between communication-tool-mediated work scheduling and employees' job satisfaction. We use multiple linear regression models to assess whether respondents' work could be scheduled at any time via WeChat or phone and whether this workplace practice is associated with job satisfaction. Then, we further examine the mediating roles of work-family conflict and perceived work pressure using the KHB method, and conduct supplementary subgroup analyses by socioeconomic status (SES). The results show that work scheduling through communication tools is negatively associated with job satisfaction, and that this relationship is largely mediated by higher levels of work-family conflict and perceived work pressure. In addition, SES-based subgroup regressions provide suggestive evidence that this negative association is mainly observed among individuals with higher educational attainment and those in professional occupations. These findings document how work scheduling through communication tools is related to employees' subjective evaluations of work and highlight heterogeneity in these associations across socioeconomic groups in contemporary Chinese workplaces.

Sun et al. 2026.
PLoS One, vol. 21, no. 7.

Keywords: Work scheduling; communication; job satisfaction; work-family conflict; work pressure.
Evidence Level: 4B
Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0352350

The moderating role of psychosocial work factors in the association between menopausal symptoms and work impairment

Objectives: Menopausal symptoms are common and can negatively affect women's work functioning. Psychosocial work factors may play a role in how women experience these symptoms and their consequences on work. This study aims to examine the association between menopausal symptoms and work impairment, and whether psychosocial work factors moderate this association among peri- and postmenopausal women. **Methods**: Data from 9490 peri- and postmenopausal women participating in the Dutch Lifelines cohort were used. Measures included self-reported menopausal symptoms, psychosocial work factors (job demands, work pace, influence at work, job insecurity, social support from colleagues, social support from supervisor, and job control), and work impairment. A two-part modeling approach was applied: logistic regression to estimate the likelihood of reporting any work impairment and a generalized linear model to assess the severity of impairment among those affected. Interaction terms tested whether psychosocial work factors moderated the association between menopausal symptoms and work impairment. **Results**: Experiencing more severe menopausal symptoms was associated with both an increased likelihood [odds ratio (OR) 3.04, 95% confidence interval (CI) 2.84-3.26] and greater severity [Exp(β) 1.18, 95% CI 1.15-1.20] of work impairment. No moderating effects were found for most psychosocial work factors. Only job demands moderated the association between menopausal symptoms and the severity of impairment, with the association being stronger among women with high job demands than those with low demands. **Conclusion**: Menopausal symptoms contribute to both the presence and severity of work impairment. Although high job demands amplify this association, workplace strategies should support menopausal women across all work conditions.
Clevis et al. 2026.
Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Work factors; menopausal symptoms; work impairment.
Evidence Level: 4B
Link: https://www.sjweh.fi/article/4306

Work stressors associated with mental health, well-being and intention to leave among ambulance staff in England: An explanatory mixed-methods study

Background and aims: Ambulance staff have the highest sickness absence, burnout and turnover intentions in the National Health Service, with work-related stress and anxiety identified as key drivers. Although multiple occupational stressors have been reported, it remains unclear which have the greatest impact. This study examined which work stressors are most strongly associated with mental health, well-being and intention to leave; whether these associations are explained by stress appraisals and mental rest; and which staff are most vulnerable to adverse outcomes. **Methods**: A mixed-methods, explanatory, sequential design, stress audit was conducted in one ambulance service in England. An online survey with ambulance staff (n=420) assessed key stress elements (work stressors, stress appraisals, mental rest) and key outcomes (depression, well-being, intention to leave). Semistructured interviews with staff (n=8) explored the findings of the survey in more depth. Linear regression analyses examined relationships between predictors (eg, stressors) and outcomes (eg, well-being) and analysis of variances and t-tests explored differences between groups (eg, gender). A thematic analysis of qualitative data was conducted. **Results**: Quantitative and qualitative findings suggest that stress related to manager support (ie, upper management prioritising efficiency over staff needs), workplace demands (ie, organisational demands creating extra burden), poor relationships (eg, with non-peer staff) and constant change had the most negative impact on staff. Low mental rest and threat appraisals (ie, feeling 'overwhelmed' by work

demands) were strong predictors of all negative outcomes, alongside cumulative stress exposure and negative emotional responses. Longer tenure, supervisory roles, mixed urban-rural working and male gender were associated with greater risk of poorer outcomes. **Conclusions**: This study offers a comprehensive and novel insight into the stress experiences of ambulance staff. Findings underscore the need for theoretically-informed, evidence-based interventions that integrate organisational reform and individual support strategies to mitigate sickness absence, safeguard well-being and prevent attrition.
Anchors et al. 2026.
BMJ Open, vol. 16, no. 7.

Keywords: Emergency service, hospital; health workforce; mental health; occupational stress.
Evidence Level: 5B
Link: https://bmjopen.bmj.com/content/16/7/e119532.long

'We Feel Invisible a Lot of the Time': Insights into the roles of alcohol and other drug lived and living experience workers

Introduction: The employment of alcohol and other drug lived and living experience (LLE) workers has increased. Although there is a growing literature on challenges faced by LLE workers, there remains a gap in understanding the unique challenges and facilitators of frontline workers in diverse settings. Additionally, it is unclear what unique barriers are faced by living experience workers. **Method**: Seven focus groups were recorded and transcribed with a total of 16 LLE worker participants. Themes from focus groups were analysed using thematic analysis. Two themes were identified: (i) experiences of validation; and (ii) supporting the workforce. **Results**: While most participants felt valued by clients, many spoke about experiences of stigmatisation by colleagues, which was evident for workers in hospital settings, possibly reflecting organisational models of care and their maturity in employing LLE workers. Living experience workers spoke about experiencing stigma that was underpinned by discriminatory policies and laws. **Discussion and conclusions**: The findings and discussion highlight the challenges faced by the LLE workforce that may be underpinned by in-group and out-group identity, lack of support structures, a lack of role clarity, and several other factors. Addressing these issues is important for any organisation that employs or intends to employ alcohol and other drug lived or living experience workers.
Roxburgh et al. 2026.
Drug and Alcohol Review, vol. 45, no. 5.

Keywords: Addiction; peer recovery support services; peer support specialist; peer work; qualitative.
Evidence Level: 5B
Link: https://onlinelibrary.wiley.com/doi/10.1111/dar.70199

Fostering Work Participation

Return to Work

A web-based self-management intervention for return-to-work among persons with common mental disorders on sick leave: Case Study of mWorks

Background: mWorks is a co-designed, web-based self-management intervention developed to empower persons with common mental disorders who are on sick leave during the return-to-work process. However, limited knowledge of how mWorks is delivered and engaged with in real-world settings constrains further development and implementation. In line with the Medical Research Council framework for complex intervention evaluation, such an approach is required to examine (1) contextual factors influencing implementation, (2) fidelity and variation in delivery, and (3) how service users and professionals experience and respond to the intervention. **Objective**: This study aimed to evaluate the process of implementing mWorks, specifically focusing on assessing the intervention's delivery in relation to the context, implementation process, and mechanisms of impact. **Methods**: This single-case study was

bounded by the delivery period of 10 weeks in a primary and specialist mental health service context. During this period, return-to-work professionals (n=2) and service users (n=6) collaborated to initiate mWorks usage. Both qualitative and quantitative methods were used to triangulate multiple data sources. **Results**: The pandemic and mental health problems posed contextual barriers, particularly during recruitment. However, perceptions of mWorks as a credible and relevant intervention facilitated its implementation. The delivery was performed according to plan, with minimal adaptations. All users adhered to the intervention, and dialogue meetings were highly valued. mWorks was used flexibly according to users' needs, both during sick leave and at work. The potential impacts included a transformative process for users, fostering acceptance, self-esteem, self-compassion, and a sense of control. It also had the potential to prevent mental ill health, transform negatives into positives, facilitate disclosure of mental health, and support goal setting. The use of quantitative measures for empowerment, engagement, self-efficacy, depression stigma, and quality of life proved feasible and supported the assumptions and direction of results. **Conclusions**: The recruitment stage of the implementation program encountered significant contextual barriers. However, once the delivery stage began, the implementation of mWorks proved to be feasible. Despite the limited scope of this study, with its small number of participants, the triangulation of data suggests that both users and professionals benefited from mWorks.
Engdahl et al. 2026.
JMIR Formative Research, vol. 10.

Keywords: Mental health; mobile health; primary health care; supported employment; vocational rehabilitation.
Evidence Level: 5B
Link: https://formative.jmir.org/2026/1/e92617

Organisational Issues

The indirect effect of organizational justice on job performance and happiness through work engagement and burnout: A multilevel study

Organizational justice is an important organizational-level resource that may facilitate employees' motivation and personal development. The aim of the current study is to test the indirect effect of organizational justice on job performance and happiness through two key psychological states: work engagement and burnout. Based on Job Demands-Resources theory, it was hypothesized that the organizational justice would be positively associated with job performance and happiness via increased work engagement and decreased burnout. In the study participated 216 employees, nested in 62 organizations. Multilevel analyses with MLwiN software revealed that organizational justice related positively and indirectly to both job performance and happiness through higher levels of work engagement. Furthermore, justice also exerted positive indirect effects on performance and happiness through its negative association with burnout. These findings suggest that organizational justice may initiate a motivational process that can enhance both work-related outcomes and personal well-being, supporting performance at work and flourishing beyond workplace.
Tsounis 2026.
Industrial Health, vol. 64, no. 4.

Keywords: Burnout; happiness; job performance; organizational justice; work engagement.
Evidence Level: 4B
Link: https://www.jstage.jst.go.jp/article/indhealth/64/4/64_2025-0097/_article

Speaking up under constraints: A configurational JD-R explanation of safety voice among young construction workers

Introduction: Young construction workers are exposed to high levels of occupational safety risk while often occupying relatively vulnerable positions in work groups. Safety voice is an important participatory mechanism for early hazard identification and occupational injury prevention. However, existing studies

have mainly examined the net effects of individual predictors, offering limited insight into how multiple job demands, job resources, and personal capabilities combine to enable or constrain safety voice. **Methods**: Drawing on the job demands-resources framework, this study adopted a configurational perspective to examine how different combinations of job insecurity, perceived voice cost, psychological safety, safety empowering supervision, job control, and political skill are associated with high and low safety voice among young construction workers. Survey data from 240 young construction workers in China were analyzed using fuzzy-set qualitative comparative analysis. **Results**: The findings reveal multiple configurations leading to high safety voice, indicating that no single condition is sufficient on its own. Instead, safety voice emerges when motivational permission, behavioral discretion, supervisory support, and interpersonal capability are jointly present or compensate for selected demand-side constraints. The configurations associated with low safety voice are not simple opposites of those producing high safety voice, suggesting clear causal asymmetry. **Discussion**: This study extends occupational safety and public health research by showing how safety voice among young construction workers depends on configurations of work-related demands, resources, and personal capabilities. The findings provide practical implications for injury prevention, participatory safety management, and workplace health promotion in high-risk construction settings.

Jia et al. 2026.

Frontiers in Public Health, vol. 14.

Keywords: Construction safety; fsQCA; job demands-resources theory; psychological safety; safety voice; voice cost; young workers.

Evidence Level: 5B

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2026.1886471/full

Job Design

Linking effort-reward imbalance to work engagement: Job crafting as a mediator and overcommitment as a moderator among rural teachers

While prior studies have established work engagement as a crucial antecedent to teacher effectiveness, there has been insufficient exploration of the process through which resource-related stress, particularly Effort-Reward Imbalance (ERI), depletes this vital psychological state. This study draws on Conservation of Resources (COR) theory to build an integrative model that outlines how ERI affects rural teachers' work engagement via their job crafting strategies, and how this process is conditional on their level of overcommitment. Results from a cross-sectional field study involving 482 rural teachers revealed that ERI was negatively associated with work engagement. This relationship was dually mediated by a suppression of promotion-focused job crafting and an enhancement of prevention-focused job crafting. Furthermore, the indirect effects were moderated by overcommitment, such that they were stronger for teachers with low overcommitment and non-significant for those with high overcommitment. Overall, this study extends theory by demonstrating how rural teachers engage in resource conservation and loss spirals under conditions of ERI, providing novel insights into the behavioral and dispositional mechanisms that shape engagement in under-resourced contexts.

Huang et al. 2026.

Acta Psychologica, vol. 267.

Keywords: Conservation of resources theory; effort–reward imbalance; overcommitment; prevention-focused job crafting; promotion-focused job crafting; work engagement.

Evidence Level: 4B

Link: https://www.sciencedirect.com/science/article/pii/S0001691826008711?via%3Dihub

Shift Work

Night shift work and the acceleration of chronic kidney disease onset: Dose-response relationships, interactions with cardiometabolic genetic risk, and metabolomic mediators

Objectives: The association between night shift work and chronic kidney disease (CKD) risk remains uncertain. We investigated the associations of current/lifetime night shift work with incident CKD, assessed joint effects with genetic susceptibility, and explored the mediating roles of obesity and metabolomic alterations. **Methods**: Utilizing UK Biobank data, current (N=242 721) and lifetime (N=63 659) night shift duration/frequency were assessed via questionnaires. The primary outcome was incident CKD. Polygenic risk scores (PRS) for cardiometabolic diseases (diabetes, hypertension, and cardiovascular disease) were calculated. Plasma metabolomics (249 measures, N=122 681) were analyzed. **Results**: Over 13.7 years of follow-up, 5654 incident CKD cases were identified. Compared to day workers, those who usually or always worked night shifts had a 25% higher CKD risk [adjusted hazard ratio (HRadj) 1.25, 95% confidence interval (CI) 1.10-1.41] and developed CKD 2.06 years earlier (95% CI 0.75-3.25). Lifetime night shift exposure showed consistent dose-response relationships, with 16-17% increased risks for either ≥5 cumulative years (HRadj 1.17, 95% CI1.01-1.36) or ≥3 monthly night shifts (HRadj 1.16, 95% CI1.01-1.33). Participants with both usual/always night shift exposure and high PRS for cardiometabolic diseases exhibited the greatest CKD risk. Obesity-related parameters (body mass index and waist circumference) mediated 14.7-14.8% of the observed night shift-CKD association. A novel 9-metabolite signature reflective of night shift mediated 5.47% of this association, primarily through disrupted fatty acid metabolism. **Conclusions**: Night shift work exhibits a dose-dependent association with CKD risk, exacerbated by cardiometabolic genetic predisposition and partially mediated through metabolic dysregulation and obesity. These findings underscore the need for workplace interventions targeting shift scheduling and metabolic health among high-risk workers.

Cai et al. 2026.
Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Night shift; chronic kidney disease onset; cardiometabolic genetic risk; metabolomic.
Evidence Level: 4B
Link: https://www.sjweh.fi/article/4296

Occupational-circadian disruption and physical inactivity conjointly amplify fatty liver risk: Based on liver ultrasound transient elastography

Objectives: This study investigated the conjointly negative effects of floating shift work and physical inactivity on fatty liver disease (FLD) using ultrasound- based hepatic steatosis assessment. **Material and methods:** Weighted multivariable logistic regression models were used to evaluate associations between work shifts, physical activity (PA), and FLD. Stratified and subgroup analyses were conducted to assess effect modification. Linear and quadratic regression models explored threshold effects of metabolic equivalent task (MET) levels on the degree of hepatic steatosis across shift types. **Results**: Data from 653 participants revealed that compared with the control group (controlled attenuation parameter - CAP <248), the case group (CAP ≥ 248) had a significantly higher prevalence of floating shifts (53.8% vs. 43.5%, p = 0.008) and physical inactivity (27.8% vs. 19.1%, p = 0.032). In multivariable-adjusted models, floating shifts independently increased FLD risk (odds ratio (OR) = 1.40, p = 0.019), while PA showed a borderline association with lower FLD risk (OR = 0.57, p = 0.056). Strikingly, compared to the reference group (physically active day-shift workers), physically inactive floating-shift workers had a higher risk of FLD (OR = 2.01, p = 0.049), highlighting the effects of occupational and behavioral factors. Subgroup analyses identified advanced age (OR = 2.42, p = 0.034), obesity (OR = 12.87, p < 0.001), hypertension (OR = 2.66, p = 0.028), and diabetes (OR = 6.21, p = 0.017) as critical risk factors among floating shift workers. At moderate METs (200-400 h/week), CAP values between floating and day shift workers converged with minimal differences in the quadratic regression model. Sensitivity analyses confirmed the robustness of the primary findings: the FLD risk persisted after excluding liver diseases and with an alternative PA definition (≥22 MET-h/week). A stricter CAP threshold attenuated the shift work association. Notably, adjusting for dietary pattern attenuated but did not eliminate the significant link between shift work and FLD (OR = 1.39, p = 0.030). **Conclusions**: These findings emphasize the urgent need for workplace interventions targeting shift

schedules to mitigate FLD risk, particularly in high-risk occupational populations. Int J Occup Med Environ Health. 2026;39(3):333-47.
Zhang et al. 2026.
International Journal of Occupational Medicine and Environmental Health, vol. 39, no. 3.

Keywords: CAP; fatty liver disease; occupational health; physical activity; shift work; work schedules.
Evidence Level: 4B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC13420426/

Lifetime exposure to shift work and risk of multiple sclerosis: Retrospective and prospective cohort studies in UK Biobank

Background: Multiple sclerosis (MS) is an autoimmune disease with complex aetiology involving genetic, environmental and lifestyle factors. Shift work disrupts circadian rhythms and is a potential occupational risk factor for MS, with exposure before age 20 thought to be of additional risk. **Objective**: To investigate associations between retrospective lifetime shift work exposure and MS diagnosis and between prospective shift work exposure and incident MS over 13 years of follow-up in the UK Biobank cohort. **Methods**: Participants that were in work and free of MS at baseline were followed up for 13 years, and lifetime exposure to night, day and mixed shift work was assessed in a subset of participants. Logistic regression and Cox proportional hazard models were applied to test associations between shift work and MS diagnosis, controlling for demographic and lifestyle confounders. **Results**: Lifetime exposure to mixed, day or night shift work was not associated with an increased risk of MS diagnosis. No significant associations were observed for early-life shift work exposure or in prospective analysis of those reporting shift work at baseline. Factors such as female sex, smoking, childhood obesity and reduced sunlight exposure were consistently associated with higher MS risk. **Conclusions**: There was no evidence for an association between shift work and the risk of MS diagnosis in this cohort, in retrospective analysis of lifetime exposure or in prospective studies of shift work at baseline following 13 years of follow-up. Further research is needed to elucidate mechanisms and latitudinal variations in shift work-related MS risk.
Wyse et al. 2026.
Occupational and Environmental Medicine, vol. 83, no. 4.

Keywords: Autoimmune diseases; circadian rhythm; shift work schedule.
Evidence Level: 4B
Link: https://oem.bmj.com/content/83/4/233.long

Permanent night work and risk of injuries: A register-based cohort study using payroll data

Objective: Shift work is associated with a higher injury risk, but the optimal way of organizing night work remains debated. This study examined whether the injury risk among permanent night workers differs from that of employees working other types of work schedules with or without night work. **Methods**: This register-based cohort study used payroll data from the Danish Working Hour Database over a 12-year period (2007-2018), with daily information on working hours among all hospital employees in Denmark. Work schedules were categorized according to the proportion of night, evening, and day shifts worked in the preceding 365 days. Hospital-treated injuries were identified using the Danish National Patient Register. Poisson regression with generalized estimating equations was used to estimate incidence rate ratios (IRR) for injuries across work schedules. Main analyses were adjusted for sex, age, and job type. **Results**: Among 192 711 employees contributing 298.5 million observation days, we identified 87 185 injuries. Permanent night workers had a lower injury risk compared with all other groups of shift workers and a similar risk as permanent day workers. Relative to permanent night workers, the observed injury risk was higher among evening/night workers [IRR 1.37, 95% confidence interval (CI) 1.23-1.53] and day/evening/night workers (IRR 1.37, 95% CI 1.28-1.47). **Conclusion**: Permanent night workers had lower risk of injuries than permanent evening workers and workers in 2- or 3-shift schedules. Differences in tasks, adaptation, and selection may contribute to this pattern. Injury prevention efforts should prioritize workers exposed to night shifts in combination with other shift types.
Nabe-Nielsen et al. 2026.

Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Night work; injuries; risk; work schedules.
Evidence Level: 4B
Link: https://www.sjweh.fi/article/4291

Night shift work and risk of total and site-specific cancer: Results from a prospective cohort study among Chinese men

Objective: Epidemiological evidence on the association between night shift work and cancer risk remains limited and inconsistent. This study aimed to systematically investigate this association among Chinese men. **Methods**: This population-based prospective cohort study included 61 078 men from the Shanghai Men's Health Study. Detailed information on night shift work was collected at baseline using a structured questionnaire. Cox regression model was used to estimate hazard ratios (HR) and 95% confidence intervals (CI) for total cancer and ten major site-specific cancers. Restricted cubic spline functions were used to characterize the dose-response associations for key metrics. Further analysis was conducted with lag periods of 5, 10, 15 and 20 years, and potential effect modification by lifestyle factors was tested. **Results**: During a median follow-up period of 16.1 years, 8202 incident cancer cases were identified. Participants with 11-20 years of cumulative night shift work had a higher risk of pancreatic cancer compared with never-shift workers (HR 1.59, 95% CI 1.09-2.31). This association persisted across all lag periods tested, peaking at a 15-year lag (HR 1.82, 95% CI 1.25-2.64). No significant associations were found between night shift work metrics, including night shift work experience, starting age, cumulative duration, and frequency, and the risk of total and other major site-specific cancers. No evidence of effect modification by lifestyle factors was observed. **Conclusions**: Night shift work was not associated with the risk of overall or some common cancers among Chinese men. However, an increased risk of pancreatic cancer was associated with intermediate-to-long-term night shift work.
Shen et al. 2026.
Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Night shift; risk; cancer; Chinese men.
Evidence Level: 4B
Link: https://www.sjweh.fi/article/4290

Night shift work and breast cancer risk: A cohort study based on payroll and survey data from Finland

Objective: This study aimed to (i) investigate associations between different characteristics of exposure to shift work and breast cancer risk and (ii) identify effect modifiers. **Methods**: Comprising 42 379 women from the Finnish Public Sector cohort, this longitudinal study included data from survey responses, payroll-based working hour records, and national breast cancer registry data. Cause-specific Cox proportional hazards models were used to estimate hazard ratios (HR), adjusting for age, marital status, socioeconomic status, living with a child, lifestyle, and occupational factors. Stratified analyses and interaction tests were performed to assess effect modification. **Results**: Over an average follow-up of 9.8 years, 945 women were diagnosed with breast cancer. Among women aged ≥50 years, increased risk was associated with working >3 consecutive night shifts [hazard ratio (HR) 1.64, 95% confidence interval (CI) 1.22-2.21] and evening shifts (HR 1.28, 95% CI 1.03-1.59). Sleep problems and fatigue at work modified the association between night shift work and breast cancer risk, whereas psychological distress and diurnal preference did not. Permanent night shift workers reporting sleep problems (HR 1.76, 95% CI 1.01-3.09) or fatigue at work (HR 1.90, 95% CI 1.08-3.35) had a higher risk compared to day workers with similar symptoms. **Conclusions**: Women aged ≥50 years showed increased breast cancer risk for several shift work characteristics. Permanent night shift work was especially associated with increased risk among those reporting sleep problems or fatigue. These findings may help identify groups needing closer occupational health monitoring, though causal inference is limited by the observational design. Intervention studies are required to determine whether changes in work schedules or management of sleep problems and fatigue could reduce risk.

Shiri et al. 2026.
Scandinavian Journal of Work, Environment and Health, vol. 52, no. 4.

Keywords: Night shift; breast cancer; risk; Finland.
Evidence Level: 4B
Link: https://www.sjweh.fi/article/4309

Management and Leadership

How managers support capacity to work in employees experiencing common mental disorders: A focus group study

Purpose: To explore Swedish managers' support for employees with reduced capacity to work due to common mental disorders (CMDs). Specifically, we aimed to explore (a) how managers become aware of employees experiencing CMDs, and (b) managers' strategies in supporting those employees. **Design**: Managers from public and private sectors (n = 31) participated in 8 focus group interviews. We used inductive thematic analysis and we used storylines in presenting the analysis to synthesize and illustrate the participants' experiences. **Results**: The analysis resulted in six themes, indicating that managers find out about CMDs through attentiveness to various sources of information, and they support employees' capacity to work through self-reflective, communicative, relation-oriented, accommodating, and psychosocial strategies. The storylines were as follows: The employee I know is not there, I have to trust my judgment, Playing the amateur psychologist, Keeping the employee in mind, Acting on individual needs, and Keeping the group together. **Conclusions**: Managers need knowledge about how the early signs of CMDs can be expressed to be able to provide support to employees with CMDs. Changes in capacity to work can be one such indication. Managers support employees with CMDs through a variety of strategies, despite varying levels of knowledge and experience.
Tengelin et al. 2026.
Disability and Rehabilitation, vol. 48, no. 14.

Keywords: Capacity to work; common mental disorders; focus groups; managers; return to work
Evidence Level: 5B
Link: https://pubmed.ncbi.nlm.nih.gov/41362161/

Objectification at work: The impact of algorithmic management on employee work engagement

With the increasing prevalence of digital and intelligent management, the impact of algorithmic management on employees' psychology and behavior has become a focus of scholarly attention. However, existing research predominantly views algorithmic management as a stressor from cognitive or emotional perspectives, leaving its profound impact on employees' self-concept underexplored. Drawing on social identity theory, this paper constructs a model of "algorithmic management-workplace objectification perception-employee work engagement" from the perspective of identity threat and empirically tests it using two-wave questionnaire data from 383 respondents. The findings reveal that algorithmic management is significantly negatively correlated with work engagement and that workplace objectification perception mediates this relationship. Specifically, algorithmic management is associated with employees' perception of workplace objectification by reinforcing their sense of instrumental value and powerlessness, which may deny their uniqueness and agency as human beings and is associated with diminished work engagement. This study not only enriches theoretical insights into algorithmic management and employee work engagement but also offers a new theoretical lens for understanding the potential side effects of technology-enabled management. Furthermore, it provides empirical references for organizations to optimize algorithmic management practices and balance efficiency enhancement with employee care, offering valuable implications for developing a technology-for-good paradigm in modern organizational management.
Zhang et al. 2026.
Acta Psychologica, vol. 268.

Keywords: Algorithmic management; instrumental value; powerfulness; work engagement; workplace objectification perception.
Evidence Level: 5B
Link: https://www.sciencedirect.com/science/article/pii/S0001691826011510?via%3Dihub

Empowering leadership and employee innovation through knowledge sharing: The moderating role of psychological resources in South Korea's high-technology firms

Employee innovation is essential for sustaining a competitive advantage in organizations. This study investigates how empowering leadership fosters employee innovation through knowledge-sharing behavior and the psychological conditions that moderate this process. Drawing on a contingency perspective, we focus on psychological safety, intrinsic motivation, and proactivity as moderators of the relationship between empowering leadership and knowledge sharing. Using survey data from 234 employees in high-technology firms in South Korea, we found that empowering leadership enhances employee innovation, and this effect is mediated by knowledge sharing. Furthermore, the empowering leadership-knowledge sharing relationship is moderated by psychological safety, intrinsic motivation, and proactivity. These findings clarify the mechanisms and boundary conditions through which empowering leadership translates into innovative outcomes, advancing theory by highlighting psychological resources as moderators and providing actionable insights for leaders seeking to promote innovation through knowledge sharing.
Yin et al. 2026.
Acta Psychologica, vol. 267.

Keywords: Empowering leadership; innovation; intrinsic motivation; knowledge sharing; proactivity; psychological safety.
Evidence Level: 5B
Link: https://www.sciencedirect.com/science/article/pii/S0001691826007456?via%3Dihub

Linking toxic leadership with employee turnover intentions: Examining the mediation effect of psychological well-being and organisational cynicism

Purpose: This paper examines the relationship between toxic leadership and employee turnover intentions, with psychological well-being and organisational cynicism tested as parallel mediators. This study is anchored in the JR-D Model and COR theory. **Findings**: The results indicate that toxic leadership significantly increases employees' turnover intentions both directly and indirectly. Toxic leadership negatively affects psychological well-being and positively affects organisational cynicism. Organisational cynicism, in turn, increases turnover intentions, whereas PWB is negatively associated with employees' intentions to exit. Both PWB and OC partially mediate the relationship between TL and ETIs. **Conclusions**: This study highlights the importance of early detection of TL behaviours, strengthening employees' psychological resources, and implementing a leadership accountability mechanism to enhance employee PWB and retention in a highly stressful workplace.
Noori et al. 2026.
Acta Psychologica, vol. 267.

Keywords: Employee turnover intentions; organisational cynicism; PLS-SEM; psychological well-being; toxic leadership.
Evidence Level: 6b
Link: https://www.sciencedirect.com/science/article/pii/S0001691826008887?via%3Dihub

Work Ability

Work restrictions and unfitness to work: Prevalence and risk factors a cross-sectional study on 70 000 occupational visits

Background: Few studies have assessed work restrictions and unfitness to work simultaneously, particularly on large populations, and evidence on their main influencing factors remains limited. **Objective**: To assess prevalence and risk factors of work restrictions and unfitness to work. **Method**: We included all visits conducted in occupational health departments of the Cher, over two consecutive years. Visits had to have a conclusion: fitness to work, temporary work restrictions, permanent work restrictions, and unfitness to work. Mixed multinomial models with individual random effects were used. **Results**: Among the 71,848 occupational health visits, 62,436 had a conclusion. Most (90.6%, 95 CI 90.4 to 90.8%) were fit to work, 3.2% (3.1 to 3.3%) had temporary restrictions, 4.9% (4.7 to 5.1%) had permanent restrictions, and 1.3% (1.2 to 1.4%) were unfit to work. The risk of temporary restrictions was multiplied by 1.69 (1.16 to 2.48) in workers over 55 vs < 25 years old; by 1.74 (1.42 to 2.14) in workers with disabilities; by 1.30 (1.07 to 1.58) for workers with 10-20 vs < 5 years of seniority; and by 1.57 (1.22 to 2.01) in companies with 50-199 vs < 10 workers. The risk of permanent restrictions was multiplied by 2.24 (1.68 to 2.97) in workers over 55 yo; by 1.86 (1.57 to 2.21) in workers with disabilities; by 1.47 (1.05 to 2.06) for qualified workers; by 1.24 (1.05 to 1.46) for workers with 10-20 years of seniority; and by 1.30 (1.07 to 1.58) for workers in companies with 50-199 employees. The risk of unfitness to work decreased with increasing seniority in the company, while a significant interaction between sex and sector of activity was observed for temporary restrictions. **Conclusion**: Nearly one worker out of ten were unfit to work or had restrictions. The main risk factors for both unfit to work and restrictions were older age, women, and return-to-work visits; whereas lower seniority and smaller companies were risk factors for unfit to work, and longer seniority and bigger companies were risk factors for restrictions.

Dogbla et al. 2026.
PLoS One, vol. 21, no. 7.

Keywords: Unfitness; work restrictions.
Evidence Level: 4B
Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0353939

Adapting to the Future of Work

Aging Workforce

Age and prolonged work absence after occupational same-level fall injuries in Japan: A Nationwide Retrospective Study

This nationwide retrospective study using the Japanese National Lost-Time Occupational Injury Microdata demonstrated that older workers experience longer work absences after same-level fall injuries than younger workers. These findings highlight the need for age-specific prevention and return-to-work support, particularly for older workers.

Matsugaki et al. 2026.
Geriatrics and Gerontology, vol. 26, no. 7.

Keywords: Work absence; age; fall injuries.
Evidence Level: 4B
Link: https://onlinelibrary.wiley.com/doi/10.1111/ggi.70662

Economic burden of musculoskeletal pain in Danish senior workers: A working-life expectancy approach

Background: Musculoskeletal pain (MSP) is a major occupational health challenge and a leading cause of disability and economic burden worldwide. However, prospective evidence on how pain intensity across multiple body regions affects long-term labour market participation and production losses remains limited.

This study quantifies working-life expectancy (WLE) and working years lost (WYL) associated with multisite MSP among senior workers and introduces a novel method to estimate its related economic burden. **Methods**: The study includes 23 071 Danish employees aged 50-66 years from the SeniorWorkingLife study (2018 and 2022), linked to national labour-market registers through 2024. Self-reported pain intensity (low, moderate, high) in four body regions was examined. WLE and WYL were estimated using the expected labour market affiliation method, and economic costs were calculated from individual wage data. **Results**: Moderate-to-high pain in two body regions was associated with reduced WLE and higher production losses. Employees with high back and leg pain had mean annual losses of €8167 per person (€58.8 million total), with 38% attributable to sickness absence. Total losses linked to back and leg pain were estimated at €2.0 billion (0.5% of Denmark's GDP). **Conclusion**: MSP in senior workers, particularly when affecting multiple body regions, imposes a substantial economic burden through reduced WLE and increased sickness absence. Targeted interventions are needed to manage MSP and sustain employment among older workers.

Pederson et al. 2026.

Occupational and Environmental Medicine, vol. 83, no. 4.

Keywords: Epidemiology; longitudinal studies; occupational health; statistics; workers.

Evidence Level: 4B

Link: https://oem.bmj.com/content/83/4/223.long

Interrelations of work with health and wellbeing on a 50+ year old workforce assessed using longitudinal self-reports and actigraphy

Daily activities, work, and health are closely intertwined. We closely followed 45 participants aged 50-66 years working across different sectors in a year-long study, who completed a range of baseline, weekly, and monthly Participant Reported Outcome Measures (PROMs). Participants self-reported on work-related aspects using the Brief Job Stress Questionnaire (BJSQ) and Workplace Wellbeing Question Bank (WWQB); wellbeing using the Warwick-Edinburgh Mental Wellbeing Scale (WEMWBS); and sleep using the Pittsburgh Sleep Quality Index (PSQI). Additionally, they provided wrist-worn actigraphy data collected over three periods (each period ~ 35-40 days). In total, we collected 1901 PROMs entries and 5258 days of actigraphy data. We computed 55 actigraphy measures broadly assessing physical activity, sleep, and diurnal variability characteristics. We explored statistical associations between pairs of PROMs items and between PROMs items with actigraphy measures using correlations and cross-correlations to assess similarities. We built mixed-effects models to associate PROMs items and actigraphy measures with global PSQI and total WEMWBS. We found very strong associations (>|0.5|) between BJSQ items with total WEMWBS and global PSQI, highlighting certain work aspects affect sleep and overall wellbeing, whereas actigraphy analysis provided new insights uncovering sleep quality problems including disturbances and awakenings for most participants. Additionally, the mixed-effects models revealed that actigraphy-derived sleep measures are strongly associated with total WEMWBS and global PSQI providing complementary information to PROMs. Integrating longitudinal work-related self-reports and actigraphy can provide useful personalized wellbeing- and health-insights, and should likely be considered in future smart-health monitoring systems to promote healthy aging.

Tsanas et al. 2026.

Scientific Reports, vol. 16, no. 1.

Keywords: Actigraphy; aging; self-reported outcome measures; wearable sensors; wellbeing; workers in mid-later life.

Evidence Level: 4B

Link: https://www.nature.com/articles/s41598-026-58229-z

Technology

Workload intensity in human-robot collaboration: A personalized approach to sustainable efficiency and well-being

Objective: To investigate how varying workload intensity and personalized conditions influence physiological stress responses and task efficiency in human-robot collaboration (HRC). **Background:** HRC is increasingly used to enhance productivity and reduce physical demands, yet workers' mental and physiological strain remains unaddressed. High workload intensity, often induced by robot pacing, can elevate autonomic stress responses, and current systems rarely adapt workload to individual worker capacity. Understanding how workload levels, particularly personalized pacing, affect physiological stress and task performance is essential for designing human-centric collaborative workplaces. **Methods**: The study consisted of two experiments. In the first experiment (E1), participants completed an assembly task with a collaborative robot (CR) under two workload conditions (low, high). In the second experiment (E2), participants completed an additional personalized scenario in which the CR motion parameters were adjusted to each participant's capacity. Heart rate variability (HRV) indicators were assessed, and task performance was evaluated using assembly time (AT). **Results**: In E1, the high workload reduced AT, but increased the heart rate (HR) and decreased the root mean square of successive differences (RMSSD), indicating elevated stress. In E2, the personalized scenario maintained efficiency while lowering the HR and restoring the RMSSD compared to the high-intensity condition. The high-frequency (HF) power showed no significant variation in either experiment. **Conclusions**: Workload intensity significantly affects both efficiency and physiological stress in HRC. Personalizing the CR motion parameters to worker capacity preserves performance while reducing stress responses. ApplicationAdaptive, capacity-based HRC strategies can help manufacturers sustain productivity without compromising worker well-being.

Javernik et al. 2026.
Human Factors: The Journal of the Human Factors and Ergonomics Society, vol. 68, no. 7.

Keywords: Health; heart rate variability; human-centric design; industry 5.0; physiological stress.
Evidence Level: 3B
Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC13219786/

Human-robot collaboration and customer-directed spillover: A daily diary study of state job apathy

Human-robot collaboration (HRC) is increasingly prevalent in hospitality and tourism, yet its affective implications for employees remain insufficiently understood. Drawing on Affective Events Theory and the Effort-Recovery Model, this study proposes state job apathy as a novel low-activation affective mechanism linking daily HRC to next-morning customer-directed behaviors, specifically enacted incivility toward customers and customer stewardship behavior. We further examine psychological detachment as a recovery-based moderator of this spillover process. A 10-day consecutive daily diary study was conducted with 206 hospitality and tourism employees in China, yielding 1016 matched within-person observations. Multilevel path analyses revealed that daily HRC frequency was positively associated with end-of-day state job apathy, which in turn predicted greater enacted incivility and reduced customer stewardship behavior the following morning. State job apathy partially mediated these cross-day relationships. Psychological detachment was also found to moderate the carryover of state job apathy to next-morning customer-directed behaviors: the indirect effects of HRC via apathy were significant when psychological detachment was low, but non-significant when psychological detachment was high. These findings advance HRC research by identifying a low-arousal affective pathway that complements existing threat-based accounts, suggesting that the potential behavioral risks associated with robot collaboration extend beyond the workday into subsequent customer interactions. Practically, the results highlight the importance of recovery-supportive workplace practices and job redesign strategies to mitigate the cumulative affective implications of robot-intensive work environments.

Iqbal et al. 2026.
Acta Psychologica, vol. 268.

Keywords: Customer stewardship behavior; daily diary study; enacted incivility toward customers; hospitality and tourism; human–robot collaboration; psychological detachment; state job apathy.
Evidence Level: 5B
Link: https://www.sciencedirect.com/science/article/pii/S0001691826011686?via%3Dihub

Integrating occupational health and safety into the artificial intelligence system life cycle

Artificial intelligence (AI) systems are rapidly transforming the workplace, performing tasks once limited to human intelligence such as decision-making, prediction, and pattern recognition. While AI adoption offers opportunities to improve productivity, it can also create new occupational hazards and alter working conditions in ways that may harm worker health, safety, and wellbeing. Despite broader and growing attention to safe and responsible AI, there is limited integration of occupational health and safety (OHS) principles into AI design and adoption decisions. This paper outlines a framework for embedding an OHS perspective throughout the AI system life cycle, from problem definition to system retirement. The framework aims to ensure that safety, fairness, and worker wellbeing are prioritized in AI. We describe key OHS goals for each phase of the AI life cycle and describe practical strategies to support implementation. These strategies include participatory co-design with workers, equitable data collection, model training and validation that identify and minimize safety risks, transparent deployment practices, and continuous monitoring and retraining guided by risk management frameworks. We emphasize collaboration among AI system developers, OHS professionals, and worker and workplace representatives, to anticipate and address emerging risks. Integrating OHS principles into the AI system life cycle not only helps prevent harm but also fosters worker trust, strengthens system reliability, and promotes sustainable technological adoption. Embedding OHS principles into AI development ensures that the technology contributes to, rather than compromises, the protection and wellbeing of workers in a changing world of work.
Bierbrier et al. 2026.
American Journal of Industrial Medicine, vol. 69, no. 7.

Keywords: AI system design; algorithmic bias; artificial intelligence (AI); occupational health and safety (OHS); risk management.
Evidence Level: 6B
Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.70090