

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 March 2025 only.

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Description of Evidence Levels Definitions Used in this Review

1. **Level of Evidence** – Certain study designs are scientifically stronger at answering a question. The scoring hierarchy we provided is presented below.

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

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

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

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Enabling Healthy and Safe Workplaces

Health and Wellbeing

Analysis of influencing factors of prehypertension and its development in occupational population

Objective: To determine the prevalence of prehypertension in the occupational population and the risk factors associated with the progression of hypertension. **Methods:** Data were collected from 13,791 people who attended occupational health examinations in Chengdu, Deyang and Mianyang in 2019 and 2023. Descriptive statistics were used to analyze prevalence and progression rates, and logistic regression was applied to assess factors influencing the progression from prehypertension to hypertension.

Results: The prevalence of prehypertension was 53.66% in 2019 and 55.46% in 2023. Data from 2023 indicated that 14.05% of individuals with prehypertension had developed hypertension. Chi-square analysis revealed statistically significant associations between prehypertension progression and factors such as gender, age, BMI, enterprise size and exposure to occupational harmful factors. Logistic regression identified male gender, older age, higher BMI, and smaller enterprise size as significant risk factors for hypertension progression among individuals with prehypertension. **Conclusion:** The prevalence of prehypertension is high among occupational populations in China, with higher susceptibility noted among men and individuals with elevated BMI. Occupational health intervention strategies should be developed to manage and prevent the progression of hypertension.

Zhao et al. 2025.

International Journal of Public Health, vol. 70.

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Keywords: BMI; health promotion; hypertension; occupational population; prehypertension.

Evidence Level: 4B

Link: <https://www.ssph-journal.org/journals/international-journal-of-public-health/articles/10.3389/ijph.2025.1608206/full>

Disentangling the effects of various risk factors and trends in lung cancer mortality

Lung cancer is a leading cause of mortality in oncological classifications, yet the impact of various risk factors on lung cancer mortality (LCM) in non-smokers remains unclear. This study aims to weigh out the diverse impact of multiple risk factors on LCM rates and identify trends in LCM rates worldwide. We initially employed Random Forest Tree (RFT) and Gradient Boosting Regression (GBR) to identify common primary factors influencing LCM. After eliminating four common primary factors, a comparative analysis between partial and Pearson correlations was conducted to filter out significant factors in the correlations between risk factors and LCM rates across 204 countries from 2005 to 2019. The findings show that excluding the impacts of occupational exposure to arsenic, smoking, residential radon, occupational exposure to silica, occupational exposure to asbestos, high systolic blood pressure, secondhand smoke, child wasting, and alcohol use had a considerably greater impact on LCM than particular matter pollution (PM2.5). Furthermore, a Multiple Joinpoint Regression analysis identified increasing trends of LCM rates in the 142 countries (e.g., China and India); decreasing trends in 38 countries (e.g., Denmark and Norway), and stable trends in 24 countries (e.g., Sudan, Mali, and Australia). This research suggests that in addition to considering the effects of occupational exposure to arsenic, smoking, residential radon, and occupational exposure to silica on LCM rates, occupational exposure to asbestos, high systolic blood pressure, secondhand smoke, child wasting, and alcohol use should be considered in lung cancer prevention strategies, especially in countries with increasing trends of LCM rates.

Xu et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: Gradient boosting regression; lung cancer mortality; multiple joinpoint regression; partial correlation; random forest tree.

Evidence Level: 4A

Link: <https://www.nature.com/articles/s41598-025-92373-2>

Mobile heart rate variability biofeedback for work-related stress in employees and the influence of instruction format (digital or live) on training outcome: A non-randomized controlled trial

Work-related stress is a major health issue in most industrialized countries. Heart rate variability biofeedback (HRV-BfB) can promote resilience and stress coping capacity. Mobile HRV-BfB could contribute to stress prevention in the workplace. Little is known about whether the type of training, with digital or live instruction, has an impact on the training outcome. This study analyzes the psychophysiological effects of four-week workplace resilience training with mobile HRV-BfB and the influence of instruction format (digital or live) on training success. This was a prospective, three-arm, non-randomized controlled trial with parallel group design. 73 employees of a bearing and seal manufacturer (58.9% male, 86.3% full-time employment, 67.1% office workers) attended resilience training with HRV-BfB, live (n = 24) or digital (n = 19) format, or served as waitlist controls (n = 30). HRV-BfB training spanned four weeks. Participants applied resilience techniques to increase HRV using visual biofeedback. Data were collected at baseline (T0), post-intervention (T1), and another four weeks later (T2). Primary outcome measure was the Burnout scale of the Copenhagen Psychosocial Questionnaire (COPSOQ) at T1. Secondary outcome measures included further COPSOQ scales, self-reported sleep quality (Pittsburgh Sleep Quality Index, PSQI), and HRV parameters. Burnout parameters decreased significantly in HRV-BfB and waitlist. The decrease (T0-T1 and T0-T2) showed higher effect sizes in HRV-BfB (Cohen's d: 0.63; 0.69) than in waitlist (d: 0.27; 0.36). Sleep quality improved in HRV-BfB with small effect sizes (no change for waitlist). SDNN (standard deviation of beat-to-beat intervals) increased in HRV-BfB between T0 and T1 (d: 0.23;). In subgroup analysis, digital reached higher effect sizes for improvement in burnout (d: 0.87; 0.92) and sleep quality (d: 0.59; 0.64) than live learning (burnout: d: 0.43; 0.51; sleep quality: d: 0.28; 0.22). HRV-analysis revealed no differences between subgroups. Four-week mobile HRV-BfB resilience training reduced stress and burnout symptoms in employees. No significant differences were found between HRV-BfB digital or live. Hence, companies should choose the approach that fits their company profile or, if possible, offer both formats to accommodate the different needs of employees. However, findings were nonhomogeneous and should be verified by further studies. Trial Registration: ClinicalTrials.gov , [NCT04897165](https://clinicaltrials.gov/ct2/show/study/NCT04897165), 05/18/2021, retrospectively registered.

Vagedes et al. 2025.

Applied Psychophysiology and Biofeedback, vol. 50, no. 1.

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Keywords: Biofeedback; heart rate variability; resilience; sleep quality; work-related stress; workplace intervention.

Evidence Level: 3B

Link: <https://link.springer.com/article/10.1007/s10484-024-09671-0>

Does mindfulness matter on employee outcomes? Exploring its effects via perceived stress

Background: This study investigates the relationships between mindfulness, employees' well-being, and intentions to quit their jobs and further examines the mediating role of perceived stress in these relationships. Drawing on the Job Demand-Resources model, we aim to contribute to understanding how mindfulness can impact employee well-being and turnover intentions in a non-Western organizational setting. **Methods:** A cross-sectional survey study was conducted with 205 full-time white-collar employees. The study used an online questionnaire consisting of the Perceived Stress Scale, the Mindful Attention Awareness Scale, the Intention to Quit Scale, and the Employee Well-Being Scale. The data were analyzed using a full-latent model with structural equation modeling to investigate the relationships between the variables. **Results:** The findings indicate that mindfulness is crucial in influencing employees' turnover intentions and well-being through perceived stress levels. Mindfulness is associated with lower levels of perceived stress, which in turn is positively linked to employee well-being and negatively linked to turnover intentions. **Conclusions:** This study underscores the significance of mindfulness in the workplace, particularly in non-western organizational settings. By promoting mindfulness, organizations can potentially enhance employee well-being and reduce turnover intentions, fostering a more positive and productive

work environment. The implications of these findings suggest that mindfulness interventions could be beneficial for organizations aiming to improve employee mental health and retention.

Sentin et al. 2025.

BMC Psychology, vol. 13, no. 1.

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Keywords: Employee well-being; employee turnover; mindfulness; stress mediation; workplace mindfulness.

Evidence Level: 4B

Link: <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-025-02626-y>

Working behaviours and the risk of sensorineural hearing loss: A large cohort study

Objectives: This study aimed to investigate the association between working behaviours and sensorineural hearing loss (SNHL). **Methods:** A cross-sectional analysis was conducted (N=90 286) to assess the association between working behaviours (including shift work, night shift work and physically demanding work) and the occurrence (yes/no), laterality (unilateral/bilateral), and severity (mild/severe) of SNHL. A prospective analysis was conducted to explore the association between new-onset SNHL and working behaviours (N=8341). Multivariable logistic regression and Cox regression models were performed. Subgroup analyses were further carried out, stratified by age, sex, and chronotype. Furthermore, a polygenic risk score (PRS) was calculated to assess the influence of genetic susceptibility on the relationship. **Results:** Cross-sectional analysis indicated that shift work, night shift work and physically demanding work were all associated with an increased risk of SNHL (all $P < 0.05$). These working behaviours were also associated with increased severity of SNHL (all $P < 0.05$) and a higher likelihood of bilateral SNHL (all $P < 0.05$). In prospective studies, the trends were generally consistent with the aforementioned results. Furthermore, the relationship between night shift work and SNHL was particularly pronounced among individuals with morning chronotype (P -interaction=0.007), or with ≤ 5 years noisy work environments (P -interaction=0.026). Importantly, regardless of the level of genetic risk of PRS, a positive association remained between night shift work and physically demanding work with SNHL. **Conclusions:** Both cross-sectional and prospective analysis indicated that shift work, night shift work, and physically demanding work were associated with increased risk of occurrence, laterality and severity of SNHL, regardless of PRS for SHNL.

Pang et al. 2025.

Scandinavian Journal of Work, Environment and Health, vol. 51, no. 2.

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Keywords: Sensorineural hearing loss; hearing; working behaviour.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4209>

Nonpharmacological pain management approaches among U.S. construction workers: A cross-sectional pilot study

Background: U.S. construction workers experience high rates of injury that can lead to chronic pain. This pilot study examined nonpharmacological (without medication prescribed by healthcare provider) and pharmacological (e.g., prescription opioids) pain management approaches used by construction workers.

Methods: A convenience sample of U.S. construction workers was surveyed, in partnership with the U.S. National Institute for Occupational Safety and Health (NIOSH) Construction Sector Program. Differences in familiarity and use of nonpharmacological and pharmacological pain management approaches, by demographics, were assessed using logistic regression models. A boosted regression tree model examined the most influential factors related to pharmacological pain management use, and potential reductions in use were counterfactually modeled. **Results:** Of 166 (85%) of 195 participants reporting pain/discomfort in the last year, 72% reported using pharmacological pain management approaches, including 19% using opioids. There were significant differences in familiarity with nonpharmacological approaches by gender, education, work experience, and job title. Among 37 factors that predicted using pharmacological and non-pharmacological pain management approaches, training on the risks of opioids, job benefits for unpaid leave and paid disability, and familiarity with music therapy, meditation or mindful breathing, and body

scans were among the most important predictors of potentially reducing use of pharmacological approaches. Providing these nonpharmacological approaches to workers could result in an estimated 23% (95% CI: 16%-30%) reduction in pharmacological pain management approaches. **Conclusion:** This pilot study suggests specific factors related to training, job benefits, and worker familiarity with nonpharmacological pain management approaches influence use of these approaches.

Le et al. 2025.

American Journal of Industrial Medicine, vol. 68.

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Keywords: Boosted regression tree; construction; nonpharmacological pain management; opioids; workers.

Evidence Level: 4B

Link: <https://onlinelibrary.wiley.com/doi/10.1002/ajim.23630>

Happy-productive worker thesis: The role of work characteristics, gender, and age

Happy-productive worker thesis (HPWT) research predicts four configurations depending on well-being and performance levels, one synergistic and three antagonists; however, there has been some discrepancy in the expected results of HPWT, as there are some inclusive results about the specific characteristics that lead to each one of the predicted groups. In this study, we face these discrepancies using a three-configuration model that is more realistic in the organizational context, and exploring how work characteristics, gender, and age can predict workers' membership in such configurations. We performed multinomial logistic regressions using a sample of 504 Colombian workers and their supervisors from different economic sectors. The results indicated that different work characteristics are associated with the membership of workers in each group, and how this membership varies depending on gender and age group. Our findings offer new research and practice insights about the role of HPWT in HRM (human resources management).

Bayona et al. 2025.

Plos One, vol. 20, no. 3.

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Keywords: Well-being; happy; productive; performance.

Evidence Level: 4B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0316656>

Wellbeing and job satisfaction among employees with intellectual disability

Objectives: The workplace is considered one of the key settings in which to promote health and wellbeing. Reviews of workplace health promotion have shown that workplace interventions can positively impact on mental health, nutrition, and physical activity, and can impact positively on economic indicators such as absenteeism. One of the research gaps is workplace health promotion for people with an intellectual disability. This is an important gap to address as people with an intellectual disability have higher rates of avoidable mortality relative to the general population, increased rate of mental health problems, lower levels of physical activity, and poorer nutrition. People with an intellectual disability work across a range of industries and employment settings and it is important to understand potential strategies in supporting the health and wellbeing of this cohort within workplaces. **Methods:** Forty-seven in-depth interviews were conducted with staff and supported employees from four organizations to examine job satisfaction and wellbeing experiences in the workplace and potential strategies for supporting health and wellbeing of people with an intellectual disability. **Results:** The findings revealed that currently there is a strong emphasis on strategies such as mentoring and support, flexible approaches, and customized and varied roles to support mental wellbeing. There seems to be less focus on physical activity and nutrition with limited examples of strategies addressing these topics. There are also instances of bullying being experienced in open employment settings. **Conclusions:** Further work is required to verify whether these results are consistent across the sector, but it does seem to illustrate that workplace wellbeing intervention models and strategies that are applicable in workplaces for the general population may not necessarily work in employment settings that are inclusive of people with an intellectual disability. The policy implication is that support structures so important to health and wellbeing within supported employment

settings also need to be available in open employment environments. Further research and policy work is required to develop specific models and strategies that will be applicable to this population cohort within supported and open workplace settings.

Joyce et al. 2025.

Frontiers in Public Health, vol. 13.

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Keywords: Health promotion; intellectual disability; job satisfaction; wellbeing; workplace.

Evidence Level: 5B

Link: <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1503932/full>

Prevalence of metabolic dysfunction-associated fatty liver disease among information technology employees in India

The Information Technology (IT) sector is a leading industry that fuels India's economic growth. However, the work culture in this sector often promotes sedentary lifestyle, inadequate physical activity, and unhealthy dietary patterns which are risk factors for various non-communicable disease (NCD). This study aims to assess the prevalence of metabolic dysfunction-associated fatty liver disease (MAFLD) among IT employees and its association with behavioural and biological risk factors. This cross-sectional study involved 345 IT employees in Hyderabad, India, who responded to a questionnaire on their occupational sitting, shift work, stress, sleep duration, smoking, physical activity, and food habits. Anthropometric, biochemical, metabolic, and liver function parameters were evaluated. MAFLD was diagnosed using a Vibration-Controlled Transient Elastography FibroScan. Chi-square test and Spearman's rank correlation were performed to analyse the associations and correlations between risk factors. The median age of the employees was 38 years (34-43 years) with a body mass index (BMI) of 24.4 (70.72%) obese. Approximately, 248 (71.88%), 89 (25.80%), 241 (69.86%) and 131 (37.97%) of employees were found to sit for long hours at work, had shift work, sleep deprivation and stress, respectively. Almost 72 (20.87%) of IT employees had elevated fasting blood glucose (FBG) and 264 (76.52%) had high low-density lipoprotein (LDL-C). Metabolic Syndrome (MetS) was present in 118 (34.20%) of the employees. A total of 290 (84.06%) employees had increased liver fat accumulation indicating MAFLD. There is high prevalence of MAFLD among IT employees, highlighting the urgent need for workplace interventions and health promotion initiatives addressing MAFLD risk in the IT workforce.

Bhargava et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: IT industry; liver disease; liver steatosis; MAFLD; metabolic syndrome; NAFLD; non-communicable disease.

Evidence Level: 5B

Link: <https://www.nature.com/articles/s41598-025-91482-2>

The role of the workplace food environment in eating behaviours of employees at small and medium-sized enterprises: A qualitative study in the Netherlands

Background: Workplace food environments play a pivotal role in encouraging healthy and sustainable food choices. However, research on food environments in small and medium-sized enterprises (SMEs) without a workplace cafeteria is scarce, with much of the existing research concentrating on larger or specific types of companies. This qualitative study primarily aims to explore how employers and employees perceive the workplace food environment across different types of SMEs in the Netherlands, including desk-based, mobile workforce, and on-site manual labour settings. Second, it aims to gain insight into the perceived opportunities and barriers in SMEs to promote a healthy and sustainable diet. **Methods:** This qualitative study involved 27 interviews conducted between May 2021 and February 2022, engaging both employers and employees across different types of SMEs: 10 desk-based, 8 on-site manual labour, and 9 mobile workforce SMEs. The data was analysed via a hybrid coding process, including deductive coding based on themes included in the interview guide and allowing for further codes to emerge from the data inductively. **Results:** The results showed noticeable differences in the perceived workplace food environment between the three SME types. Although structural food offerings (such as those offered through a workplace

cafeteria) were mostly lacking among all SMEs, most desk-based SMEs offered a daily facilitated lunch, whilst employees of mobile workforce SMEs typically received a daily allowance. However, similarities were also observed across the three SME types as there was a noticeable absence of financial incentives, or food policies regarding healthy and sustainable food. Barriers to promoting a healthy and sustainable diet among employees were that SMEs did not identify healthy and sustainable consumption at the workplace as their responsibility, or as a 'problem' that needed to be solved. Both employers and employees found it difficult to identify opportunities to promote healthy and sustainable diets in the workplace.

Conclusions: Across all three types of SMEs, both employers and employees described a food environment that was limited in actively encouraging healthy and sustainable food choices at the workplace. Future research should focus on developing tailored workplace policies and interventions addressing the unique food environment characteristics of different types of SMEs to improve employee eating behaviour.

Geboers et al. 2025.

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

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Keywords: Eating behaviour; employee; food environment; health promotion; small- and medium-sized enterprises; workplace.

Evidence Level: 5B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22270-w>

Work Health and Safety

Employers' perspectives of caregiver-friendly workplace policies for caregiver-employees caring for older adults in hong kong: Thematic analysis

Background: Caregiver-friendly workplace policies (CFWPs) are rare in Hong Kong. With Hong Kong facing a "silver tsunami" in the near future, it is important to understand the need for such policies and the views of employers for future facilitation. **Objective:** This study aimed to identify the support that is currently provided or that could be provided to caregiver-employees (CEs) caring for older adults in Hong Kong and assess the challenge and facilitative support for employers to adopt CFWPs in the specific context of Hong Kong. **Methods:** A qualitative research design with semistructured individual in-depth interviews with employers from Hong Kong was adopted for this study. A purposive snowball sampling method was used to recruit participants from the 7 primary industries mentioned in the Hong Kong census and from all 3 employer types (private, public, and nongovernmental organizations), which allowed the inclusion of participants sensitized to the idea and potential of CFWPs. Thematic framework analysis was used to evaluate the data collected during the interviews. **Results:** We interviewed 17 employers and managers from 7 major industries in Hong Kong (2.5 to 120,000 employees). There were 4 (24%) male and 13 (76%) female participants, and the participant age ranged from 30 to 50 years. All participants held managerial positions at the time of the interview. Of the 17 participants, 13 were from private companies, 2 were from public institutions, and 2 were from nongovernmental organizations. Four of the companies had a global presence. Four main themes were identified: (1) current support and potential support for CEs (which was limited to discretionary annual leave and unpaid leave when annual leave was exhausted), (2) challenges in adopting CFWPs, (3) facilitating support for adopting CFWPs, and (4) incentives for adopting CFWPs. The participants rated information and resources for CEs (mean 8.56, SD 0.37), bereavement leave (mean 8.47, SD 0.63), flexible working hours (mean 8.32, SD 0.48), and caregiver-inclusive corporate culture (mean 8.32, SD 0.48) as essential CFWPs for CEs in Hong Kong. **Conclusions:** While several studies have reported the types of CFWPs and their impacts on CEs, stakeholders' perspectives on CFWPs have been rarely investigated. This study found that although employers consider CFWPs as necessary and see them as a catalyst for a long-term win-win situation, the current support for CEs is discretionary and industry-specific. Government leadership is critical for formulating, piloting, and implementing CFWPs to create a friendly environment that encourages disclosure with trust and respect across industrial sectors in Hong Kong. This study identified the current unmet needs and demands of CEs from the employer's perspective, the barriers to large-scale adoption of CFWPs, and the path forward to inform further discourse and policy formulation in Hong Kong.

Lee et al. 2025.

JMIR Aging, vol. 31.

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Keywords: Aging; burnout; caregiver; employees; mental health; stress.

Evidence Level: 5B

Link: <https://aging.jmir.org/2025/1/e68061>

Noise and sound in the intensive care unit: A cohort study

Intensive care units (ICUs) are acknowledged for their propensity for noise, often exhibiting higher sound levels on average than other departments. This is mainly ascribed to a high concentration of medical devices and staff, creating an acoustic environment characterised by a high level of staff activity and a concoction of alarms from therapeutic and monitoring devices. Excessive noise in ICUs has been associated with adverse health effects and human factor impacts acknowledged to negatively affect both patients and healthcare providers. This study aimed to evaluate the sound levels of the Royal Liverpool University Hospital (RLUH) ICU and compare it against recommended guidelines. Prospective sound level measurements were taken from a six-bedded bay within the RLUH ICU between 15th June and 1st July 2022. This audit focussed on sound data that equal or exceeded 87 dBA, in accordance with levels in the UK Noise Regulations. The data involved 11 patients admitted to the bay within the defined timeframe. A retrospective review of the patients' records was conducted to identify potential noisy events during the recording period. Results revealed all LAeq and LMax measurements exceeded the recommended guidelines. Although HSE exposure limit values were not exceeded, the lowest LAmin value recorded was 44.2 dBA and only one hour from 16 days of recording (less than 1% of the time) fell below international daytime guidelines of 45 dBA. The top documented potential causes of noise were patient repositioning/personal care, medication administration and suctioning. Sound levels in the RLUH ICU considerably exceed national and international guidelines. These findings highlight the need to address the issue of noise pollution in the ICU setting. Hospital staff should consider implementing strategies and interventions for noise reduction in ICUs.

Tahvili et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: Acoustics; health facilities; Intensive care units (ICU); noise; occupational health.

Evidence Level: 4B

Link: <https://www.nature.com/articles/s41598-025-94365-8>

Temporal trend of workplace accidents incidence in Brazil, according to federative units, and by sector of economic activity

The objective of this study was to assess the temporal trend of workplace accidents (WA) incidence in Brazil, across its federative units (FU) and by economic activity sector, from 2009 to 2019. An ecological study of time series was conducted using data from the Statistical Yearbook of Occupational Accidents (AEAT InfoLogo) and the Statistical Yearbook of Social Security (AEPS InfoLogo). The annual percent change (APC) of WA incidence rates and the 95% confidence intervals were estimated through Prais-Winsten linear regression. The average WA rate per 1,000 work contracts decreased from 21.64 to 13.72, with an APC of -4.45%. The reduction was observed across all age groups, both genders, and in 26 FU. Incidence rates of WA requiring medical assistance or resulting in disability also showed a declining trend. There was also variation in the indicator among different categories of the National Classification of Economic Activities, with some categories exhibiting a more pronounced declining trend than others. The decrease in WA rates and the declining trend in FU may be the result of public policies and strategies adopted in recent years to address workplace accidents.

Santos Júnior et al. 2025.

Ciência & Saúde Coletiva, vol. 30, no. 3.

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Keywords: Workplace accidents; trend; Brazil.

Evidence Level: 4B

Link: <https://www.scielo.br/j/csc/a/BHkS4rJXD6D6GCJjJrJfsGs/?lang=en>

Factors influencing unsafe acts in the automotive industry using grounded theory and fuzzy DEMATEL

Occupational accidents are recognized as the cause of numerous severe injuries and fatalities worldwide. Unsafe Acts (UAs) and unsafe conditions are the two primary origins of accidents, identifying and prioritizing them can help prevent accidents from occurring. So, the aim of this study was to identify and prioritize the factors influencing unsafe acts in the automotive industry using grounded theory and fuzzy DEMATEL. A conceptual model using accident reports and the grounded theory approach was created. This included steps such as data collection, open coding, axial coding, selective coding, and a model saturation test. The fuzzy DEMATEL was used to determine intensity of the relationship between influencing factors. The 'Government policies' factor, with the highest value (D + R) of 1.49, stands out as a significant influence on workplace safety. As a criterion of the 'extra-organizational level,' it refers to factors outside the direct control of the organization but still influencing its operations. This factor's importance surpasses that of other factors in contributing to unsafe practices. Other crucial factors include the economic situation, foreign policy, social situation, and work environment, with values of (D + R) equal to 1.47, 1.35, 1.34, and 1.13, respectively. Among the cause groups, 'Organizational climate' had the maximum value (D - R), indicating its significant impact on unsafe practices. The 'Foreign policy' factor, with a value (D - R) equal to 0.77, was next in importance. This study's findings provide insights and actionable strategies for safety managers in the automotive industry. By understanding the causes of workers' unsafe actions and how human factors lead to accidents, they can formulate intervention strategies to prevent and control unsafe actions, empowering them to make a real difference in workplace safety.

Mohammadiyan et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: Automobile industry; fuzzy DEMATEL; grounded theory; unsafe acts.

Evidence Level: 5B

Link: <https://www.nature.com/articles/s41598-025-92184-5>

Identifying and prioritizing hazardous chemicals in construction metal structure coating systems: A roadmap for data-driven disease prevention

Introduction: Occupational exposure as a painter was classified by the International Agency for Research on Cancer (IARC) as a Group 1 carcinogen (carcinogenic to humans) in 1989. Chemical agents responsible for cancers and other illnesses among industrial painters are not well-documented. The goal of this systematic review and synthesis was to document the chemistries of metal structure coating systems, summarize data gaps on occupational exposures and health effects among painters, and identify and prioritize hazardous chemicals to guide future exposure and occupational health studies, and ultimately disease prevention efforts. **Methods:** We reviewed coating products approved by the Northeast Protective Coating Committee (NEPCOAT) for use in steel bridges in New England, with a special focus on Part B of these reactive chemical systems, and related literature on exposures and health effects. **Results:** From the review of safety datasheets (SDS), we identified 61 unique CAS numbers belonging to different Part B chemical groups of isocyanate- and epoxy-based formulations, including amine hardeners, solvents, nanomaterials, and other additives. The list of identified ingredients contained 14 potent sensitizers, two IARC Group 1 known carcinogens, and 7 IARC Group 2B possible carcinogens. Cancers of the lungs, urinary bladder, liver, kidneys, and gastrointestinal system, allergic contact dermatitis, lung fibrosis, and asthma were some possible disease endpoints. Existing occupational exposure studies focused on solvent exposures, while exposure and biomonitoring studies of amine hardeners and other ingredients of concern in these formulations are lacking. **Conclusions:** The list of chemicals of concern identified here, including sensitizers and carcinogens, can serve as a basis for analytical method development and field exposure assessment studies. A national multi-pronged strategy to reduce chemical exposures and health risks among construction painters is warranted, including research on exposure monitoring and reduction efforts, longitudinal epidemiological studies, and product reformulation.

Patel et al. 2025.

American Journal of Industrial Medicine, vol. 68.

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Keywords: NEPCOAT; amine hardeners; cancer; epoxy; industrial painters; isocyanate; quartz; sensitization.

Evidence Level: 6A

Link: <https://onlinelibrary.wiley.com/doi/10.1002/ajim.23677>

Critical human and organizational factors for structural safety in the Dutch construction industry

Background: Human errors are widely acknowledged as the primary cause of structural failures in the construction industry. Research has found that such errors arise from the situation created by human factors and organizational factors embedded in the task context. However, these contextual factors have not been adequately addressed in the construction industry. Therefore, this study aims to identify the critical Human and Organizational Factors (HOFs) that influence structural safety in frequently performed tasks in structural design and construction. **Methods:** Through a comprehensive literature review, a framework consisting of potential critical factors called the HOPE framework, is presented. To identify the most critical HOFs that contribute to human error occurrences, a questionnaire survey to experts in the Dutch construction industry was conducted. Finally, the resulting framework was compared with three actual structural failures for validation. **Results:** This study shows that the HOFs should be extended with project-related factors (P) and working environment-related factors (E) due to the fact that these task contextual conditions play a significant role in shaping professionals' on-the-job performance. Furthermore, a survey identified 14 HOFs as critical in contributing to an error-prone situation in the structural design and construction tasks. **Conclusion:** The presented HOPE framework and the identified critical HOFs for structural safety can assist engineers with better hazard identification and quality assurance in practice.

Ren et al. 2025.

American Journal of Industrial Medicine, vol. 68.

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Keywords: Human and organizational factors; human error; structural safety; survey; the HOPE framework.

Evidence Level: 1B

Link: <https://onlinelibrary.wiley.com/doi/10.1002/ajim.23681>

Trends in opioid dispensing to injured workers following codeine scheduling changes in Australia: A retrospective cohort study

Objectives: To describe the prevalence and patterns of opioid analgesic and pain medicine dispenses, and the impact of up-scheduling of low-dose (≤ 15 mg) codeine-containing products to Australians with accepted workers' compensation time loss claims for musculoskeletal conditions between 2010 and 2019.

Design: Interrupted time series. **Setting:** Workers' compensation scheme in Victoria, Australia.

Population: Australians with accepted workers' compensation time loss claims for musculoskeletal conditions between 2010 and 2019. **Main outcome measures:** Number and proportion of workers dispensed pain medicines in the first year of claim and the monthly number, percentage of pain medicine dispenses and mean morphine equivalent dispense dose. **Results:** Nearly one-third (28.4%, $n=22\,807$) of our sample of 80 324 workers were dispensed any opioid in the first year since the workers' compensation insurer received their claim. There were no significant step or trend changes in the number or percentage of pain medicines dispensed of up-scheduled low-dose codeine. Only 2.9% of workers were ever dispensed up-scheduled low-dose codeine, specifically 2.5% after up-scheduling (1 February 2018). After up-scheduling of low-dose codeine, workers were more likely to be dispensed opioids (excluding codeine) (prevalence ratio (PR) 1.21, 99% CI 1.13, 1.31) or other pain medicines (eg, pregabalin, paracetamol) (PR 1.11, 99% CI 1.03, 1.19) compared with the year prior. There was a significant 28.5% (99% CI 16.3, 41.9) step increase (ie, increase immediately after up-scheduling) in high-dose (>15 mg) codeine with a significant trend decrease (-1.3%, 99% CI -2.5, -0.2). **Conclusion:** Up-scheduling low-dose codeine to prescription-only medicines did not significantly change the dispensing of low-dose codeine-containing products to workers with accepted workers' compensation time loss claims for musculoskeletal conditions.

Di Donato et al. 2025.

BMJ Open, vol. 15, no. 3.

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Keywords: Back pain; health policy; occupational & industrial medicine; retrospective studies.

Evidence Level: 4A

Link: <https://bmjopen.bmj.com/content/15/3/e092651.long>

Risk Assessment

Occupational risk factors for thumb carpometacarpal joint osteoarthritis: A register-based study of construction workers

Objectives: The study investigated the association between occupational biomechanical risk factors and the occurrence of thumb carpometacarpal joint osteoarthritis (CMC1 OA) in construction workers.

Methods: Male construction workers (n=237 525), participating in a Swedish occupational surveillance programme between 1971 and 1993, were followed between 1997 and 2019. CMC1 OA diagnoses were identified through linkage with national medical registries. Job title, smoking status, height, weight and age were collected from the surveillance programme. A job exposure matrix (JEM) was developed with exposure estimates on biomechanical risk factors for each occupational group. Relative risk (RR) of CMC1 OA diagnosis was calculated using a Poisson regression model. **Results:** There was an increased risk of CMC1 OA for all biomechanical risk factors (RR range 1.3-1.5). Exposure-response patterns were seen for repetitive wrist flexion and extension (low: RR 1.30 (95% CI 1.07 to 1.59), moderate: 1.32 (95% CI 1.07 to 1.62), high: 1.45 (95% CI 1.19 to 1.75)), wrist extension (low: 1.31 (95% CI 1.09 to 1.59), moderate: 1.41 (95% CI 1.17 to 1.70) and heavy lifting (low: 1.13 (95% CI 0.92 to 1.38), moderate: 1.45 (95% CI 1.18 to 1.77), high: 1.50 (95% CI 1.24 to 1.82). Electricians (1.29 (95% CI 1.03 to 1.89)), concrete workers (1.31 (95% CI 1.02 to 1.67)), plumbers (1.37 (95% CI 1.07 to 1.76)), sheet-metal workers (1.58 (95% CI 1.18 to 2.10)), wood workers (1.66 (95% CI 1.36 to 2.03)), repairers (1.75 (95% CI 1.06 to 2.90)) and glass workers (2.21 (95% CI 1.42 to 3.44) had an increased risk of CMC1 OA compared with the reference group.

Conclusion: Wrist movements and hand loading were associated with CMC1 OA.

Lewis et al. 2025.

Occupational and Environmental Medicine, vol. 82, no. 1.

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Keywords: Ergonomics; occupational health; osteoarthritis; vibration; workload.

Evidence Level: 4B

Link: <https://oem.bmj.com/content/82/1/14.long>

Chronic Health Issues

Recovering or working: Women's experiences of working while coping with cancer: A qualitative study

Purpose: The aim of this study was to explore women's experiences of working and returning to work while coping with cancer. **Methods:** Participants were ten Israeli women with cancer who had an active career at the time of diagnosis. Semi-structured interviews were conducted and thematically analyzed. **Results:** Four themes were generated. The first was "the meaning of work prior to the diagnosis": participants shared their perspective on the significance of work in their life prior to being diagnosed with cancer-work was construed as either time-consuming, a source for socializing, or a source for meaning and self-worth. The second was "the diagnosis of cancer and work": participants held the belief that either the cancer was caused by work or that the cancer halted their careers, in some cases both applied. The third was "the combination of work and cancer treatments": participants described severe physical, cognitive, and emotional challenges they faced, and how these affected their ability to balance work with receiving treatments. The fourth was "returning to work after cancer": participants found themselves having to balance preventative and rehabilitative care with career demands, employer expectations, and general

work-life balance adjustments. **Conclusion:** Findings suggest that healthcare professionals should assess individual perspectives and capabilities prior to returning to work and elucidate opportunities and challenges that cancer survivors may meet. Findings also reaffirm the need for formal workplace education and policies to combat discrimination and tailored return to work opportunities to survivors.

Implications for cancer survivors: Women's experiences of working while coping with cancer were thematically analyzed. These women face many challenges in the context of returning to work. Findings suggest that returning to work could be facilitated by healthcare professionals and employers through communication and tailored workplace policies.

Gershfeld-Litvin et al. 2025.

Supportive Care in Cancer, vol. 33, no. 4.

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Keywords: Cancer; rehabilitation; return to work; women; work.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s00520-025-09349-1>

Is work burden associated with postmenopausal breast cancer? A population-based 25-year follow-up

Objective: To study the association between breast cancer and work burden over 25 years.

Methods: The study was based on the Kuopio Osteoporosis Risk Factor and Prevention (OSTPRE) cohort (n = 14,220) and included women who had answered the questionnaire from the year 1994 and had no previous breast cancer. Breast cancer cases were recorded from the Finnish Cancer Registry during the study period: from 1st June 1994 till December 31, 2019. Using questionnaires, we collected information on work burden, body mass index (BMI), menopausal hormone therapy (MHT), alcohol consumption, parity, and family history of breast cancer. Work burden was categorized as low or high. Variables were used both in the univariate and multivariate Cox regression analyses to explore their associations with breast cancer.

Results: Altogether 825 women (6.9%) were diagnosed with breast cancer during the study period with a mean follow-up of 13.3 ± 7.2 years. Women with breast cancer were compared to those without breast cancer during the follow-up period (n = 11,117). A low work burden was associated with a 1.3-fold higher incidence of breast cancer (95% confidence interval 1.2-1.6) than a high work burden. Low work burden was associated with an increased breast cancer risk. **Conclusion:** Low work burden is associated with elevated postmenopausal breast cancer risk in the 25-year follow-up period.

Kalliosaari et al. 2025.

Archives of Gynecology and Obstetrics, vol. 311, no. 3.

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Keywords: Alcohol; breast cancer; family history; MHT; sedentary work; work burden.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s00404-024-07867-7>

Association between endometriosis and working life among Danish women

Study question: What is the association between endometriosis and working life (lost), workforce participation, and productivity? **Summary answer:** Women with endometriosis experienced more working years lost due to disability pension and to a smaller degree sick leave, they were less frequently working or enrolled in education, had more sick days, were less productive, and had lower work ability.

What is known already: Endometriosis is associated with negative consequences on working life; however, previous studies are based on self-reported data or smaller samples of women. To the best of our knowledge, no previous studies have quantified the average reduction in working hours during the entire span of working life using population-based registers. **Study design, size, duration:** This study included two Danish data sources. In the register-based cohort study (main analysis), a total of 2 650 554 women aged 18-65 years were followed for a total of 42.8 million person-years from 1992 to 2021. In the questionnaire-based cross-sectional study (Supplementary Analysis), 35 490 women aged 26-51 years were invited to participate and 7298 women completed the questionnaire. **Participants/materials, setting, methods:** For the main analysis, 42 741 (1.6%) were diagnosed with endometriosis. We estimated working years lost decomposed into disability pension, voluntary early retirement, or death for women with endometriosis

and the general female population. For the supplementary analysis, 270 (4.0%) reported to have endometriosis. We analysed these recent questionnaire data on women's health to further investigate working life and productivity among women with and without endometriosis. **Main results and the role of chance:** Based on the main analysis, women with endometriosis lost on average an additional 0.26 years (95% CI: 0.17-0.37) of working life compared to the general female population. This was due to sick leave and especially disability pension. For the supplementary analysis, the participation rate was 20.6%. Women with endometriosis reported to be less frequently working or enrolled in education (74.1% (95% CI 68.4%-79.2%) with endometriosis, 82.7% (95% CI 81.8%-83.7%) without) and had more sick days (4-28 sick days last 4 weeks: 16.2% (95% CI 11.6%-21.8%) with endometriosis, 7.9% (95% CI 7.2%-8.7%) without). In addition, they reported lower productivity and work ability. **Limitations, reasons for caution:** Endometriosis is underdiagnosed in the register data as only hospital diagnoses are registered and diagnoses from private practicing gynaecologists and general practitioners are missing. In addition, sick leave might be underestimated as shorter periods of sick leave are not included in the registers. Questionnaire data were self-reported including endometriosis and participants might be a selected group of women. **Wider implications of the findings:** This study is in line with previous studies on endometriosis and its impact on working life. In addition, to the best of our knowledge, no previous study has quantified the average reduction in working years over the entire working life. However, the findings might only be generalizable to a Danish or Nordic context as these countries have welfare systems with economic security during unemployment, periods with illness, or reduced ability to work. **Study funding/competing interest(s):** This study is supported by a grant from the project 'Finding Endometriosis using Machine Learning' (FEMaLe/101017562), which has received funding from The European Union's Horizon 2020 research and innovation programme. The authors have no conflicts of interest.

Røssell et al. 2025.

Human Reproduction, vol. 40, no. 3.

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Keywords: Cohort study; endometriosis; productivity; women's health; workforce participation; working years lost.

Evidence Level: 4B

Link: https://academic.oup.com/humrep/article/40/3/461/7951941?login=false#google_vignette

Use of general practitioner services among workers with work-related low back pain: A systematic review

Purpose: Work-related low back pain (WRLBP) is a highly prevalent health problem worldwide leading to work disability and increased healthcare utilisation. General practitioners (GPs) play an important role in the management of WRLBP. Despite this, understanding of GP service use for WRLBP is limited. This systematic review aimed to determine the prevalence, patterns and determinants of GP service use for WRLBP. **Methods:** MEDLINE, Embase via Ovid, Scopus and Web of Science were searched for relevant peer-reviewed articles published in English without any restriction on time of publications. Low back pain (LBP) was considered work-related if the study included workers' compensation claim data analysis, participants with accepted workers' compensation claims or reported a connection with work and LBP. The eligibility criteria for GP service use are met if there is any reported consultation with family practitioner, medical doctor or General Practitioner. Two reviewers screened articles and extracted data independently. Narrative synthesis was conducted. **Results:** Seven eligible studies reported prevalence of GP service use among workers with WRLBP ranging from 11% to 99.3%. Only studies from Australia, Canada and the United States met the eligibility criteria. The prevalence of GP service use was higher in Australia (70%) and Canada (99.3%) compared to the United States (25.3% to 39%). The mean (standard deviation) number of GP visits ranged from 2.6 (1.6) to 9.6 (12.4) over a two-year time interval post-WRLBP onset. Determinants of higher GP service use included prior history of low back pain, more severe injury, prior GP visits and younger age. **Conclusion:** Only seven studies met the eligibility indicating a relative lack of evidence, despite the acknowledged important role that GPs play in the care of workers with low back pain. More research is needed to understand the prevalence, patterns and determinants to support effective service delivery and policy development.

Maharjan et al. 2025.

Journal of Occupational Rehabilitation, vol. 35, no. 1.

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Keywords: General Practitioners; musculoskeletal disorders; primary care; work-related injury; work-related low back pain.

Evidence Level: 1A

Link: <https://link.springer.com/article/10.1007/s10926-024-10187-x>

Assessing the effects of spontaneous intracranial hypotension on quality of life, work ability and disability

Background: Spontaneous intracranial hypotension (SIH), characterized by headaches due to cerebrospinal fluid leaks or low pressure, is a challenging condition to diagnose and treat and affects the quality of life.

Methods: An 8-week online survey was conducted to assess the impact of SIH on symptoms, sociodemographics and quality of life. The cohort was comprised of patients who had a self-reported diagnosis of SIH and were divided into two groups: those with radiological evidence of SIH and those with clinical suspicion but no radiological evidence. Mental health and disability were evaluated using the Depression, Anxiety and Stress Scale-21 (DASS-21) and the Henry Ford Hospital Headache Disability Inventory (HDI). **Results:** A total of 86 participants were included in the study, 59 with radiological evidence and 27 without. Most participants were female (84.9%) with a mean age of 44.8 years. Orthostatic headache was more common in participants without radiological evidence (74.1% vs. 42.4%). The severity in those with radiological evidence was 27.1% mild, 27.1% moderate, 30.5% severe and 15.3% extremely severe, while those without had 7.4% mild, 18.5% moderate, 63.0% severe and 11.1% extremely severe headaches. Mental health assessment using the DASS-21 scale showed that 77.9% of all participants reported signs of depression, 96.5% reported anxiety and 89.5% reported stress. The HDI showed 2.3% total disability, 40.7% severe, 19.8% moderate and 37.2% mild. The impact on employment was significant: 15.1% were able to work full-time, 48.8% part-time, 30.2% were unable to work and 5.8% retired early due to SIH. **Conclusion:** The study demonstrates the broad impact of SIH affecting physical health, mental well-being, and socioeconomic status, and calls for multifaceted and robust management approaches to address its complex effects on patients.

Kapan et al. 2025.

Wiener klinische Wochenschrift, vol. 137.

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Keywords: CSF leak; headache; mental well-being; spontaneous intracranial hypotension; therapy.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s00508-024-02423-4>

Occupational Exposure

Association between exposure to volatile organic compounds and allergic symptoms: Emphasis on the cocktail effect and potential mechanisms of toxicity

Assessment of the influence of volatile organic compounds (VOCs) on allergic symptoms is usually limited to the effect of individual VOC exposure, with fewer substances being considered. Furthermore, the impact of mixed VOC exposure on allergic symptoms has rarely been addressed. This study aimed to investigate the association between mixed VOC exposure and allergic symptoms while identifying key risk factors. A total of 1901 participants from the 2005-2006 National Health and Nutrition Examination Survey (NHANES) were included. Four statistical models were employed to assess the effect of VOC exposure on allergic symptoms. The potential pathways and key targets were identified using the network pharmacology analysis methods. Positive correlations were observed between mixed VOC exposure and wheezing and eczema. N-acetyl-S-(2-carbamoyl-ethyl)-L-cysteine (AAMA) and N-acetyl-S-(3-hydroxypropyl-1-methyl)-L-cysteine (HPMM) were recognized as significant risk factors for wheezing and eczema. The network pharmacology analysis revealed significant enrichments of the PI3K-Akt and MAPK signaling pathways between AAMA and wheezing, as well as significant enrichments of the interleukin (IL)-17 and tumor

necrosis factor (TNF) signaling pathways between HPMM and eczema. Consequently, our study suggested that VOC exposure in human results in oxidative stress and inflammatory responses, increasing the risk of allergic symptoms.

Wang et al. 2025.

Ecotoxicology and Environmental Safety, vol. 293.

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Keywords: Allergic symptoms; eczema; mixed exposure; VOCs; wheezing.

Evidence Level: 4B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S0147-6513\(25\)00338-0](https://linkinghub.elsevier.com/retrieve/pii/S0147-6513(25)00338-0)

Metals (Cr, Mn, Co, Ni) concentration in the blood plasma and urine of Polish welders and telomere length as a potential indicator of toxicity of metals welding fumes exposure

Objectives: The study investigated the concentrations of metals (chromium [Cr], manganese [Mn], cobalt [Co], nickel [Ni]) in the blood plasma and urine of Polish welders exposed to these elements contained in welding dust/fumes based on the results of biological monitoring, analyze the interrelationships between these elements, and attempt to correlate these data with telomere length. It is believed that telomere length can be considered a marker of exposure, including occupational. Analysis of questionnaire surveys was also taken into consideration. **Material and methods:** The study included 118 male welders and 51 age-matched male controls. Metals analysis in plasma and urine were determined by ICP-MS technique. Telomere length was measured in blood genomic DNA using the qRT-PCR method. **Results:** Welders had significantly higher plasma levels of Cr, Ni, and Mn ($p < 0.0001$, respectively). Total concentrations of Cr, Ni, and Mn in the urine of pre-shift subjects were significantly higher compared to controls. Cobalt concentration in urine of exposed welders was significantly higher ($p < 0.02$) than in control group. Telomere length was exactly the same in the welder group compared to the control (mean \pm standard deviation 0.99 ± 0.41 vs. 0.99 ± 0.52 , respectively). Plasma and urine metal concentrations and telomere length were also studied in groups of welders in relation to personal protection equipment. Differences were found in plasma and urine metal concentrations according to the aspirators used. Statistically significant linear correlations were found between plasma and urine concentrations of the determined elements both before and after the work shift. **Conclusions:** The findings suggest a positive relationship between Ni and Mn (end-shift) concentrations and telomere length, the effect which remained statistically significant even after adjusting for age and metabolic status. This indicates a complex interplay between metal exposure and biological aging markers. However, the relationship between exposure to welding fumes and changes in telomere length in welders requires further in-depth research. *Int J Occup Med Environ Health.* 2025;38(1):70-90.

Wąsowicz et al. 2025.

International Journal of Occupational Medicine and Environmental Health, vol. 38, no. 1.

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Keywords: biological monitoring; metals; telomere length; urine; welders; welding fumes.

Evidence Level: 5B

Link: <https://ijomeh.eu/Metals-Cr-Mn-Co-Ni-concentration-in-the-blood-plasma-and-urine-of-Polish-welders,200203,0,2.html>

The Nano Exposure Quantifier: A quantitative model for assessing nanoparticle exposure in the workplace

Exposure to manufactured nanomaterials (MNs) is a growing concern for occupational health and safety. Reliable methods for assessing and predicting MN exposure are essential to mitigate associated risks. This study presents the development of the Nano Exposure Quantifier (NEQ), a mechanistic model designed to assess airborne MN exposure in the workplace. By utilizing a dataset of 128 MN measurements from existing exposure studies, the model demonstrates its effectiveness in estimating MN exposure levels for particles smaller than $10 \mu\text{m}$. The NEQ provides estimates in terms of particle number concentration accompanied by a 95% confidence interval (CI), enabling a comprehensive assessment of MN exposure. The NEQ includes 2 quantitative models: a simplified tier 1 model and a more comprehensive tier 2 model. Both

tier 1 and tier 2 models exhibit robust performance, with correlation coefficients (r) of 0.57 and 0.62, respectively. The models exhibit a moderate level of error, as indicated by residuals' standard deviation of 4.10 for tier 1 and 3.90 for tier 2. The tier 1 model demonstrates a slightly higher overestimation bias (1.15) compared to the tier 2 model (0.54). Overall, the NEQ offers a practical and reliable approach for estimating MN exposure in occupational settings. Future validation studies will investigate the impact of initial calibration efforts, heteroscedasticity, and further refine the model's accuracy.

Vermoolen et al. 2025.

Annals of Work Exposures and Health, vol. 69, no. 3.

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Keywords: Emission potential; exposure assessment; exposure modeling; modifying factors; nanoparticles; risk management.

Evidence Level: 3B

Link: <https://pmc.ncbi.nlm.nih.gov/articles/PMC11911509/>

Associations between noise exposure level, noise kurtosis, and distortion product otoacoustic emissions in young workers with normal hearing

Objectives: Growing evidence has suggested that, in addition to noise exposure level, noise temporal structure (i.e., kurtosis) plays an important role in the development of noise-induced hearing loss, while most of the relevant research has been on the results of pure-tone audiometry. This study focuses on the combined effect of noise exposure level and noise kurtosis on distortion product otoacoustic emissions (DPOAEs) in young workers with normal hearing. **Design:** A cross-sectional study among young workers in manufacturing industries was conducted in Zhejiang Province, China. Individual noise exposure measurements were performed on participants to obtain an A-weighted noise exposure level normalized to 8 hr (LAeq, 8hr), cumulative noise exposure (CNE), kurtosis, and kurtosis-adjusted CNE (CNE-K). The DPOAE test was performed on the participants and DPOAE levels were obtained. The relationships between noise exposure level, kurtosis, and DPOAE levels were explored by univariate analyses. Furthermore, multivariate regression models were conducted to estimate the combined effects of exposure level and kurtosis after adjusting for age, gender, and use of hearing protection devices. **Results:** The overall DPOAE curves across frequency bands presented a fluctuating downward trend with increasing frequency. Both exposure level and kurtosis were found to be associated with decreases in DPOAE levels. The multivariate regression model including CNE-K as a joint indicator of complex noise showed an increased R^2 compared with the model including CNE. After adjustment for age, gender, and the use of hearing protection devices, significant effects of CNE-K on DPOAE levels were observed at 3, 4, and 5 kHz frequencies, with maximum effect presented at 4 kHz. **Conclusions:** DPOAE is a sensitive test that can detect cochlear damage in limited areas that cannot be detected by conventional audiometry. The present study provided a more comprehensive understanding of the impact of complex noise on the DPOAE levels. It also suggested that CNE-K was an effective metric in assessing DPOAE levels associated with complex noise.

Wei et al. 2025.

Ear and Hearing, vol. 46, no. 2.

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Keywords: Noise exposure; noise kurtosis; hearing; distortion; otoacoustic emissions; young workers.

Evidence Level: 4B

Link: https://journals.lww.com/ear-hearing/fulltext/2025/03000/associations_between_noise_exposure_level_noise.21.aspx

The association between occupational noise exposure and hearing loss among petrochemical enterprise workers in Hainan, South China

To investigate the current situation of hearing loss and the associations of occupational noise exposure with hearing loss in petrochemical enterprise workers. This was a cross-sectional study that employed cluster sampling methods, and 951 workers aged 20-59 years from a petrochemical enterprise were included between June and December 2022. The subjects underwent health status surveys and

occupational health examinations. To assess the associations between noise level and hearing loss, a logistic regression model was used to calculate odds ratios (ORs) and 95% confidence intervals (CIs). A total of 951 participants (837 male and 114 female) were included in this study. And 68.3% of workers had a noise exposure level greater than ≥ 80 dB (A). The prevalence of speech frequency hearing loss, high-frequency hearing loss, and bilateral hearing loss among participants was 2.3% (22/951), 10.2% (97/951), and 10.3% (98/951), respectively. The prevalences of high-frequency hearing loss and binaural hearing loss were compared among subjects grouped by gender, age, family history of hyperlipidaemia, smoking status, systolic blood pressure, diastolic blood pressure, duration of noise exposure, and level of occupational noise exposure, and all differences were statistically significant (all $P < 0.01$). Compared with that of participants with noise levels < 80 dB(A), the risk of speech frequency hearing loss was significantly greater in the ≥ 90 dB(A) noise exposure group (OR: 5.33). The noise exposure level 80-89 dB(A) group (OR: 2.75) and the noise exposure level ≥ 90 dB(A) group (OR: 2.16) were both associated with a higher prevalence of high-frequency hearing loss. The noise hazards in petrochemical enterprises are severe. Long-term exposure to occupational noise environments significantly increases the risk of hearing loss among workers. Therefore, it is essential to strengthen noise control and enhance hearing protection efforts to effectively prevent excessive occupational noise exposure, thereby reducing the risk of hearing loss in workers.

Su et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: Hearing loss; high frequency; occupational noise; petrochemical enterprise; speech frequency.

Evidence Level: 4B

Link: <https://www.nature.com/articles/s41598-025-90023-1>

The time-lagged effect of noise exposure on noise annoyance: The role of temporal, spatial and social contexts

While some research has examined the time-lagged effect of restorative soundscape in specific contexts (e.g., parks), how the time-lagged effect of noise annoyance during people's daily activities may vary across different temporal, spatial, and social contexts remains largely unknown. To address this research gap, we utilized Ecological Momentary Assessment (EMA) data to measure people's real-time noise annoyance and activity diary data to assess their time-lagged noise annoyance. Real-time noise exposure was captured by portable noise sensors. We employed fixed effects ordered panel logistic regression to examine the effects of different thresholds of noise levels on people's time-lagged noise annoyance, and how it varied across different temporal, spatial, and social contexts. The results indicated that: (1) there were significant time-lagged effects between participants' real-time noise exposure and their time-lagged noise annoyance; (2) participants' time-lagged noise annoyance associated with an activity was influenced by its temporal, spatial, and social contexts, particularly on weekdays; (3) participants' time-lagged noise annoyance was significantly associated with measured noise levels, with the highest coefficient for 65 dB, followed by 70 dB; and (4) there were significant interaction effects between noise levels and temporal-spatial-social contexts on participants' time-lagged noise annoyance (particularly when noise levels exceeded 70 dB). These findings enhance our understanding and have crucial implications for the implementation of noise control policies, which should consider not only noise levels but also the time-lagged effects of noise, particularly on weekdays, at outdoor recreational activity sites, as well as the potential vulnerabilities of individuals experiencing noise exposure in isolation.

Song et al. 2025.

Social Science & Medicine, vol. 368.

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Keywords: Noise annoyance; noise exposure; social contexts; spatial contexts; temporal contexts; time-lagged.

Evidence Level: 5B

Link: <https://www.sciencedirect.com/science/article/pii/S0277953625001467?via%3Dihub>

The SAM-Krom biomonitoring study shows occupational exposure to hexavalent chromium and increased genotoxicity in Denmark

Background: Hexavalent chromium (Cr(VI)) is a carcinogen. Exposure to Cr(VI) may occur in different industrial processes such as chrome plating and stainless steel welding. The aim of this study was to assess occupational exposure to Cr(VI) in Denmark. **Methods:** This cross-sectional study included 28 workers and 8 apprentices with potential Cr(VI) exposure and 24 within company controls, all recruited from six companies and one vocational school. Use of occupational safety and health (OSH) risk prevention measures were assessed through triangulation of interviews, a questionnaire and systematic observations. Inhalable Cr(VI) and Cr-total were assessed by personal air exposure measurements on Cr(VI) exposed participants and stationary measurements. Cr concentrations were measured in urine and in red blood cells (RBC) (the latter reflecting Cr(VI)). Genotoxicity was assessed by measurement of micronuclei in peripheral blood reticulocytes (MNRET). **Results:** At announced visits, a consistent high degree of compliance to OSH risk prevention measures were seen in 'chromium bath plating' for both technical devices (e.g. ventilation, plastic balls, sheet coverings) and in the use of personal protective equipment (e.g. gloves, respirators), yet a lesser degree of compliance was observed in 'stainless steel welding'. The geometric mean of the air concentration of Cr(VI) was 0.26 $\mu\text{g}/\text{m}^3$ (95% confidence interval (CI): 0.12-0.57) for the Cr(VI)-exposed workers and 3.69 $\mu\text{g}/\text{m}^3$ (95% CI: 1.47-9.25) for the Cr(VI)-exposed apprentices. Subdivided by company type, the exposure levels were 0.13 $\mu\text{g}/\text{m}^3$ (95% CI: 0.04-0.41) for companies manufacturing and processing metal products, and 0.81 $\mu\text{g}/\text{m}^3$ (95% CI: 0.46-1.40) for bath plating companies. Workers with occupational exposure to Cr(VI) had significantly higher median levels of urinary Cr (2.42 $\mu\text{g}/\text{L}$, 5th-95th percentile 0.28-58.39), Cr in RBC (0.89 $\mu\text{g}/\text{L}$, 0.54-4.92) and MNRET (1.59 ‰, 0.78-10.92) compared to the within company controls (urinary: 0.40 $\mu\text{g}/\text{L}$, 0.16-21.3, RBC: 0.60 $\mu\text{g}/\text{L}$, 0.50-0.93, MNRET: 1.06 ‰, 0.71-2.06). When subdividing by company type, urinary Cr (4.61 $\mu\text{g}/\text{L}$, 1.72-69.5), Cr in RBC (1.33 $\mu\text{g}/\text{L}$, 0.95-4.98) and MNRET (1.89 $\mu\text{g}/\text{L}$, 0.78-12.92) levels were increased for workers with potential Cr(VI) exposure in bath-plating companies, and when subdividing by work task, workers engaged in process operation had increased levels of urinary Cr (8.51 $\mu\text{g}/\text{L}$, 1.71-69.5), Cr in RBC (1.33 $\mu\text{g}/\text{L}$, 0.95-4.98) and MNRET (1.89 $\mu\text{g}/\text{L}$, 0.82-12.92) levels. **Conclusion:** This biomonitoring study shows that bath platers were highly exposed to Cr(VI), as suggested by relatively high levels of urinary Cr, Cr in RBC and increased levels of micronuclei. The urinary Cr concentrations were high when compared to the French biological limit value of 2.5 $\mu\text{g}/\text{L}$, corresponding to the Danish occupational exposure limit of 1 $\mu\text{g}/\text{m}^3$. This, in turn, indirectly suggests that additional exposure routes than via air may contribute to the exposure. For welders, no statistically significant increases compared to within company controls were observed, however, the observed urinary Cr levels were similar to the levels observed in a European study (HBM4EU), and were higher than the levels observed for welders in Sweden (SafeChrom). In spite of a high degree of self-reported and observed compliance to OSH risk prevention measures during announced visits, the biomarkers of exposure reflecting recent exposure (urinary Cr) or exposure during the last four months (Cr in RBC) may point to variation in compliance to OSH risk prevention measures in general. Reduced occupational exposure to Cr(VI) may be achieved by applying the hierarchy of controls in eliminating or substituting Cr(VI), and the use of more effective technical solutions (e.g. automation).

Saber et al. 2025.

International Journal of Hygiene and Environmental Health, vol. 264.

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Keywords: Bath platers; biomarkers; hexavalent chromium; occupational exposure limits; vocational schools; welding.

Evidence Level: 4B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S1438-4639\(24\)00125-1](https://linkinghub.elsevier.com/retrieve/pii/S1438-4639(24)00125-1)

Occupational exposures of firefighting and prostate cancer risk in the Norwegian Fire Departments Cohort

Objectives: Excess incidence of prostate cancer (PC) is frequently observed among firefighters; however, the association with specific occupational exposures of firefighting, as well as the influence of a medical surveillance bias, remains unclear. Our aim was to study PC risk within a firefighter cohort, applying indicators of exposures. **Methods:** We used indicators of various firefighting exposures to examine PC risk

among men in the Norwegian Fire Departments Cohort (N=4251). Incident PC cases, including clinical characteristics, were obtained from the Cancer Registry of Norway (1960-2021). Cox regression was used to estimate hazard ratios (HR) by cumulative exposure in tertiles (reference: lowest) for all, aggressive, and indolent PC, with adjustment for age and birth cohort. The cumulative incidence of PC across birth cohorts and diagnostic periods was examined. **Results:** No clear associations emerged for any of the exposure indicators, although we observed an HR of 1.31 [95% confidence interval (CI) 0.63-2.72] for aggressive PC in the highest tertile of fire exposure score and 1.31 (95% CI 0.60-2.89) for indolent PC in the highest tertile of inhalation score. Assessment of cumulative incidence demonstrated a greater number of diagnoses at younger ages after 1990, particularly for indolent and unclassifiable PC. **Conclusions:** We found little support for an association between firefighting exposures and PC risk. However, our study had few cases in analyses by clinical stage. Challenges in studies of firefighters' PC risk remain, including difficulties in exposure characterization and the unclear magnitude of a medical surveillance bias.

Marjerrison et al. 2025.

Scandinavian Journal of Work, Environment and Health, vol. 51, no. 2.

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Keywords: Occupational exposures; firefighting; prostate cancer risk.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4202>

Lung cancer mortality among aircraft manufacturing workers with long-term, low-level, hexavalent chromium exposure

Hexavalent chromium (CrVI) is known to cause lung cancer among workers exposed to high concentrations in certain historical industries. It is also a toxic air contaminant considered to pose a potentially significant cancer risk at comparatively low concentrations in urban air. However, very limited data currently exist to quantify risk at low-concentration occupational or environmental exposures. This study reconstructs individual-level exposures using a job-exposure matrix (JEM) and examines mortality among 3,723 CrVI-exposed aircraft manufacturing workers, including 440 women with long-term low-level CrVI exposures and long-term follow-up. The JEM used Bayesian methods with industrial hygiene data to calculate cumulative worker exposures from 1960 to 1998. A retrospective cohort mortality study was also conducted to calculate standardized mortality ratios (SMRs) by population demographics and to conduct an internally referenced dose-response analysis. CrVI-exposed painters, electroplaters, and aircraft assembly workers, with 1 to 37 years of exposure (median: 8 years) had mean and median cumulative exposures of 16 µg/m³-yrs and 2.9 µg/m³-yrs, respectively. Based on 1,758 observed deaths, mortality from cancer overall (SMR 1.24; 95% CI 1.13-1.36), smoking-related cancers (SMR 1.31; 95% CI 1.15-1.49), and lung cancer (SMR 1.39; 95% CI 1.17-1.63) were significantly elevated and more highly elevated among women (lung cancer SMR 2.61; 95% CI:1.66-3.92). Internal analyses revealed no dose-response relationship between cumulative exposure and lung cancer mortality. Data available for 12% of CrVI-exposed workers showed smoking prevalence higher than general population norms, especially for women. The absence of a dose-response relationship with cumulative exposure suggests that elevated cancer risks are primarily smoking-related in this cohort, and possibly as a consequence, any increased risk associated with CrVI exposure is not observable. Although an association between lung cancer risk and CrVI exposure was not found, this study provides significant new observations in the low exposure range, and among women, which may be useful for quantitative risk assessment.

Lipworth et al. 2025.

Journal of Occupational and Environmental Hygiene, vol. 22, no. 3.

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Keywords: Bayesian methods; hexavalent chromium; industrial hygiene; lung cancer; retrospective; smoking.

Evidence Level: 4B

Link: <https://pubmed.ncbi.nlm.nih.gov/39773194/>

Applying machine learning algorithms to explore the impact of combined noise and dust on hearing loss in occupationally exposed populations

This study aimed to explore the combined impacts of occupational noise and dust on hearing and extra-auditory functions and identify associated risk factors via machine learning techniques. Data from 14,145 workers (627 with occupational noise-induced hearing loss (ONIHL)) at Hebei Medical Examination Center (2017-2023) were analyzed. Workers with combined exposure and without specific contraindications or other hearing impairment causes were included. Demographic and clinical data were gathered. Chi-square and Mann-Whitney U tests examined variables, and multivariate logistic regression determined ONIHL risk factors. Machine learning algorithms like Logistic Regression and Random Forest were developed, optimized, and evaluated. Results showed significant differences in gender, exposure, blood pressure, smoking, etc. between ONIHL and non-ONIHL groups. Male gender, combined exposure, diastolic blood pressure elevation, smoking, fasting blood glucose elevation, and age were positive predictors, while systolic blood pressure elevation was negative. The logistic model had the highest predictive ability (ROC = 0.714). Subgroup analysis revealed a significant positive correlation in specific subgroups. In summary, combined exposure increased ONIHL risk and affected health. Machine learning effectively predicted ONIHL, but the study had limitations and needed further research.

Li et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: Hearing loss; machine learning algorithms; noise and dust; occupational exposure; risk factors.

Evidence Level: 4B

Link: <https://www.nature.com/articles/s41598-025-93976-5>

The role of The National Register of Biological Agents in health protection of employees exposed to biological agents used intentionally at work in Poland

Objectives: This communication is aimed at outlining the role of the National Register of Biological Agents (NRoBA) in the system of working conditions supervision in Poland. **Material and methods:** The paper was prepared based on a review of Polish legislation related to employee health protection, as well as scientific literature and recommendations of expert organizations regarding the intentional use of biological agents. **Results:** Polish law obliges employers to protect the health and safety of employees occupationally exposed to harmful agents. The State Sanitary Inspection and the State Labor Inspection supervise the employer's fulfillment of these obligations. Occupational exposure to biological agents may result from their intentional use (e.g., in the biotechnology industry or a scientific laboratory) or be related to their unintentional presence (e.g., in healthcare, sewage treatment plants, municipal waste management plants). Making a distinction between these 2 types of exposure is important for employers in relation to their legal obligations. In the case of using harmful biological agents for scientific, industrial or diagnostic purposes, the employer is obliged to notify the State Sanitary Inspection. Such notifications from employers are gathered in the NRoBA. Its aim is to support hygiene supervision over the intentional use of biological agents and to increase the employer's attention to the protection of the health of employees exposed to these agents. The International Labor Organization (ILO) in 2023 published *Technical Guidelines on Biological Hazards in the Working Environment*, in which it recommended increasing the capacity for epidemiological surveillance by creating networks or dedicated websites to collect and analyze adverse events in employees of research and development laboratories. The NRoBA complies with these guidelines but in order to use it in epidemiological studies, it should be re-digitalized to extend the range of collected data. **Conclusions:** The NRoBA in its present form has been used in Poland for almost 2 decades. Now it is time for re-digitalization to ensure its full compliance with the ILO recommendations and to use it in epidemiological studies. Int J Occup Med Environ Health. 2025;38(1):91-97.

Kozajda et al. 2025.

International Journal of Occupational Medicine and Environmental Health, vol. 38, no. 1.

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Keywords: National Register of Biological Agents; biohazards; biological agents; occupational exposure; work conditions; work hygiene.

Evidence Level: 6B

Link: <https://ijomeh.eu/Role-of-National-Register-of-Biological-Agents-in-health-protection-of-employees,199494,0,2.html>

Gender differences in occupational hazard exposures within the same occupation: A nationally representative analysis in South Korea

Objective: Occupational health researchers have often treated gender as a confounder in epidemiologic studies, but gender may influence exposure profiles. This study investigated gender differences in occupational hazard exposures within the same occupation. **Methods:** We analyzed the 6th Korean Working Conditions Survey (2020), a nationally representative dataset from South Korea. After restricting the study population to 22 511 full-time wage workers, we assessed 18 self-reported occupational exposures (4 physical, 4 chemical, 1 biological, 6 musculoskeletal, 3 psychosocial). To create matched samples, each man was matched with woman in the same occupational and industrial codes using 'nearest neighbor matching' based on the propensity scores, considering age, education, employment status, the number of subordinates, and company size. This resulted in a matched study population of 3918 male and 3918 female workers in 403 occupations. Conditional logistic regression was applied to examine gender differences within the same occupation, adjusting for other covariates. **Results:** We found persistent gender differences in occupational hazard exposures, even after matching of men and women within the same occupation and industry based on propensity scores. Men reported a higher prevalence of exposure to physical (eg, loud noise) and chemical factors (eg, chemical products), while women were more likely to be exposed to psychosocial factors (eg, handling angry clients). The findings on musculoskeletal factors were mixed, with men being more exposed to standing and women to repetitive hand movements. **Conclusions:** Gender should be considered when planning interventions to reduce occupational harmful exposures, even within the same occupation.

Lee et al. 2025.

Scandinavian Journal of Work, Environment and Health, vol. 51, no. 2.

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Keywords: Gender differences; occupational hazard exposures; occupation.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4204>

Occupational exposure to inhalable agents is associated with reduced work ability: A prospective cohort study in Norway

Background: This study aimed to assess Work Ability Score (WAS) in 2018 based on self-reported data regarding inhalable occupational exposure and data from a Northern European Job-Exposure Matrix recorded in 2013. **Methods:** During the 5-year follow-up period of this population-based study, 4423 participants completed a postal questionnaire comprising self-reported questions regarding occupational exposure, work history, and WAS. **Results:** Ever, weekly, and daily exposure to vapors, gas, dust, and fumes in the last 5 years in 2013 was associated with reduced WAS in 2018. The Northern European Job-Exposure Matrix data showed that exposure to irritants, wood and paper dust, and mixed agricultural agents was associated with reduced WAS. **Conclusions:** Exposure to several occupational inhalable substances is associated with reduced work ability. We recommend reducing inhalable occupational exposure to prevent reduced work ability.

Klepaker et al. 2025.

Journal of Occupational and Environment Medicine, vol. 67, no. 3.

User License: Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0) (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Keywords: Occupational exposure; inhalable agents; reduced work ability; Norway.

Evidence Level: 4B

Link:

https://journals.lww.com/joem/abstract/2025/03000/occupational_exposure_to_inhalable_agents_is.7.aspx

Influence of work intensity on acute kidney injury risk during simulated occupational heat stress

Violation of the National Institute of Occupational Safety and Health (NIOSH) heat stress recommendations by exceeding the allowable wet bulb globe temperature (WBGT) for a given work intensity and work-rest ratio augments acute kidney injury (AKI) risk. Here, we tested the hypothesis that exceeding the allowable work intensity at a given WBGT and work-rest ratio would also worsen AKI risk. Twelve healthy adults completed two NIOSH recommendation compliant trials and one noncompliant trial consisting of a 4 h (half workday) exposure. Work-rest ratio was fixed at 30 min of walking and 30 min of rest each hour. Work intensity (metabolic heat production) was prescribed as a function of WBGT- 412 ± 51 W [$27.3 \pm 0.3^\circ\text{C}$; high-intensity compliant (Chigh)], 290 ± 75 W [$31.6 \pm 0.2^\circ\text{C}$; low-intensity compliant (Clow)], and 410 ± 61 W [$31.7 \pm 0.2^\circ\text{C}$; high-intensity noncompliant (NChigh)]. AKI risk was quantified by the product of urinary insulin-like growth factor-binding protein 7 and tissue inhibitor of metalloproteinase 2 normalized to urine specific gravity ([IGFBP7·TIMP-2]USG). Peak core temperature was higher in NChigh trial ($38.3 \pm 0.4^\circ\text{C}$) compared with the compliant trials (Chigh: $38.0 \pm 0.3^\circ\text{C}$; Clow: $37.8 \pm 0.4^\circ\text{C}$; $P \leq 0.0095$). [IGFBP7·TIMP-2]USG increased from pre- to immediately postexposure in all trials (time effect: $P = 0.0454$) but the peak increase was not different between trials [Chigh: 0.89 ± 1.7 (ng/mL) $^2/1,000$; Clow: 0.78 ± 1.7 (ng/mL) $^2/1,000$; NChigh: 1.0 ± 1.4 (ng/mL) $^2/1,000$; $P = 0.7811$]. Violating the NIOSH recommendations by exceeding either the allowable work intensity (i.e., NChigh vs. Clow) or WBGT (i.e., NChigh vs. Chigh) resulted in a modest elevation in peak core temperature but did not modify AKI risk. **NEW & NOTEWORTHY** We demonstrate that violation of the National Institute for Occupational Safety and Health heat stress recommendations by exceeding allowable work intensity by ~ 120 W or environmental limits by $\sim 4^\circ\text{C}$ wet bulb globe temperature (WBGT) at 30-min work-rest per hour results in a modest elevation in peak core temperature but does not augment acute kidney injury risk compared with scenarios that adhered to the NIOSH recommendations during simulated occupational heat stress.

Hess et al. 2025.

Journal of Applied Physiology, vol. 138, no. 3.

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Keywords: Acute kidney injury; heat stress; hydration; kidney function.

Evidence Level: 4B

Link: <https://pubmed.ncbi.nlm.nih.gov/39855252/>

Kidney cancer following occupational exposure to trichloroethylene: Clinical case series and review of the literature

Introduction: This case study describes the clinical, medical and administrative management of kidney cancer secondary to occupational exposure to trichloroethylene, a chlorinated solvent classified as a known carcinogen by the International Agency for Research on Cancer. **Method:** Data were collected from the computerized records of all patients treated by the occupational medicine department of Montpellier University Hospital for kidney cancer following occupational exposure to trichloroethylene. **Results:** The study included five patients aged between 36 and 64 years. Clinical characteristics (histology, stage at diagnosis and disease course) were variable. The patients had all been exposed to trichloroethylene before the year 2000, with a mean delay to diagnosis of 31 years. **Conclusion:** Kidney cancer is a frequent pathology, often discovered by chance, even at metastatic stages. Knowledge of occupational risks enables us to set up primary and secondary prevention measures (early detection), as well as a specific medical and social care pathway. **Level of evidence:** Not available.

Bernard de Courville et al. 2025.

The French Journal of Urology, vol. 35, no. 2.

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Keywords: Kidney neoplasms; occupational diseases; trichloroethylene.

Evidence Level: 5B

Link: <https://www.sciencedirect.com/science/article/pii/S2950393024002626?via%3Dihub>

Glioma mutational signatures associated with haloalkane exposure are enriched in firefighters

Background: Glioma is the most common malignant primary brain tumor and is associated with significant morbidity and mortality. Modifiable risk factors remain unidentified. New advances in exposure assessment, genomic analyses, and statistical techniques permit more accurate evaluation of glioma risk associated with exogenous occupational or environmental exposures. **Methods:** By using whole-exome sequencing data from matched germline and glioma tumor samples, the authors compared tumor mutational signatures for 17 persons with glioma and a documented occupational history of firefighting with those of 18 persons with glioma without an occupational history of firefighting. All 35 individuals were participants in the University of California, San Francisco Adult Glioma Study. **Results:** There was a positive correlation among firefighters between the median number of sample variants attributable to single-base substitution signature 42, a single-base substitution mutational signature associated with haloalkane exposure (from the Catalogue of Somatic Mutational Signatures in Cancer) and firefighting years ($p = .04$; $R^2 = 0.29$). Among nonfirefighters, the individuals with the highest number of median variants attributable to single-base substitution signature 42 also had occupations that possibly exposed them to haloalkanes, such as painting and being a mechanic. **Conclusions:** In summary, the authors identified gliomas that had mutational signatures associated with haloalkane exposure that were enriched in firefighters and other occupations.

Cannataro et al. 2025.

Cancer, vol. 131, no. 6.

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Keywords: Epidemiology; firefighters; glioma; haloalkane; mutation; occupation; signature.

Evidence Level: 5B

Link: <https://acsjournals.onlinelibrary.wiley.com/doi/10.1002/cncr.35732>

Impact of confounding by smoking on cancer risk estimates in cohort studies of radiation workers: A simulation study

Previous studies on cohorts of radiation workers have provided valuable insights into the effects of low-dose-rate radiation; however, some concerns regarding the potential confounding effects of smoking have been expressed. Although some studies have collected smoking data and adjusted for this variable, their limited numbers and the presence of other confounders obscure the extent of the impact of smoking on their results. To address this, we conducted a simulation study to quantitatively evaluate the bias from confounding and modeling conditions, similar to actual epidemiological studies. Our analysis, based on data from Japanese radiation workers, indicated that not adjusting for smoking can lead to an overestimation of radiation effects by approximately 110%. This overestimation was relatively insensitive to sample size and dose distribution parameters, but varied with radiation and smoking risk, baseline smoking probability, and heterogeneity in baseline risk. Considering the simplified settings of this simulation study and the uncertainty of the estimates of Japanese radiation workers, our simulation results were consistent with those of the real-world epidemiological study. We also compared the results using Cox and Poisson regression models, ensuring that their modeling approaches were as similar as possible, and found minimal differences between them.

Doi et al. 2025.

Journal of Radiation Research, vol. 66, no. 2.

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Keywords: Cancer risk estimate; cohort study; confounding; radiation workers; simulation study; smoking.

Evidence Level: 5B

Link: <https://academic.oup.com/jrr/article/66/2/115/8087987?login=false>

Sedentary Practices

Breaking the chain from the chair: A manager's perspective on reducing employees sedentary time in a home-office context

Background: Office workers have the highest estimated daily sedentary time (ST). The Covid-19 pandemic resulted in a switch from office-based work to home-office work or a hybrid of both. Home-office work has been shown to increase ST compared to the office, which may have deleterious health consequences.

Objective: This study explored managers perspectives on the factors influencing their employee's ability to reduce ST in a home-office context. **Design:** A descriptive qualitative study. **Methods:** Semi-structured interviews (n = 20), which were mapped to the COM-B model, were conducted with managers from Ireland, Spain and The Netherlands. Interviews were conducted through Zoom, recorded and transcribed verbatim. A reflexive thematic analysis approach was used. **Results:** Organisational support, management engaging in physical activity (PA) during work and a social element were seen as key to increasing engagement in interventions. Creating opportunities for employees to engage in PA during work was seen as another key element. Leveraging infrastructure put in place during the Covid-19 pandemic was identified as a feasible approach to providing education and encouragement to employees. Lastly, managers feared the impact reducing ST may have on the performance of both employees and the organisation, yet, managers felt an increase in employee well-being would benefit their company long-term. **Conclusion:** These results highlight the need to include organisational support and leadership from management, ensuring a top-down approach. These changes may create opportunities for employees to reduce their ST while working from home, which may benefit both the employees' and organisations.

Coffey et al. 2025.

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

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Keywords: Employees; health; home-office; physical activity; sedentary time.

Evidence Level: 4B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22184-7>

Physical Activity

Association of occupational physical activity and sedentary behaviour with the risk of hepatocellular carcinoma: A case-control study based on the Inpatient Clinico-Occupational Database of Rosai Hospital Group

Objectives: While there is growing evidence that physical activity reduces the risk of hepatocellular carcinoma (HCC), the impact of occupational physical activity and sedentary behaviour remains unclear. This study aimed to investigate the associations between occupational physical activity and sedentary behaviour and HCC risk. **Design:** Matched case-control study. **Setting:** Nationwide multicentre, hospital-inpatient data set in Japan, from 2005 to 2021. **Participants:** The study included 5625 inpatients diagnosed with HCC and 27 792 matched controls without liver disease or neoplasms. Participants were matched based on sex, age, admission date, and hospital. **Primary measures:** The association between levels of occupational physical activity (low, medium, high) and sedentary time (short, medium, long) with the risk of HCC. **Secondary measures:** Stratification of HCC risk by viral infection status (hepatitis B/C virus), alcohol consumption levels and the presence of metabolic diseases (hypertension, diabetes, dyslipidaemia, obesity). **Results:** High occupational physical activity was not associated with HCC caused by hepatitis B/C virus infection in men. In women, high occupational physical activity was associated with a reduced risk of non-viral HCC, with ORs (95% CIs) of 0.65 (0.45-0.93). Among patients with non-viral HCC, medium occupational physical activity combined with medium alcohol intake further decreased the HCC risk in men with an OR of 0.70 (0.50-0.97), while high occupational physical activity combined with lowest alcohol intake decreased the HCC risk in women with an OR of 0.69 (0.48-0.99). Men and women with medium sedentary time had a lower HCC risk compared with those with long sedentary time, with ORs of 0.88 (0.79-0.98) in men and 0.77 (0.62-0.97) in women, respectively. In patients without viral infection or alcohol use, medium sedentary time reduced the HCC risk associated with fatty liver disease without comorbid

metabolic diseases in women. **Conclusions:** High levels of occupational physical activity and/or medium periods of sedentary time are associated with a reduced risk of HCC, particularly non-alcoholic steatohepatitis.

Nakazawa et al. 2025.

BMJ Open, vol. 15, no. 3.

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Keywords: epidemiology; exercise; hepatobiliary tumours; occupational & industrial medicine.

Evidence Level: 5B

Link: <https://bmjopen.bmj.com/content/15/3/e092020.long>

Musculoskeletal Health

The effect of combined ergonomic training and exercises on musculoskeletal pain and ergonomic risks in supermarket cashiers: A randomized controlled trial

Purpose: This study aimed to evaluate the combined effects of a 12-week ergonomic training and exercise program on musculoskeletal pain and ergonomic risks among supermarket cashiers. **Methods:** This study cohort comprised 77 cashiers, aged between 18 and 45, who were experiencing musculoskeletal pain. Of these, 60 participants completed the study after random assignment to either the intervention group, which received ergonomic training and exercise, or the control group, which received only ergonomic training. The study lasted 12 weeks, with assessments conducted at baseline (week 0) and 12 weeks post-intervention. The outcomes included the Visual Analogue Scale, the Extended Nordic Musculoskeletal Questionnaire (NMQ-E), and the Rapid Upper Limb Assessment. The clinical trial registration number is [NCT06407440](https://clinicaltrials.gov/ct2/show/study/NCT06407440). **Results:** Musculoskeletal pain in the upper back, lower back, and hips/thighs decreased significantly after the intervention, while there were no significant changes in the control group, except for a reduction in upper back pain. A significant improvement in activity limitations was observed in the intervention group, particularly in the upper back and lower back. Consultations with health professionals for upper and lower back pain (NMQ-E) decreased significantly in the intervention group. Symptoms in the past 7 days showed a significant decrease in the intervention group, especially for the upper back, lower back, and hips/thighs, with no significant change in the control group. **Conclusion:** The integrated approach of ergonomic training and exercise programs has the potential to alleviate musculoskeletal discomfort among supermarket cashiers. These interventions may prove an effective strategy for enhancing the well-being of workers in physically demanding retail environments.

Yaşar et al. 2025.

International Archives of Occupational and Environmental Health, vol. 98, no. 2.

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Keywords: Ergonomics; exercise therapy; musculoskeletal diseases; occupational health; retail workers.

Evidence Level: 2A

Link: <https://link.springer.com/article/10.1007/s00420-025-02132-z>

Correlation between pain intensity and trunk sway in seated posture among office workers with chronic spinal pain: A pilot field-based study

This pilot study examines the relationship between pain intensity and trunk sitting postural control in 10 office workers with chronic spinal pain, using field-based real-time inertial sensors. Pain intensity was assessed with the Numeric Pain Rating Scale (NPRS) before and after work across three non-consecutive workdays, while postural control was evaluated through estimated center of pressure (COP) displacements. Linear and nonlinear metrics, including sway range, velocity, the Hurst exponent, and sample entropy, were derived from the estimated COP time series. Pearson correlation coefficients (r) and corresponding p -values were used to analyze the relationship between pain intensity and postural control. Significant correlations, though limited to specific metrics, were found ($r = -0.860$ to 0.855 ; $p < 0.05$), suggesting that higher pain intensity may be correlated with reduced postural variability. These findings provide preliminary insights into the potential link between pain intensity and postural control. Understanding

trunk posture dynamics could inform the development of targeted ergonomic interventions to reduce musculoskeletal stress and improve sitting comfort in office environments.

Oliosi et al. 2025.

Sensors, vol. 25, no. 5.

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Keywords: Chronic pain; inertial sensors; musculoskeletal disorders; pain intensity; postural control; variability.

Evidence Level: 3B

Link: <https://www.mdpi.com/1424-8220/25/5/1583>

Guiding and Supporting Mental Health and Wellbeing

Mental Health

Associations between cognitive impairment, depressive symptoms, and work productivity loss in patients with bipolar disorder: A cross-sectional analysis

Aim: To evaluate the relationship between cognitive impairment and work productivity loss in patients with bipolar disorder. **Methods:** We enrolled outpatients with bipolar disorder aged 18-59 years undergoing treatment and actively employed or on sick leave. Baseline demographic, medical resource use, and employment data were collected. We evaluated work productivity, cognitive impairment, quality of life (QOL), depressive symptoms (defined as a Patient Health Questionnaire-9 [PHQ-9] score of ≥ 10), and sleep disturbance. This interim analysis examined correlations among baseline symptom scores and correlations of each symptom score with work productivity loss and QOL. **Results:** Among 211 participants, cognitive impairment was moderately correlated with depressive symptoms ($r = 0.595$) and insomnia ($r = 0.481$), and depressive symptoms and insomnia were highly correlated ($r = 0.719$) (all $p < 0.001$). Work productivity loss (presenteeism) was moderately correlated with cognitive impairment ($r = 0.474$), depression ($r = 0.577$), and insomnia ($r = 0.547$) (all $p < 0.001$). Depression had the strongest influence on presenteeism (multiple regression analysis, regression coefficient: 22.98; $p < 0.001$). Among participants without severe depressive symptoms ($\text{PHQ-9} \leq 19$), cognitive impairment (13.91, $p = 0.007$) and insomnia (13.80, $p = 0.016$) strongly affected presenteeism. Among participants without moderately severe or severe depressive symptoms ($\text{PHQ-9} \leq 14$), insomnia affected presenteeism (23.14, $p = 0.011$). QOL was moderately negatively associated with cognitive impairment ($r = -0.653$), depression ($r = -0.699$), and insomnia ($r = -0.559$) (all $p < 0.001$). In multiple regression analysis, cognitive impairment (-0.12 , $p < 0.001$), depression (-0.12 , $p = 0.010$), and insomnia (-0.16 , $p < 0.001$) were significantly associated with QOL. **Conclusions:** Treatment should focus on improving the core symptoms of bipolar disorder, insomnia, and cognitive impairment. **Trial registration:** UMIN Clinical Trials Registry (UMIN000051519).

Takaesu et al. 2025.

Neuropsychopharmacology Reports, vol. 45, no. 1.

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Keywords: Bipolar disorder; cognitive impairment; depression; presenteeism; quality of life.

Evidence Level: 4B

Link: <https://onlinelibrary.wiley.com/doi/10.1002/npr2.70012>

Longitudinal association of exposure to work-related stress with major depressive disorder and the role of occupational burnout in this association in the general population

Purpose: To prospectively assess (1) the associations of Effort-Reward Imbalance (ERI), its individual components, and over-commitment with (a) the onset of a Major Depressive Episode (MDE) during a 3.6-year follow-up in a population-based cohort in participants with no current Major Depressive Disorder (MDD) in the beginning of the follow-up ($n = 959$), (b) incidence of MDD in the subsample of participants exempt from lifetime MDD ($n = 490$), and (c) the onset of a new MDE (i.e. recurrence) in the subsample of participants with remitted but no current MDD ($n = 485$), and (2) potential effect modification of burnout on these associations. **Methods:** DSM-IV Axis-I disorders were elicited using the semi-structured Diagnostic

Instrument for Genetic Studies at each investigation. The ERI Questionnaire was used to measure ERI and overcommitment. Burnout was measured with the Maslach Burnout Inventory General Survey. Serially adjusted logistic regression models were used. The effect of burnout dimensions on these associations was assessed by testing interactions between the ERI and burnout dimensions. **Results:** (1) ERI was prospectively associated with the onset of MDE, even after adjustment for burnout [OR (95CI) = 1.22 (1.003-1.49)]. (2) The association between ERI and MDD incidence became non-significant after adjusting for burnout. (3) ERI was not associated with recurrence of pre-existing MDD. (4) burnout did not interact with ERI. **Conclusions:** Our results support a longitudinal association between ERI and the risk of onset of MDE in the community. Burnout did not modify this effect, but it may partially account for the association between ERI and MDD incidence.

Shoman et al. 2025.

Social Psychiatry and Psychiatric Epidemiology, vol. 60, no. 3.

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Keywords: Burnout; diagnosis; esteem; major depressive disorder; work-related stress.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s00127-024-02735-w>

The impact of work-family conflict on job burnout among community social workers in China

In China, for community social workers, work-family conflict has become a common phenomenon that may harm their well-being. Based on the analysis of a survey of community social workers in four cities in China, this study demonstrated that community workers' work-family conflict significantly affects burnout, role overload mediates the relation between work-family conflict and burnout, and cognitive crafting negatively moderates the relation between role overload and burnout. The conclusions validate the job crafting theory and enrich the research on job burnout under the JD-R model. The practical significance of the study is that on the one hand, community and individual workers can effectively alleviate burnout by clarifying their roles. On the other hand, it also reminds managers that they should pay attention to the physical and mental health of social workers to enable them to develop healthily.

Song et al. 2025.

PLoS One, vol. 20, no. 3.

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Keywords: Work; family; burnout; community; social workers; China.

Evidence Level: 5B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0301614>

Occupational burnout in nuclear medicine technologists working in Australia and New Zealand - results of a multi-national survey

Introduction: Occupational burnout can be associated with negative feelings about the workplace and feeling that a person's efforts are of little consequence. Within a healthcare setting, occupational burnout can be attributed to a high workload or a non-supportive work environment. Higher levels of burnout are associated with increased absenteeism and turnover, increased medical errors and decreased patient care. The aim of this study was to investigate the levels of occupational burnout within nuclear medicine technologists (NMTs) working in Australia and New Zealand. **Methods:** An online questionnaire was distributed via QuestionPro. The questionnaire consisted of four sections, including the Professional Quality of Life Scale (ProQOL) Version 5 (2009) measuring compassion satisfaction, burnout and secondary traumatic stress in the workplace. For this study, only the burnout component of this scale is reported.

Results: There were 162 survey responses. Of the 18 New Zealand participants, 10 (56%) reported moderate levels of burnout. Of the 144 Australian participants, 114 (79%) reported moderate levels of burnout. No NMTs reported high levels of burnout. All states of Australia were represented in the survey, with Queensland, Western Australia and Victoria having the highest number of participants reporting moderate levels of burnout. **Conclusion:** This study revealed that more than half of New Zealand participants and three quarters of Australian participants reported moderate levels of burnout. It is imperative to address the wellbeing needs of NMTs working in Australia and New Zealand at an individual

and organisational level to support NMTs to be more engaged in their work and help organisations retain staff.

Shields et al. 2025.

Journal of Medical Radiation Sciences, vol. 72, no. 1.

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Keywords: Professional; psychology; radionuclide imaging (nuclear medicine); research – quantitative.

Evidence Level: 4A

Link: <https://onlinelibrary.wiley.com/doi/10.1002/jmrs.834>

Prepartum working conditions predict mental health symptoms 14 months postpartum in first-time mothers and their partners: Results of the prospective cohort study "DREAM"

Background: During the vulnerable transition to parenthood, (expectant) parents may be particularly susceptible to the negative effects of adverse working conditions. However, research on the influence of work-related factors on peripartum mental health issues is scarce. This study aims to enhance our understanding of work-related risk factors for the adjustment of parents in the transition to parenthood by investigating the role of prepartum precarious employment, abusive supervision, job insecurity, and job demand on postpartum mental health symptoms in first-time mothers and their partners. **Methods:** In the prospective-longitudinal cohort study "DREAM", N = 1,259 mothers and N = 811 male and female partners were asked about their working conditions during pregnancy and their mental health 14 months postpartum. We conducted several hierarchical multiple regression analyses with prepartum precarious employment, abusive supervision, job insecurity, and job demand (the latter three in joint regression analyses) as predictors of postpartum symptoms of depression, somatization, obsessive-compulsiveness, anxiety, and anger/hostility. In Model 1 we controlled for sociodemographic variables, and in Model 2 we also controlled for pre-existing symptoms of the respective mental health variable during pregnancy. Separate analyses were calculated for mothers and partners, and each mental health outcome.

Results: Multiple regression analyses revealed that prepartum precarious employment and abusive supervision predicted mothers' and partners' mental health symptoms 14 months postpartum even after controlling for pre-existing symptoms. Prepartum job insecurity and job demand also predicted mental health symptoms 14 months postpartum but were no longer significant predictors in most models after controlling for pre-existing mental health symptoms. There were only minor differences regarding the considered mental health outcomes and between mothers' and partners' results. **Conclusions:** Our study demonstrates that adverse working conditions are important risk factors for the adjustment of parents in the transition to parenthood, requiring more attention from research and practice. Precarious employment and abusive supervision appear to be particularly important factors affecting new parents' mental health. Future research should investigate the mechanisms behind these variables, including comparisons between mothers and their partners, and the role of stress-related biomarkers. Additionally, developing screening methods for clinical use to facilitate targeted preventive interventions is essential.

Rihm et al. 2025.

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

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Keywords: Abusive supervision; DREAM study; fathers' mental health; job demand; job insecurity; peripartum/perinatal mental health; postpartum depression; precarious employment; work stress; working conditions.

Evidence Level: 4B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-21886-2>

Occupational stigma perception and public employees' burnout: A moderated moderation model of work-family conflict and social comparison

Background: The prevalence of burnout symptoms has become very high among public employees, with occupational stigma perception as an important predictor of burnout. Combining personal and relational factors can effectively exacerbate burnout symptoms. The study explores how work-family conflict and social comparisons orientation (both upward and downward) influence the relationship between occupational stigma perceptions and burnout among Italian public employees, applying Conservation of

Resources Theory. **Methods:** We measured burnout, occupational stigma perception, work-family conflict, and social comparison orientation using cross-sectional, anonymous, self-reported questionnaires filled out by 305 employees. **Results:** The correlation analysis revealed that burnout positively related to upward comparison, work-family conflict, and occupational stigma perception and negatively related to downward comparison. Linear regression analysis indicated that occupational stigma perception was significantly associated with increased burnout symptoms in public employees. The moderation analysis showed that work-family conflict positively moderated the positive relationship between occupational stigma perception and burnout ($\beta = 0.061$, $p < .001$). Moderated moderation analyses only support the role of upward social comparison as a moderator of the role of work-family conflict ($\beta = 0.040$, $p < .01$). **Conclusion:** The study theoretically enhances understanding of the links between occupational stigma, work-family conflict, social comparison orientation, and burnout, while highlighting the practical need for organizations to address psychosocial factors to reduce burnout. Organizations that recognize the influence of these factors on employee well-being can implement timely preventive and management strategies to address these challenges.

Bonfanti et al. 2025.

Acta Psychologica, vol. 253.

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Keywords: Burnout; occupational stigma perception; public employees; social comparison; work-family conflict.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0001691825000824?via%3Dihub>

The relationship between work requirements and mental distress in hospital staff: The chain mediating effects of rumination and work recovery classes

Background: Heavy work requirements can lead to significant increases in depression anxiety and stress among hospital staff. However, there is limited research considering the role of work recovery (WR) and rumination in this relationship, particularly how poor WR can create a vicious cycle of negative psychological outcomes for medical staff. **Objective:** In this cross-sectional observational study, the aim is to explore high-risk WR classes among hospital staff. By constructing chain mediation models according to the WR classes, the study seeks to identify which class of medical staff is most affected by work requirements in terms of mental distress, and to examine the chain mediation effects of rumination and WR classes. **Methods:** The cross-sectional observational study utilized Latent Profile Analysis (LPA) and Structural Equation Modeling (SEM) to investigate the relationships among various constructs. It employed the Work Requirements Scale (WRS), the Recovery - Stress Questionnaire (RESTQ), the Depression Anxiety Stress Scales (DASS), and the Revised Emotion Control Questionnaire (RECQ) to survey a sample of 889 hospital staff at a tertiary hospital. **Results:** The findings revealed three distinct WR classes among hospital staff. Significant associations were found between work requirements and mental distress among medical staff in the low and moderate WR classes. Additionally, in these two classes, there were significant relationships in which rumination and WR classes had a chain-mediated nature about work requirements and mental distress. This suggests that future intervention studies should focus on these two classes and develop psychological health interventions for hospital staff according to different WR classes.

Li et al. 2025.

BMC Psychology, vol. 13, no. 1.

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Keywords: Chain mediated modelling; hospital staff; latent profile analysis; WR.

Evidence Level: 4B

Link: <https://bmcp psychology.biomedcentral.com/articles/10.1186/s40359-025-02588-1>

Remote work and long-term sickness absence due to mental disorder trends among Japanese workers pre/post COVID-19

Aims: The aim of this study was to ascertain whether there has been an increase in the number of workers with long-term sickness absence due to mental disorders (LTSA-MD) and determine the impact of remote

work on new LTSA-MD cases. **Methods:** A web-based questionnaire was sent to 2,552 company offices with 150 or more workers in Osaka Prefecture. Data were obtained on the number of workers with LTSA-MD between April 1, 2019, and March 31, 2020 (fiscal year 2019) and between April 1, 2020, and March 31, 2021 (fiscal year 2020), along with their MD diagnoses (adjustment disorder [AD], depressive disorder [DEP], etc.). The difference in the number of new LTSA-MD, LTSA-AD, and LTSA-DEP cases between the fiscal years was evaluated, as well as the number of LTSA-MD cases per 100 employees. An independent t-test was used to compare the groups. **Results:** DEP was the most prevalent condition, followed by AD. The number of workers with LTSA-MD nominally decreased from fiscal 2019 to fiscal year 2020, with no significant difference. There were no significant differences between fiscal year 2020 and fiscal year 2019 regarding LTSA-MD, LTSA-AD, and LTSA-DEP in offices with and without a remote work model.

Conclusions: The number of non-public workers with LTSA-MD did not increase during the COVID-19 pandemic, with no significant difference observed between offices with and without a remote work model. This provides preliminary evidence of a potential protective effect of remote work against LTSA-DEP.

Deguchi et al. 2025.

PLoS One, vol. 20, no. 3.

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Keywords: Remote work; sickness; long-term sickness; mental disorder; COVID-19.

Evidence Level: 5B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0319825>

Occupational stress, burnout, and change fatigue as predictors of quiet quitting among teachers

This study investigated the effects of occupational stress, burnout, and change fatigue on quiet quitting among teachers. The study adopted a cross-sectional design and hierarchical regression analysis. The sample was reached through convenience sampling method and included 366 teachers (185 male [50.5 %] and 181 female) aged between 21 and 59 years ($M = 36.25$, $SD = 6.13$). Data were collected using the Quiet Quitting Scale (QQS), Perceived Occupational Stress Scale (POSS), Job-Related Emotional Exhaustion Scale (J-REES), Change Fatigue Scale (CFS), and a demographics information form. The analysis was conducted on the SPSS 25. The findings suggested positive and significant relationships among occupational stress, burnout, change fatigue, and quiet quitting. Hierarchical regression analysis revealed that occupational stress, burnout, and change fatigue explained 35 % of the variance in quiet quitting. The findings also suggested that higher levels of occupational stress, burnout, and change fatigue significantly and positively influenced quiet quitting, identifying them as its predictors. These findings highlight the significance of implementing programs and interventions to reduce occupational stress, burnout, and change fatigue among teachers and mitigate quiet quitting.

Dilekçi et al. 2025.

Acta Psychologica, vol. 254.

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Keywords: Change fatigue; job-related emotional exhaustion; occupational stress; quiet quitting; teachers.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0001691825001258?via%3Dihub>

The relevance of employing a three-perspective view on occupational balance among people with depression and/or anxiety disorders

Background: Assessing perceptions of occupational balance is essential in both clinical occupational therapy and research. Attempts to characterise occupational balance often arrive at multi-faceted explanations, including a variety of occupations, personal satisfaction, and time allocation.

Aim: This study aimed to deepen the understanding of occupational balance as a phenomenon and investigate the relevance and usability of the Satisfaction with Daily Occupations and Occupational Balance (SDO-OB), which assesses occupational balance from the multi-faceted perspective mentioned above.

Methods: A cross-sectional and longitudinal design was employed. Patients undergoing the treatment method Tree Theme Method™ for depression and/or anxiety completed the SDO-OB and a background questionnaire. Conventional statistical analyses were used. **Results:** Variety of occupations and personal

satisfaction remained stable between baseline and follow-up, while participants' time allocation shifted from underoccupied towards balanced in the home and maintenance domain. All three perspectives of occupational balance were intercorrelated at baseline, and baseline scores on variety of occupations and on time allocation in work, leisure, and household domains were associated with personal satisfaction at follow-up. **Conclusion and significance:** The three perspectives appeared to represent a unified phenomenon-occupational balance-while still offering unique insights. The SDO-OB seems relevant for both clinical occupational therapy and research.

Eklund et al. 2025.

Scandinavian Journal of Occupational Therapy, vol. 32, no. 1.

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Keywords: Instrument development; mental health; occupational therapy; psychiatry; well-being.

Evidence Level: 4B

Link: <https://www.tandfonline.com/doi/full/10.1080/11038128.2025.2474853>

Bullying, Harassment and Occupational Violence

Workplace violence experiences of intensive care unit healthcare providers: A qualitative systematic review and meta-synthesis

Objective: Workplace violence (WPV) in intensive care units (ICUs) is a prevalent issue that affects staff well-being and patient care. Although individual studies have explored various facets of WPV, there is a need for a comprehensive synthesis to provide a cohesive understanding of the phenomenon and inform effective interventions. This study aimed to understand its impact on the mental health and work status of ICU staff, identify the coping strategies used by ICU staff to manage WPV and explore the support required by healthcare professionals when facing WPV. **Methods:** A systematic literature search was conducted in PubMed, Scopus, Medline, PsycINFO, and Web of Science from the date of inception until June 5, 2024. Only qualitative studies or the qualitative part of mixed methods studies were included in the analysis, with no restrictions on the type of ICU or type or source of violence. This study assessed the risk of bias in the included studies and synthesized the results according to the guidelines of the Joanna Briggs Institute (2024). **Results:** Six studies were included. These studies, which were published between 2018 and 2023, were conducted in four countries and involved 91 participants. Six analytical themes and 17 subthemes emerged from the qualitative data. The themes were as follows: Prevalence of ICUs Violence, ICU healthcare perceptions of WPV, The Ripple Effect of WPV in ICU, Practical Strategies for ICU Staff Dealing with WPV, What they need when facing WPV, and Reasons for Not Reporting WPV. **Conclusions:** The synthesized findings highlight the pervasive nature of WPV in ICUs and its profound impact on staff members. This review underscores the need for systematic interventions, including comprehensive training, accessible psychological support, and robust reporting mechanisms, to mitigate the effects of WPV. **Other:** This study was funded by the Wu Jieping Medical Foundation(320.6750.18526),China. The review protocol was prospectively registered in the Prospective Register of PROSPERO (CRD42024559076). **Relevance to clinical practice:** The research findings can provide important evidence for hospital managers and policymakers, helping them develop more effective workplace management policies to enhance the safety and well-being of ICU staff.

Wang et al. 2025.

BMC Health Services Research, vol. 25, no. 1.

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Keywords: Experiences; intensive care unit; metasynthesis; qualitative; workplace violence.

Evidence Level: 1A

Link: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-025-12446-w>

Psychosocial Issues

Employment responses to a partner's disability onset ("care shocks"): Do working conditions matter?

Objectives: This study examines employment responses to a partner's disability onset and how this is moderated by working conditions: job satisfaction and psychosocial job demands. **Methods:** We use longitudinal nationally representative data from the English Longitudinal Study of Aging. Following the health shock literature, we identify individuals whose partners report the onset of difficulties in activities of daily living (ADL) or instrumental activities of daily living (IADL) between 2 waves (n = 1,020) as experiencing a "care shock." We combine coarsened exact matching and entropy balancing, and logistic modeling to estimate the impact of such a "care shock" on the probability of leaving paid work, working part-time, changing jobs, or looking for a new job. We also explore the moderating effect of gender and working conditions (i.e., job demands and job satisfaction) on the impact of a "care shock" on work transitions. **Results:** Our findings show that "care shocks" significantly increase individuals' likelihood of leaving paid work. This effect is moderated by job demands and job satisfaction. Individuals who report high job demands and job dissatisfaction before the care shock are significantly more likely to leave paid work. In contrast, those with low job demands or job satisfaction show no significant difference in their likelihood of leaving paid work. **Discussion:** Our study highlights the role of working conditions in moderating the impact of care shocks on paid work. It informs workplace policies, as our results suggest that adapting working conditions may facilitate participation in the labor market in late career stages.

Beaufils et al. 2025.

The Journals of Gerontology, vol. 80, no. 4.

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Keywords: Disability; employment transitions; england; spousal caregiving; working conditions.

Evidence Level: 4B

Link:

https://academic.oup.com/psychsocgerontology/article/80/4/gbae208/7933418?login=false#google_vignette

Mediating effect of occupational stress between skeletal muscle disorders and depressive symptoms in firefighters: A Structural Equation Modeling approach

Objectives: The purpose of this study was to explore the relationship between skeletal muscle disorders (SMD), occupational stress (OS) and depressive symptoms (DS) among firefighters. **Material and methods:** A cross-sectional survey was conducted among firefighters in Chongqing, China. Descriptive statistic and correlation analyses were performed by using SPSS 26.0. AMOS 24.0 was used to construct the structural equation modeling between SMD and DS. The mediating effect of OS was also evaluated.

Results: The results demonstrate that SMD can predict DS ($\beta = 0.25$, $p < 0.001$) and OS ($\beta = 0.39$, $p < 0.001$) positively, OS positively predicted DS ($\beta = 0.39$, $p < 0.001$) after controlling for SMD. Additionally, OS has a partial indirect effect between DS and SMD (indirect effects = 0.209, 95% CI: 0.093-0.372, $p < 0.001$).

Conclusions: Occupational stress has a partial indirect effect between SMD and DS among firefighters. Skeletal muscle disorders could affect DS not only directly, but also indirectly, by affecting OS. These findings may be of great significance and contribution to the future research of firefighters' occupational health. Int J Occup Med Environ Health. 2025;38(1):18-29.

Chen et al. 2025.

International Journal of Occupational Medicine and Environmental Health, vol. 38, no. 1.

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Keywords: Depressive symptoms; firefighters; mediating effect; occupational stress; skeletal muscle disorders; structural equation modeling.

Evidence Level: 4B

Link: <https://ijomeh.eu/Mediating-effect-of-occupational-stress-between-skeletal-muscle-disorders-and-depressive,199495,0,2.html>

Psychological entitlement and willingness to work in rural areas: The moderating role of organizational identification and professional identification

Background: In many rural areas, medical talent shortages in healthcare present significant challenges. While developing countries and organizations invest in enhancing the education and training of medical students, they often struggle to retain them in rural areas. Traditional efforts to address this issue, such as scholarships, loan repayment programs, and increased funding, have yet to see much success in sustainably attracting professionals to rural areas. Few studies have explored the internal psychological factors influencing medical students' willingness to work in rural areas. This study aims to address this gap by examining how psychological entitlement impacts the willingness to work in rural areas and the moderating roles of organizational and professional identification. **Methods:** This study investigated 406 participants using the stratified cluster sampling method at the universities undertaking oriented medical students (OMS) programs. The data collection instruments were the willingness to work in rural areas, psychological entitlement, organizational identification, and professional identification questionnaires. We conducted descriptive analyses, hierarchical regression analyses, and simple slope analysis using SPSS 26.0.

Results: The findings revealed that psychological entitlement was negatively related to the willingness to work in rural areas ($\beta < 0.00$, $p < .01$). Organizational identification positively moderated the relationship between psychological entitlement and willingness to work in rural areas ($\beta > 0.00$, $p < .01$), such that this negative relationship was buffered when organizational identification was higher than lower. Whether professional identification was high or low, when organizational identification was high, the negative impact of psychological entitlement on willingness to work in rural areas was significantly buffered.

Discussion: The study offers valuable insights indicating that psychological entitlement negatively predicted OMS' willingness to work in rural areas. Importantly, it identifies that organization identification rather than professional identification was the critical factor that mitigates this negative impact. These findings highlight that considering psychological entitlement and organization identification could inspire solving talent shortage problems in rural areas for organizations and policymakers. **Clinical trial number:** Not applicable.

Xiao et al. 2025.

BMC Medical Education, vol. 25, no. 1.

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Keywords: Organizational identification; professional identification; psychological entitlement; talent shortage; willingness to work in rural areas.

Evidence Level: 4B

Link: <https://bmcmmededuc.biomedcentral.com/articles/10.1186/s12909-025-06854-z>

Employment quality and mental health in Germany: The mismatch of low employment quality with work and family values by gender

Empirical evidence on whether low-quality employment is detrimental to workers' mental health is mostly cross-sectional and empirical evidence on pathways linking employment quality (EQ) to mental health remains scarce. Consequently, this study examines subsequent mental health associations of low-quality employment. Associations between EQ and mental health are investigated through a typology of employment arrangements. This study also investigates whether the relation between EQ types and subsequent mental health is different for workers with varying intensities of work and family values (i.e., importance of success at work and of having children, respectively) across genders. Using a large representative German panel dataset and Latent Class Cluster Analysis, EQ types are built and linked to mental health two years later. We assess two- and three-way interactions between EQ types and values, and between EQ types, gender and values, respectively. We found six EQ types: SER-like, precarious unsustainable, precarious full-time, SER-light, portfolio and protected part-time employment. Controlled for socio-demographic characteristics, precarious unsustainable employment for men and precarious full-time employment for women were associated to lower mental health after two years, compared to SER-like employment. Although protected part-time employment related to worse mental health for those with moderate to strong work and family values, compared to those with mild values, the interactions show an unclear pattern of the moderating role of values for the relation between EQ and subsequent mental

health, for both men and women. This study should be replicated in other countries to confirm similar associations.

De Moortel et al. 2025.

Social Science & Medicine, vol. 371.

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(<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Keywords: Employment quality; gender; germany; mental health; precarious employment; values.

Evidence Level: 4B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S0277-9536\(25\)00235-7](https://linkinghub.elsevier.com/retrieve/pii/S0277-9536(25)00235-7)

The psychosocial hierarchy of controls: Effectively reducing psychosocial hazards at work

Background: Psychosocial hazards in the workplace contribute to mental disorders, cardiovascular diseases, and musculoskeletal ill-health. The Hierarchy of Controls applied to NIOSH Total Worker Health (TWH HOC) aims to mitigate these hazards through effective interventions. This study proposes a revision of the model resulting in a HOC for psychosocial hazards (P-HOC) and explores its application in improving the working environment. **Methods:** We reviewed recent literature on organizational and individual interventions to revise the TWH HOC to a psychosocial HOC framework. Subsequently, the modified P-HOC was applied to a qualitative case study of nine Danish companies participating in the Danish "Agreement to problem-solve" labor inspection strategy. We analyzed the types of initiatives implemented and gathered qualitative data on employee and management perspectives on their effectiveness. **Results:** The study led to a revision of the TWH HOC resulting in a P-HOC prioritizing organizational measures with documented effect, and indicating the importance of comprehensive measures. Findings from the qualitative study indicate a predominant contemporary focus on lower-level P-HOC initiatives, such as individual-based approaches and administrative controls. While these interventions show some improvements in mental well-being and work culture, they seem insufficient to enhance the comprehensive psychosocial environment. Companies implementing higher-level interventions experienced greater efficacy, particularly when employing multifaceted approaches. **Conclusions:** The study emphasizes the need for a more robust application of higher-level measures and multifaceted interventions to better improve the psychosocial working environment. Future research should investigate the P-HOC's varying impact and explore alternative frameworks for better intervention outcomes.

Kjærgaard et al. 2025.

American Journal of Industrial Medicine, vol. 68, no. 3.

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(<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Keywords: Health outcomes; hierarchy of controls; mental health; occupational safety and health; psychosocial hazards; psychosocial working environment; workplace interventions.

Evidence Level: 5B

Link: <https://onlinelibrary.wiley.com/doi/10.1002/ajim.23694>

Short- and long-term health effects of job insecurity: Fixed effects panel analysis of German data

Objective: Previous research has linked job insecurity to health deterioration. The risk accumulation model suggests that health effects of job insecurity may persist even after job security is restored, yet long-term empirical analyses are scarce. Our study evaluates the long-term effects of accumulated exposures to affective job insecurity on mental and physical health among the working-age population in Germany.

Method: Using data from the German Socioeconomic Panel (12 624 individuals; 84 219 observations), we applied panel regression models with individual fixed effects to assess short- and long-term health changes associated with affective job insecurity. Job insecurity was measured by respondents' worries about job security. Mental and physical health was recorded with the SF-12 scale. **Results:** Job insecurity correlated with short-term worsening in mental and physical health. However, after job insecurity ceased, health recovery was incomplete resulting in a long-term health deterioration. The long-term effects were larger among respondents who accumulated more instances of job insecurity, and showed a similar pattern for mental and physical health. An additional analysis documented stronger health effects of job insecurity among lower educated persons. **Conclusion:** Our study is one of the first to empirically demonstrate the

negative long-term health effects of job insecurity. Our findings for a well-protected labor market like Germany's, suggest that the health risks associated with job insecurity may be substantial and potentially underestimated by studies that focus solely on short-term effects.

Mikucka et al. 2025.

Scandinavian Journal of Work, Environment and Health, vol. 51, no. 2.

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Keywords: Job insecurity; short term; long term.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4206>

Fostering Work Participation

Return to Work

Is the association between graded sickness absence and return to work confounded by health?

A longitudinal cohort study from the Norwegian neck and back registry

Background: Musculoskeletal disorders (MSD) are among the leading causes of sickness absence (SA) and disability. Graded sickness absence (GSA) as an alternative to full time sickness absence (FSA) has been implemented in the Nordic countries to promote return to work (RTW) and prevent disability, similar to the Fit Note in the UK. However, the evidence of the effects of GSA on RTW is limited. FSA is plausibly associated with more health problems than GSA. The aim is to investigate if the hypothesized benefits of GSA over FSA on RTW is confounded by health in a cohort of sick listed patients referred to secondary care due to MSD. **Methods:** Data was obtained from the Norwegian Neck and Back Register and the Norwegian Labour and Welfare Administration. Poisson regression was used to estimate the association of GSA versus FSA on RTW at 12 months after assessment, with and without adjustment for measures of symptom severity. **Results:** A total of 3371 patients were on GSA (n = 1671, 49.6%) or FSA (n = 1700, 50.4%) at baseline. Patients on FSA reported more severe symptoms than those on GSA on all measures, and detailed analysis of GSA indicated more severe symptoms with higher SA levels. Patients on GSA had higher rates of RTW at 12 months follow up than patients on FSA (unadjusted RR = 1.29, 95% CI 1.22-1.37), and the association remained in the fully adjusted model (RR = 1.19, 95% CI 1.12-1.26). We found an association between levels of GSA and RTW rates, with more work being associated with higher RR for RTW.

Conclusions: Among sick listed patients referred to secondary care due to MSD, GSA is associated with higher rates of RTW than FSA. Some of the beneficial association between GSA and RTW is confounded by higher symptom levels in FSA than GSA patients, but most of the benefit remains after adjusting for symptom severity. Mechanisms for the benefit of GSA remains unknown.

Bardal et al. 2025.

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

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Keywords: Fit note; graded sickness absence; musculoskeletal pain; return to work; sick leave.

Evidence Level: 4B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22368-1>

Return-to-work in lung transplant recipients: An Australian perspective

Background: Return-to-work (RTW) following lung transplant has been associated with increased quality of life, but little is known regarding the rates of and barriers to this in the Australian population.

Aims: We aimed to describe, characterise and determine predictors of return to work and social participation in Australian lung transplant recipients. We also sought to explore the relationship between return to work and quality of life. **Methods:** We conducted a cross-sectional questionnaire-based study at the Alfred Hospital, Melbourne between October 2018 and August 2019. The questionnaire evaluated demographics, transplant history, respiratory parameters, employment history and social integration prior to and after lung transplantation. **Results:** A total of 172 lung transplant recipients were included for analysis. The population was mostly male (56.5%), median age 61 years (interquartile range (IQR) 49.8-67.0) and median time from transplant 4 years (IQR 2-7). A total of 19.2% of patients were working at time

of transplant, with 35.5% working after transplant representing an increase in workforce engagement of 84.8% ($P < 0.001$). A total of 96% of those who returned to work reported an improvement in quality of life. Median time to RTW after transplant was 180 days (IQR 90-360). Multivariable analysis demonstrated an increased rate of RTW in younger recipients (odds ratio (OR) 0.94, 95% confidence interval (CI) 0.89-0.99, adjusted $P = 0.029$), at greater length of time after transplant (OR 1.09, 95% CI 0.99-1.19, $P = 0.084$), among those working at the time of transplant (OR 9.55, 95% CI 2.70-33.75, $P < 0.001$) and with higher socioeconomic status (OR 1.02, 95% CI 1.01-1.04, $P = 0.009$). Recipients with cystic fibrosis were more likely to RTW (65.8%) than those with other underlying conditions. **Conclusions:** RTW should be encouraged in lung transplant recipients. Targeted supports and resources aimed at younger recipients may result in greater workforce engagement and overall outcomes after transplant.

Munsif et al. 2025.

Internal Medical Journal, vol. 55, no. 3.

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Keywords: End-stage respiratory disease; lung transplant; quality of life; return to work.

Evidence Level: 4A

Link: <https://onlinelibrary.wiley.com/doi/10.1111/imj.16641>

Perceptions of occupational physicians in supporting transgender and gender-diverse people (returning) at work - a focus group study: The uncharted territory of gender-diverse occupational healthcare

Objectives: This study aimed to explore the role of occupational physicians (OPs) in supporting transgender and gender-diverse (TGD) workers during gender transition and return to work (RTW) following gender-affirming (medical) interventions. **Design:** We conducted a qualitative study (ONZ-2023-0026) using focus groups. **Setting:** This study involved OPs in Belgium. **Participants:** Two semistructured focus group interviews were held with 19 OPs working in occupational health services in Belgium in May and November 2023. Purposeful sampling was used, which included OPs with at least 2 years of seniority and experience with TGD people or inclusive company culture. Participants were predominantly white and cisgender, with varying levels of seniority and sectoral coverage. **Methods:** Qualitative data was thematically analysed using Braun and Clarke to find patterned meaning. **Results:** The analysis created four themes: (1) 'What is the right professional attitude?: You never get a second chance to make a good first impression' discusses the aspects of professional attitude alongside ethical considerations; (2) 'Controlled open-mindedness' entails values and views of gender in light of medicine, the individual worker, organisations and society; (3) 'The balance game: "Fingerspitzengefühl" (intuitive flair or instinct) without treating' and (4) 'Being gender-bombarded: the need for OP-tailored training and best practices'. These themes highlighted the limited knowledge and experience of OPs regarding gender-affirming care (GAC) and their need for additional training. Participants struggled to find the best gender-inclusive professional approach to support TGD workers as well as employers and require 'best practices'. Implementing overarching legislative frameworks can help OPs and companies create an inclusive work environment considering the differences in occupational sectors and company culture. RTW policies should focus on abilities without medicalisation and stigmatisation and involve multiple stakeholders. **Conclusions:** Occupational medicine can be crucial in improving the health and well-being of TGD workers. However, with the ageing workforce, gender diversity poses new 'hidden' challenges for sick leave management, RTW and sensitive health surveillance. Multidisciplinary training with stakeholders and GAC professionals can enhance occupational practice and equip future OPs with the necessary competencies and confidence.

Van de Cauter et al. 2025.

BMJ Open, vol. 15, no. 3.

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Keywords: Medical education & training; occupational & industrial medicine; occupational health services; physicians; sexual and gender minorities; transgender persons.

Evidence Level: 5B

Link: <https://bmjopen.bmj.com/content/15/3/e083604.long>

Depression care trajectories and sustainable return to work among long-term sick-listed workers: A register-based study (The Norwegian GP-DEP Study)

Background: Depressive disorders can negatively impact work life sustainability for affected individuals. Little is known about depression care trajectories and their association with sustainable return to work (SRTW) after long-term sick leave. This study aimed to identify depression care trajectories during the first three months of sick leave among long-term sick-listed workers with depression and investigate their associations with SRTW. **Methods:** DESIGN: Nationwide cohort study using linked data from Norwegian health and population registries. **Study population:** All inhabitants of Norway aged 20-64 from 1 January 2009 to 1 April 2011, who were diagnosed with depression in general practice, and had reached three months consecutive sick leave (n = 13 624, 63.7% women). **Exposure:** Depression care trajectories during the first three months of initial sick leave, identified using group-based multi-trajectory modeling. Types of depression care included were general practitioner (GP) consults, GP longer consults and/or talking therapy, antidepressant medication (MED), and specialized mental healthcare. **Outcome:** SRTW, measured by accumulated all-cause sickness absence days during two-year follow-up after initial sick leave, with cutoffs at 0, ≤ 30 , and ≤ 90 days. **Analysis:** Gender stratified generalized linear models, used to investigate the associations between depression care trajectories and SRTW, adjusting for sociodemographic factors and sick leave duration. **Results:** Four depression care trajectory groups were identified: "GP 12 weeks" (37.2%), "GP 2 weeks" (18.6%), "GP & MED 12 weeks" (40.0%), and "Specialist, GP & MED 12 weeks" (8.7%). The "GP 12 weeks" group (reference) had the highest proportion attaining SRTW for both genders. Men in the "GP 2 weeks" group had a 12-14% lower likelihood for SRTW compared to the reference. Women in the "Specialist, GP & MED 12 weeks" group had a 19- 23% lower likelihood for SRTW compared to the reference. **Conclusion:** The association between depression care trajectories and SRTW varies by gender. However, trajectories involving follow-up by the GP, including both standard and longer consults and/or talking therapy over 12 weeks, showed the highest likelihood of SRTW for both genders. Enhancing GP resources could improve SRTW outcomes by allowing more frequent and longer consultations or talking therapy.

Meling et al. 2025.

BMC Health Services Research, vol. 25, no. 1.

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Keywords: Depression; drug therapy; general practice; health services research; large database research; mental health; psychotherapy; sick leave; specialized mental healthcare; sustainable return-to-work.

Evidence Level: 4B

Link: <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-025-12406-4>

Return to work after major trauma: A systematic review

Introduction: Individuals suffering from major trauma and survive, often face diverse physical, psychological, and cognitive restrictions which can influence the (health-related) quality of life and the ability to work. Even though, return to work is not necessarily related to the health status of the individual, but it is viewed as a sign of successful reintegration and is a vital parameter of recovery. **Objective:** The aim was to systematically review factors influencing return to work (RTW) after suffering from major trauma. **Material and methods:** A search on seven databases was performed. The identified publications were selected according to the inclusion criteria: adults (≥ 16 years) who suffered a major trauma (Injury Severity Score ≥ 16) in studies that explored factors associated with RTW. Risk of bias was assessed with the 'Quality in Prognostic studies' tool. Due to reporting quality of the included studies no meta-analysis was performed. Data were clustered, qualitatively analyzed and factors are assessed based on the strength of evidence. (PROSPERO registration: CRD42022357649). **Results:** 12 studies with 6907 participants (mean age 45 years, 75% males, mean ISS 28) were included. The included studies had low to moderate risk of bias for most domains, the domain 'study confounding' had most often a high risk of bias. Many factors were identified including physical (e.g., injury locations), personal (e.g., age) but also environmental factors (e.g., preinjury income). Only four factors (age, educational level, intensive care unit (ICU) stay and Length of stay (LOS) hospital) are based on moderate or strong evidence. The identified factors reflect the complex interactions within the process of regaining the ability to work after major trauma. **Discussion:** This systematic review was able to map the evidence surrounding factors affecting RTW after major trauma.

Most of the identified factors are currently only based on limited evidence. According to these factors, younger patients with a higher educational level who have a shorter LOS in hospital and a shorter ICU stay might have better chances of RTW.

Neubert et al. 2025.

Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine, vol. 33, no. 1.

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Keywords: Ability to work; major trauma; polytrauma; prediction; return to work; systematic review.

Evidence Level: 1A

Link: <https://sjtrem.biomedcentral.com/articles/10.1186/s13049-025-01351-0>

Effectiveness of interventions on work outcomes after road traffic crash-related musculoskeletal injuries: A systematic review and meta-analysis

Background: Musculoskeletal injuries are common after road traffic crash (RTC) and can lead to poor work-related outcomes. This review evaluated the impact of interventions on work-related (e.g. sick leave), health, and functional outcomes in individuals with a RTC-related musculoskeletal injury, and explored what factors were associated with work-related outcomes. **Methods:** Searches of seven databases were conducted up until 9/03/2023. Eligible interventions included adults with RTC-related musculoskeletal injuries, a comparison group, and a work-related outcome, and were in English. Meta-analyses were conducted using RevMan and meta-regressions in Stata. **Results:** Studies ($n = 27$) were predominantly conducted in countries with third-party liability schemes ($n = 26$), by physiotherapists ($n = 17$), and in participants with whiplash injuries (94%). Pooled effects in favour of the intervention group were seen overall (SMD = - 0.14, 95% CI: - 0.29, 0.00), for time to return to work (- 17.84 days, 95% CI: - 24.94, - 10.74), likelihood of returning to full duties vs. partial duties (RR = 1.17, 95% CI: 1.01, 1.36), decreased pain intensity (- 6.17 units, 95% CI: - 11.96, - 0.39, 100-point scale), and neck disability (- 1.77 units, 95% CI: - 3.24, - 0.30, 50-point scale). **Discussion:** Interventions after RTC can reduce time to return to work and increase the likelihood of returning to normal duties, but the results for these outcomes were based on a small number of studies with low-quality evidence. Further research is needed to evaluate a broader range of interventions, musculoskeletal injury types, and to include better quality work-related outcomes.

Brakenridge et al. 2025.

Journal of Occupational Rehabilitation, vol. 35, no. 1.

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Keywords: Interventions; musculoskeletal injury; occupational outcomes; return to work; road traffic crash; whiplash.

Evidence Level: 1A

Link: <https://link.springer.com/article/10.1007/s10926-024-10185-z>

Return to work or leaving work? Differences of return to work between breast cancer patients and the general population and determinants of return to work

Purpose: It was examined whether employment among breast cancer survivors was lower than in the general population 4 to 6 years after surgery. We also examined whether disease severity, post-surgical treatment, social, and workplace characteristics have effects on employment as primary outcome, and whether the distance from surgery to observation may determine employment. **Methods:** We performed a multicentric observational study with four survey waves. Data were collected based on mailed surveys and patient records. Patients were up to 63 years old at entry with TNM-tumour stages T0 to TIV. Comparisons with the general population were performed by drawing controls from the German Socio-Economic Panel. **Results:** $N = 372$ breast cancer survivors participated in all surveys (= 82.2% of the initial sample). Their rate of occupationally active women was lower than in the general population ($OR_{patients} = 0.59$; 95% CI = 0.42-0.84; $p < 0.01$). Among patients, tumour stage had no effects on employment 12 months after surgery; 4-6 years later, this was the case only among patients with the most unfavourable tumour stage ($OR = 0.16$; $p = 0.01$; 95% CI = 0.04-0.58). Antihormone therapy was unrelated with employment ($OR = 0.80$; $p = 0.27$; 95% CI = 0.54-1.19); inpatient rehabilitation was negatively associated at 12 months after surgery ($OR = 0.47$; $p = 0.02$; 95% CI = 0.25-0.89) and unrelated at the last survey wave ($OR = 0.95$; $p = 0.86$; 95% CI = 0.55-1.64). Compared with the lowest level of occupational autonomy, it was unrelated with employment 12 months

after surgery (OR = 0.79; p = 0.75; 95% CI = 0.18-4.41), but for the highest level of autonomy, it had significant effects 4 to 6 years later (OR = 4.56; p = 0.04; 95% CI = 1.10-18.81). Effort-reward imbalance as a continuously scaled indicator of pre-surgery occupational distress was significantly associated with return to work 12 months after surgery (OR = 0.13; p < 0.01; 95% CI = 0.06-0.31), but it had no effect at the last survey wave (OR = 0.64; p = 0.31; 95% CI = 0.28-1.50). One year after surgery, education at higher levels had no significant effects on return to work (OR = 1.30; p = 0.57; 95% CI = 0.56-3.00 for the highest level compared with the lowest one), only at the last measurement marked differences by education emerged (OR = 2.23; p = 0.03; 95% CI = 1.08-4.63). **Conclusion:** Temporal distance between surgery and survey wave determines whether potentially influencing factors have effects. Disease severity and post-surgical treatment were unrelated to employment. Whether work-related and socio-demographic factors are determining employment depends on the date of measurement.

Geyer et al. 2025.

Supportive Care in Cancer, vol. 33, no. 4.

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Keywords: Breast cancer; longitudinal study; multicentric study; observational study; return to work.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s00520-025-09364-2>

Presenteeism and Absenteeism

Exploring the role of sickness absence coordinators in implementing interventions to reduce sickness absence in public sector workplaces in Denmark

Purpose: In 2019, an initiative to reduce sickness absence in public sector workplaces in Denmark was introduced. The initiative involved appointing a sickness absence coordinator (SA coordinator) to oversee the implementation of workplace-based sickness absence interventions. Since the role of the SA coordinator is a novel concept introduced as part of the initiative, this study investigates the responsibilities of SA coordinators and the challenges they experienced in fulfilling this role during the implementation process. **Methods:** Semi-structured interviews with and observations of SA coordinators from four public sector workplaces were carried out. We collected the first four interviews and observations during the implementation process with follow-up interviews collected at the end of the process. The data were analyzed using thematic analysis. **Results:** The SA coordinators all experienced challenges in terms of lack of commitment among the line managers to participate in the intervention. They experienced being seen as a burden rather than a helping hand, and felt that the line managers might have difficulty recognizing the value of the SA coordinators. Potential ways to improve the collaboration between the SA coordinators and the line managers include considering hiring the SA coordinator in-house and incorporation of intervention components into existing activities to accommodate the busyness of the line managers. **Conclusions:** To support the SA coordinators in carrying out their role and responsibilities, this study suggests that it is important to ensure commitment to the role, especially among the line managers in order to enhance good working relationships.

Rasmussen et al. 2025.

Journal of Occupational Rehabilitation, vol. 35, no. 1.

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Keywords: Absenteeism; implementation; intervention; rehabilitation; return to work; workplace.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s10926-024-10183-1>

Workers Compensation

Can general practitioner opioid prescribing to compensated workers with low back pain be detected using administrative payments data? An exploratory study

Background: Approximately one third of Australians with accepted time loss workers' compensation claims for low back pain (LBP) are dispensed opioid analgesics. Structured administrative payments data is

scalable but does not directly link opioids to prescribers. We sought to determine whether opioid prescribing by general practitioners (GPs) to workers with workers' compensation claims for LBP can be detected in structured administrative payments data. **Methods:** We used a sample of workers with accepted time loss workers' compensation claims for low back pain from 2011 to 2015 from the Australian states of Victoria and South Australia. We structured administrative data to test the assumption that opioid dispenses that occurred immediately after a GP encounter in sequence and occurred on the same date as the GP encounter are likely to be related. We measured the number and proportion of opioid dispenses with a GP encounter prior and the days between a GP encounter and opioid dispense. **Results:** Nearly one third of workers (32.2%, N = 4,128) in our sample (n = 12,816) were dispensed opioids a median of five times (interquartile range 2, 17). There were 43,324 opioid dispenses to included workers. 30,263 (69.9%) of opioid dispenses were immediately preceded by a GP encounter. Of those dispenses, 51.0% (n = 15,443) occurred on the same day as the GP encounter. **Conclusion:** At least one third of opioids dispensed to workers with claims for LBP can be potentially linked to GP prescribing using workers' compensation structured administrative payments data. This approach could have potential applications in supporting monitoring and audit and feedback systems. Future research should test this approach with a more diverse array of pain medicines and medical practitioners.

Vo et al. 2025.

Journal of Occupational Rehabilitation, vol. 35, no. 1.

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Keywords: Administrative data methods; Low back pain; Workers' compensation.

Evidence Level: 4A

Link: <https://pubmed.ncbi.nlm.nih.gov/38564158/>

Wellness Programs

Role of workplace culture in successful lifestyle medicine implementation: A qualitative case series among health systems in the USA

Objective: This study investigated how workplace culture may affect the development of lifestyle medicine (LM) programming in health systems to inform the successful growth of LM programs. No study has examined how the impact of workplace culture (shared knowledge, values and behaviours within an organisation) affects practitioners' abilities to engage in LM. **Design:** A cross-sectional, multiple case study investigation of the implementation of LM in five health systems was conducted by administering semi-structured in-depth interviews (n=45) from May 2022 to January 2023. Following the transcription of interviews verbatim, narrative reports depicting each health system's experience with LM were drafted and collectively reviewed by the research team who discussed emerging themes. **Setting:** Five health systems across the USA that have implemented LM were selected based on diversity in size, location, payer model, and patient population. **Participants:** Administrative leaders, physicians and other personnel involved in the LM programming from selected health systems were invited to participate. **Results:** The implementation of LM is facilitated when practices such as forming social groups, visually advertising LM and offering plant-based cafeteria items are present to support core values, such as trust, gratitude, collaboration and optimism. **Conclusions:** LM implementation can be supported by health system clinicians and administrators striving to make their workplaces more supportive and synergetic so that they can take advantage of all available resources. Future research should further explore this relationship between cultural factors and resource availability.

Durrwachter et al. 2025.

BMJ Open, vol. 15, no. 3.

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Keywords: Burnout, professional; implementation science; qualitative research.

Evidence Level: 5B

Link: <https://bmjopen.bmj.com/content/15/3/e087184.long>

Organisational Issues

Epilepsy and employment: A qualitative interview study with heads of human resources and occupational physicians in Austria - A call for legislative optimization according to the WHO Intersectoral Global Action Plan

Objective: People with epilepsy (PWEs) often face difficulties in obtaining or keeping employment. To determine the views on this topic of the heads of human resources (HHRs) and occupational physicians (OCPs). **Method:** Twelve HHRs and five OCPs underwent a telephone interview concerning the opportunities and limitations of job applications for PWEs. The interviews were performed in May 2020, in the federal state of Salzburg, Austria, and they were analyzed using the qualitative method of content analysis (Kuckartz). The legal situation was investigated according to Global target 5.2 of the Intersectoral Global Action Plan (IGAP) on epilepsy and other neurological disorders 2022-2031 by WHO.

Results: Employers were confident that employees with epilepsy could be managed well in a positive company culture and with first responders in place. The Austrian law predisposes to uncertainty among both employers and employees. In particular, it allows only retrospective juridical clarification of health-related questions in the job interview. The authors developed a classification system of workplaces, with "D0" (D-zero) meaning no health or financial danger, for example, office workers and "D1" posing still no health hazard but includes regular work with cash, for example, salespersons. "D2" means potential medical implications for the person with epilepsy or any other person at the workplace, for example, industrial worker. Measures taken to abandon the risk in D2 workplaces, for example, a total sheath for a machine, leads to reclassification as "D2-0." With D2, OCPs evaluate the applicant's medical fitness for the job without disclosing medical details to the employer. The "compartment model of medical information in the job application process" guarantees that OCPs are the only persons who learn about the applicant's medical details. **Significance:** The practical and simple classification of workplaces according to the D-system, and the concept of making medical information accessible only to OCPs may diminish stigma and discrimination in the working world for PWEs.

Leitinger et al. 2025.

Epilepsia, vol. 66, no. 3.

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(<https://creativecommons.org/licenses/by-nc/4.0/>)

Keywords: D-system; IGAP; application; legislation; stigma.

Evidence Level: 5B

Link: <https://onlinelibrary.wiley.com/doi/10.1111/epi.18221>

Developing a work accommodation operating model for workplaces and work ability support services

Purpose: Workplace accommodation can help employees with disabilities remain employed or access employment rather than leave the labor force. However, the workplace accommodation process is still poorly understood and documented. **Aim:** The aim of this study was to develop a national operating model to make workplace accommodation interactive and procedural for workplaces and work ability support services and lower the threshold to making accommodations. **Methods:** The collaborative development process was carried out by a multiprofessional expert team with eleven workplaces in the private and public sectors in Finland. The design of this study was conceptual and developmental. The development process of the operating model consisted of four phases: the orientation phase, the joint planning phase, the implementation advancement phase, and the instilling phase. **Results:** The operating model has six stages: 1) identifying needs, 2) gathering knowledge, 3) exploring alternatives, 4) selecting solutions, 5) implementing solutions, and 6) monitoring and evaluating. The model defines the actions, roles, and responsibilities for each phase. To help implement the model, we published an information package, a guide, a planning formula, and a video animation in Finnish and Swedish. **Conclusion:** The operating model is a tool that workplaces and work ability support services can use to help working-aged people remain employed or access employment. Future studies should determine the workplace-specific functionality of this model using implementation research.

Nevala et al. 2025.

Journal of Occupational Rehabilitation, vol. 35, no. 1.

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Keywords: Disability; implementation; operating model; rehabilitation; work ability; work accommodation.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s10926-024-10193-z>

Power distance in the workplace and its effect on prosocial behavioral intentions

Power distance, the extent to which individuals in an organization accept unequal distributions of power, significantly influences workplace dynamics, particularly in shaping individuals' willingness to engage in prosocial behaviors. Previous research suggests that individuals with high levels of power distance tend to exhibit more self-centered behavior, making them less inclined to act charitably. In contrast, individuals with lower levels of power distance are more likely to engage in prosocial actions. This study investigates the effect of power distance on prosocial behavioral intentions in a workplace context and examines the moderating role of prosocial personality traits. A convenience sample of 169 employees from medium-sized enterprises was analyzed. The findings confirmed that participants with lower power distance perceptions exhibited significantly higher prosocial intentions and revealed the moderating role of prosocial personality traits. By examining the interaction between power distance beliefs, prosocial intentions, and prosocial dispositional traits, our study contributes new insights into how both structural beliefs and personality traits jointly shape prosocial intentions in organizational settings, potentially informing strategies to cultivate a supportive and collaborative work environment.

Scaffidi Abbate et al. 2025.

Acta Psychologica, vol. 253.

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Keywords: Organizational context; power distance; prosocial intentions; prosocial traits

Evidence Level: 5B

Link: <https://www.sciencedirect.com/science/article/pii/S0001691825000083?via%3Dihub>

Effectiveness of joint health and safety units in occupational safety and health services: A field study and a scale

Background: To protect employees against the hazards they may be exposed to during work, employers must provide preventive occupational safety and health (OSH) in international and national legislation. Employers can provide these services by their firm or by third parties. Structures created outside the workplace, within the scope of the private sector, are called joint health and safety units (JHSUs). The number of studies examining the effectiveness and adequacy of JHSUs is limited. **Material and methods:** This study experimentally and hypothetically reveals the effectiveness level of JHSUs in providing OSH by conducting an extensive field study with a survey of 381 health and safety professionals and developing an *Occupational Safety and Health Services Effectiveness Scale*. Moreover, it compares those who receive the service from JHSUs and those who receive the service from the workplace, and the effectiveness level of JHSUs is evaluated. **Results:** The fit index as a result of confirmatory factor analysis with the scale is at an acceptable level with $\chi^2/df = 3.18$, RMSEA = 0.076, TLI = 0.89, and CFI = 0.91. Cronbach's α values of the factors are at a high level of reliability with PMCE = 0.949, OSHA = 0.927, OSHCM = 0.875, OSHEC = 0.869, OSHSQ = 0.877, OSHSE = 0.852. **Conclusions:** The effectiveness of JHSUs in OSH services differs from the effectiveness achieved by internally assigning an occupational safety expert. The Student's t-test accepts all hypotheses H1-H6 regarding the developed scale and that there is a significant difference between the external and internal groups in all factors. *Med Pr Work Health Saf.* 2025;76(1):3-11.

Sezgin et al. 2025.

Medycyna Pracy, vol. 76, no. 1.

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Keywords: Health infrastructure; health planning; health services; health workforce; healthcare providers; occupational health.

Evidence Level: 5B

Link: <https://medpr.imp.lodz.pl/Effectiveness-of-joint-health-and-safety-units-in-occupational-safety-and-health,199680,0,2.html>

Job Design

Advancing virtual and hybrid team well-being through a job demand-resources lens

As the modern workplace evolves, the shift to virtual and hybrid team working necessitates a re-evaluation of well-being. While workplace well-being research has predominantly focused on the individual level, understanding team-level well-being is critical, as its underlying psychological and social processes differ. This study applies the Job Demands-Resources (JD-R) framework to virtual and hybrid contexts globally, demonstrating the dual nature of demands and resources at the team level, where the same constructs may contribute to driving positive gain cycles or negative loss cycles of well-being. Through reflexive thematic analysis, we analysed thirty semi-structured interviews with leaders and twenty-nine focus groups with 3-6 team members each (n = 110) across more than twelve industries and geographies. Our findings revealed three candidate themes: "Choice Matters", "It's Business and It's Personal" and "Leader as Social Influencer". This research extends JD-R theory by advancing its applicability to team-level well-being in virtual and hybrid contexts. Practical insights include empowering teams through redesigning work practices to establish sustainable boundaries, aligning communication norms, and fostering inclusive connections that accommodate diverse needs in the modern workplace.

Coulston et al. 2025.

International Journal of Qualitative Studies on Health and Well-being, vol. 20, no. 1.

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Keywords: Virtual teams; hybrid work; job demands resources; leadership dynamics; team well-being.

Evidence Level: 5B

Link: <https://pubmed.ncbi.nlm.nih.gov/40078070/>

Shift Work

Association of occupational noise exposure and shift work with non-alcoholic fatty liver disease: a cross-sectional study of male workers in the Chinese automobile manufacturing industry

Objective: This study aimed to determine the relationship between occupational noise, shift work and non-alcoholic fatty liver disease (NAFLD) in male workers in the automobile manufacturing industry.

Design: Cross-sectional study. **Setting:** This study was carried out at the Guangzhou Twelfth People's Hospital using data from April to September 2022. **Participants:** A total of 4672 eligible participants were included in the study. **Primary and secondary outcome measures:** Diagnosis of NAFLD was made using ultrasound. Noise was detected according to the Measurement of Physical Factors in the Workplace-Part 8: Noise. Environmental noise intensity was assessed using an EDGE personal noise dosimeter manufactured by CASELLA (UK). The working status of workers was investigated by questionnaire. **Results:** The OR of NAFLD was 1.39 (1.03, 1.88) in the cumulative noise exposure (CNE)≥95 group compared with CNE<85 group. Improved risk of NAFLD in workers with shift work compared with those without shift work (OR=1.35, 95% CI: 1.09, 1.68). As stratified analyses showed, the ORs of NAFLD prevalence related to occupational noise and shift work exposure appear to be increased in young workers. When both shift work and noise exposure work are present simultaneously, the synergy index between them was 0.47 (95% CI: 0.25, 0.89). Combined effects analysis revealed that the OR of NAFLD was 2.02 (95% CI: 1.34, 2.99) in CNE≥95 and cumulative length of night shifts work>2920 hours. **Conclusion:** Occupational noise exposure may be an independent risk factor for NAFLD. It may synergistically affect disease when combined with night shift work, particularly among younger workers. These findings underscore the importance for companies to prioritise the management and training of younger workers, along with targeted occupational health education initiatives, as crucial measures for reducing the incidence of NAFLD.

Zhang et al. 2025.

BMJ Open, vol. 15, no. 3.

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Keywords: Cross-sectional studies; epidemiologic studies; occupational & industrial medicine; public health; risk factors.

Evidence Level: 4B

Link: <https://bmjopen.bmj.com/content/15/3/e085753.long>

Exploring predictors of insomnia severity in shift workers using machine learning model

Introduction: Insomnia in shift workers has distinctive features due to circadian rhythm disruption caused by reversed or unstable sleep-wake cycle work schedules. While previous studies have primarily focused on a limited number of predictors for insomnia severity in shift workers, there is a need to further explore key predictors, and develop a data-driven prediction model for insomnia in shift workers. This study aims to identify potential predictors of insomnia severity in shift workers using a machine learning (ML) approach and evaluate the accuracy of the resulting prediction model. **Methods:** We assessed the predictors of insomnia severity in large samples of individuals (4,572 shift workers and 2,093 non-shift workers). The general linear model with the least absolute shrinkage and selection operator (LASSO) was used to determine an ML-based prediction model. Additional analyses were conducted to assess the interaction effects depending on the shift work schedule. **Results:** The ML algorithms identified 41 key predictors from 281 variables: 1 demographic, 7 physical health, 13 job characteristics, and 20 mental health factors. Compared to the non-shift workers, the shift workers showed a stronger association between insomnia severity and five predicting variables: passiveness at work, authoritarian work atmosphere, easiness to wake up, family and interpersonal stress, and medication. The prediction model demonstrated good performance with high accuracy and specificity overall despite a limited F1 score (classification effectiveness) and recall (sensitivity). Specifically, a prediction model for shift workers showed better balance in F1 scores and recall compared to that for non-shift workers. **Discussion:** This ML algorithm provides an effective method for identifying key factors that predict insomnia severity in shift workers. Our findings align with the traditional insomnia model while also reflecting the distinctive features of shift work such as workplace conditions. Although the potential for immediate clinical application is limited, this study can serve as guidance for future research in improving a prediction model for shift workers. Constructing comprehensive ML-based prediction models that include our key predictors could be a crucial approach for clinical purposes.

Yeo et al. 2025.

Frontiers in Public Health, vol. 13.

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Keywords: Insomnia; machine learning; risk prediction; shift worker; sleep.

Evidence Level: 4B

Link: <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1494583/full>

Work Ability

Determinants of good or excellent work ability in a branch of the Dutch military

Purpose: The Royal Netherlands Marechaussee, a branch of the Dutch Military, is characterised by a diverse range of mentally and physically demanding occupational tasks. The employability of the personnel depends on the balance between occupational demands and personal resources, which can be measured through the work ability score. Therefore, this study investigates personal and work-related determinants of work ability in a branch of the Dutch Military. **Methods:** We gathered cross-sectional data through a survey distributed among all operational Royal Netherlands Marechaussee personnel (n: 7,658). We used binomial logistic regression analysis to estimate the relationship between determinants in four domains (i.e., personal, workload, work characteristics, and work experience) and the dichotomised work ability scores (poor to moderate vs. good to excellent). **Results:** The survey had a 20% response rate with 1538 respondents. Our study included a slightly higher percentage of reservists and civilians than the Royal Netherlands Marechaussee's workforce. Forty per cent of participants rated their work ability as poor or moderate. Good or excellent work ability was related to older age (> 50 years compared to < 29 years),

lower physical workload, no shift work, less fatigue, more autonomy, task clarity, and social support.

Conclusions: We found that 40% of survey respondents rated their work ability as low or moderate. In the future, factors like shift work, autonomy, task clarity, and social support may be used to improve work ability in this population.

Stegerhoek et al. 2025.

International Archives of Occupational and Environmental Health, vol. 98, no. 2.

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Keywords: Injury; military; occupational health; police; work ability.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s00420-025-02128-9>

The impact of chronic conditions on productivity-adjusted life-years in both the workplace and household settings in the general adult population in finland

Objectives: This study aimed to quantify the burden of 8 noncommunicable conditions on productivity-adjusted life-years (PALYs) at work and within the household among the Finnish general adult population.

Methods: Survey data on 18- to 79-year-old Finnish respondents collected in 2022 were used to calculate age- and sex-specific productivity indices at work and within the household using 0- and 1-inflated beta regression for individuals with and without a certain condition (asthma or chronic obstructive pulmonary disease, cardiovascular disease, depression or other mental health problem, diabetes, gastrointestinal disease, hypothyroidism or other thyroid disease, migraine or other chronic headache, and musculoskeletal disease). Age and sex distributions of the Finnish population obtained from Statistics Finland together with the prevalence of the condition and the estimated productivity indices were used to produce the population-level 1-year losses in PALYs at work and within the household. **Results:** Among 8 conditions, depression and other mental health problems had the highest PALY losses (99 570 PALY loss burden at work, 256 086 PALY loss at home, and 250 980 PALY loss in general adult populations), with diabetes having the lowest (3666 PALY loss burden at work, 46 344 PALY loss at home, and 43 443 PALY loss in general adult populations). All the examined conditions were as significant in affecting both the productivity at work and the within-household productivity. **Conclusions:** Depression and other mental health problems have a major effect on self-reported work ability and productivity compared with other chronic conditions.

Lavikainen et al. 2025.

Value in Health, vol. 28, no. 3.

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Keywords: Chronic conditions; productivity; productivity-adjusted life-year.

Evidence Level: 4B

Link: <https://pubmed.ncbi.nlm.nih.gov/39426512/>

Barriers to and facilitators for finding and keeping competitive employment: A focus group study on autistic adults with and without paid employment

Purpose: The aim of the study was to gain more insight into barriers to and facilitators for finding and keeping competitive employment for autistic adults. Research questions were: (1) What barriers and facilitators do autistic adults report in finding and keeping competitive employment?; and (2) What are differences and similarities between autistic adults with and without paid employment regarding barriers and facilitators for sustainable employment? **Methods:** Eight focus groups were conducted (N = 64 autistic adults). Four groups included only participants without paid employment (N = 24), and four groups consisted exclusively of participants with current paid employment (including part-time, N = 40). All discussions were audiotaped and transcribed verbatim to enable inductive thematic content analysis. Data were analyzed using ATLAS.ti 9. **Results:** Ten themes and thirty-four subthemes were found. Many were interconnected. Themes facilitating sustainable employment included a positive workplace atmosphere, a supportive supervisor, being able to do work that aligns with interests and talents, favorable physical working conditions, coaching, higher self-insight, higher self-esteem, and proactivity. Most themes and subthemes emerged from both groups. Differences between the groups were that those with paid employment seemed to have experienced more friendly workplaces and supervisors, had received better coaching in finding and keeping employment, had higher self-insight and higher self-esteem, were more

assertive and proactive. **Conclusions:** As many (sub-)themes were interrelated, the results suggest that to improve work participation, particularly two key areas are promising: (1) to realize more friendly, well-being oriented and inclusive workplaces, and (2) to increase autistic adults' self-insight into personal needs for positive wellbeing and self-knowledge regarding talents, wishes and well-being boundaries.

Brouwers et al. 2025.

Journal of Occupational Rehabilitation, vol. 35, no. 1.

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Keywords: Autism; barriers and facilitators; employment; focus group; self-insight; workplace inclusion.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s10926-024-10181-3>

Organisational and policy barriers to transitioning from supported into open employment for people with an intellectual disability

Background: People with an intellectual disability prefer more choice with employment options and more community facing roles rather than just traditional supported employment roles. However, data reveal that transition rates from supported to open employment in Australia remain very low and these findings are also found internationally. **Method:** To examine current organisational and policy barriers preventing transition from supported to open employment, a series of 27 in-depth interviews were conducted with people with an intellectual disability, staff from supported employers, and staff from open employers.

Results: There were several key policy and organisational barriers identified. These included inflexible funding models and packages, lack of knowledge and experience of open employers, and insufficient training, pathways, and supports for people with an intellectual to make that transition. **Conclusion:** The findings highlight some of the broader policy and program reforms that are required, commencing in school and inclusive of all employer groups.

Joyce et al. 2025.

Journal of Intellectual and Developmental Disability, vol. 50, no. 1.

User License: *Creative Commons Attribution -NonCommercial-NoDerivatives 4.0 International (CC BY-NC-ND 4.0)* (<https://creativecommons.org/licenses/by-nc-nd/4.0/>)

Keywords: Intellectual disability; employment opportunities; policy barriers.

Evidence Level: 5A

Link: <https://www.tandfonline.com/doi/full/10.3109/13668250.2024.2352510>

Adapting to the Future of Work

Aging Workforce

Memory function and early exit from paid employment through different pathways among ageing European workers

Objectives: Understanding memory function's role in early workforce exit is key in supporting sustainable employment among ageing workers. This study examined the impact of memory function on early exit from paid employment, analyzed changes in memory function before, during and after such transitions, and assessed memory function trajectories in relation to the presence or absence of effort-reward imbalance at work. **Methods:** This study included 16 339 respondents from the Survey of Health, Ageing, and Retirement in Europe (SHARE) between age 50 and the country-specific retirement age. The effects of objective and subjective memory functioning on early exit were assessed using Cox proportional hazards with Fine-Gray sub distribution models. Changes in memory function before and after a transition to non-employment were assessed using generalized linear mixed-effects models. These changes were described and compared based on exposure to job effort-reward imbalance. **Results:** Workers with poor subjective memory were 2.3 times more likely to exit employment prematurely due to disability ([sub-distribution hazard ratio (SHR) 2.30, 95% confidence interval (CI) 1.77-3.00] and 1.3 times more likely to exit through unemployment (SHR 1.29, 95% CI 1.06-1.55). Workers with low objective memory were 1.6 times more likely to exit through unemployment (SHR 1.56, 95% CI 1.30-1.87). Subjective memory generally declined prior to, and during

early exit from paid employment. While subjective memory generally improved post-exit, objective memory function declined after exiting. An accelerated decline in objective memory functioning was noted among early retirees who had been exposed to effort-reward imbalance at work (β -0.45, standard error 0.16). **Conclusion:** Workers with poor memory function are at higher risk of early involuntary exit from paid employment. Promoting memory function and balancing job efforts and rewards may help mitigate the risk of a premature exit.

Ciliacus et al. 2025.

Scandinavian Journal of Work, Environment and Health, vol. 51, no. 2.

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Keywords: Memory; function; paid employment; early exit; ageing workers.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4211>

Associations between leisure and work time activity behaviour and 24-h ambulatory blood pressure among aging workers

Purpose: The associations between work time, leisure-time, and non-workday physical activity (PA) and sedentary behavior (SED), and 24-h ambulatory blood pressure (BP) are not well known. Therefore, the aim of this study was to evaluate the associations between domain-specific activity behavior and 24-h BP.

Methods: A hundred fifty-six aging workers (mean age, 62.4 (SD 1.0) yr; body mass index, 26.2 (4.5) kg·m⁻²; 84% women; 75% nonmanual occupation) from the Finnish Retirement and Aging study were included. Standing, light and moderate-to-vigorous PA, and SED were measured using thigh-worn accelerometers and work time, leisure-time, and non-workdays were distinguished using a diary. Ambulatory 24-h BP was analyzed as mean daytime and nighttime systolic and diastolic BP, and the nocturnal BP dipping percentage was calculated. Associations were examined with linear regression analysis adjusting for age, sex, occupation, work time mode, job strain, body mass index, BP medication, and accelerometer wear time.

Results: Higher work time SED was associated with lower nighttime diastolic BP ($B = -0.92$; 95% confidence interval (CI), -1.83 to -0.01). In addition, higher work time standing was associated with higher daytime diastolic BP ($B = 1.34$; 95% CI, 0.03 to 2.65), and higher work time light PA was associated with less diastolic BP dipping ($B = -3.57$; 95% CI, -6.80 to -0.34). Moderate-to-vigorous PA in any domain was not associated with ambulatory BP. **Conclusions:** Higher work time SED was associated with a more favorable diastolic BP, and higher work time PA was associated with more adverse diastolic BP among aging workers. In conclusion, work time, rather than leisure time or non-workday, activity behavior seems to be associated with 24-h ambulatory BP.

Norha et al. 2025.

Medicine and Science in Sports and Exercise, vol. 57, no. 3.

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Keywords: Leisure; work time; behavior; ambulatory blood pressure; aging workers.

Evidence Level: 5B

Link: https://journals.lww.com/acsm-msse/fulltext/2025/03000/associations_between_leisure_and_work_time.18.aspx

Technology

Digital wellness programs in the workplace: Meta-review

Background: Corporate wellness programs are increasingly using digital technologies to promote employee health. Digital wellness programs (DWP) refer to initiatives that deliver health interventions through digital tools. Despite a growing body of evidence on DWPs, the literature remains fragmented across multiple health domains. **Objective:** This study aims to provide a comprehensive synthesis of existing research on the efficacy (eg, impact on employee's physical health, mental well-being, behavioral changes, and absenteeism) and acceptability (eg, engagement, perceived usefulness, and adoption) of employer-provided DWPs. Specifically, we aim to map the extent, range, and nature of research on this topic; summarize key findings; identify gaps; and facilitate knowledge dissemination. **Methods:** We conducted a

meta-review of studies published between 2000 and 2023. We adopted a database-driven search approach, including the MEDLINE, PsycINFO, ProQuest Central, and Web of Science Core Collection databases. The inclusion criteria consisted of (1) review articles; (2) publications in English, French, or German; (3) studies reporting on digital health interventions implemented in organizations; (4) studies reporting on nonclinical or preclinical employee populations; and (5) studies assessing the efficacy and acceptability of employer-provided DWPs. We performed a descriptive numerical summary and thematic analysis of the included studies. **Results:** Out of 593 nonduplicate studies screened, 29 met the inclusion criteria. The most investigated health domains included mental health (n=19), physical activity (n=8), weight management (n=6), unhealthy behavior change (n=4), and sleep management (n=2). In total, 24 reviews focused on the efficacy of DWPs, primarily in relation to health-related outcomes (eg, stress and weight), while fewer reviews addressed organization-related outcomes (eg, burnout and absenteeism). Four reviews explored the mechanisms of action, and 3 assessed the acceptability of DWPs using various measures. Overall, the findings support the efficacy and acceptability of DWPs, although significant gaps persist, particularly regarding the durability of outcomes, the role of technology, and the causal mechanisms underlying behavioral change. **Conclusions:** While DWPs show promise across a variety of health domains, several aspects of their effectiveness remain underexplored. Practitioners should capitalize on existing evidence of successful DWPs while acknowledging the limitations in the literature.

Amirabdollahian et al. 2025.

Journal of Medical Internet Research, vol. 27.

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Keywords: Acceptability; corporate wellness; digital wellness programs; eHealth; efficacy; health interventions; mHealth; meta-review.

Evidence Level: 1A

Link: <https://www.jmir.org/2025/1/e70982>

Technostress and its associated factors: Burnout and fatigue among Malaysian healthcare workers (HCWs) in state hospitals

Background: Technostress is defined as a psychological state associated with the increased usage of advanced computer technologies on a daily basis. It is also defined as an anxiety feeling or mental strain due to excessive exposure or involvement with technologies. **Aim:** This study aimed to determine the level of technostress associated with burnout and fatigue among healthcare workers (HCWs) in the state hospitals of Malaysia. **Methods:** A cross-sectional study was conducted from September 2022 to November 2023 among HCWs working in the 15-state hospitals in Malaysia. A standardized questionnaire was distributed among the HCWs in the state hospitals in Malaysia. The questionnaire contains information on socio-demography and topic-specific scales on technostress, burnout and fatigue. **Results:** A total of 1620 HCWs were included in the analysis, of which 244 (15%) have high level of technostress, 1089 (67%) have moderate technostress, and 287 (18%) have low technostress. Burnout, and fatigue were significantly associated with technostress. HCWs with moderate burnout were less likely to have high technostress compared to those with high burnout ($B = -0.993$, 95% CI: 0.231 - 0.594; $p < 0.001$). Those with moderate fatigue were less likely to have high technostress ($B = -3.844$, 95% CI: 0.003 - 0.162; $p < 0.001$) compared to those with high fatigue. **Conclusions:** This study found that majority of the HCWs have moderate level of technostress. Technostress has become more common after the COVID-19 pandemic in 2020 drastically altered working conditions and made remote work using information and communication technologies (ICT) a necessity rather than a luxury. Mitigation measures and programs that include psychological support for individuals who are struggling with the technostress and burnout are needed to overcome this issue.

Muhamad et al. 2025.

PLoS One, vol. 20, no. 3.

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Keywords: Technostress; burnout; fatigue; healthcare workers.

Evidence Level: 4B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0319506>

Work Environment

Working from home and well-being during the pandemic and beyond: A longitudinal analysis in five countries

Background: Given the rise of remote work in the wake of the COVID-19 pandemic, many studies have investigated how working from home (WFH) is related to employee well-being. So far, findings have been mixed and based predominantly on cross-sectional analyses. **Methods:** We used multi-level regression models to describe the longitudinal relationship between WFH and well-being over 11 assessments from April 2020 to November 2023, based on a unique, population-based sample of N = 3403 employed participants from five European countries. **Results:** Even after controlling for relevant covariates, WFH was negatively related to well-being in the initial stages of the pandemic, but unrelated to WFH thereafter. **Conclusion:** Our analysis offers a differentiated picture on within- and between-person dynamics of WFH and well-being over the course of the pandemic and beyond and can inform the discussion how individuals, organizations, and societies can prepare for a future in which WFH plays a more prominent role.

Kornadt et al. 2025.

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

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Keywords: COVID-19; longitudinal studies; occupational health; well-being; working from home.

Evidence Level: 4B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22349-4>

The transition to an activity-based workplace: Experiences of managers and employees from a sense of coherence perspective in public sector workplaces

Background: The Activity-Based Workplace (ABW) is an increasingly popular office design that aims to facilitate new ways of working. Research focusing on the effects of ABWs on various outcomes is growing but there is a lack of studies looking at how managers and employees perceive the transition to ABWs from a salutogenic health-promotion perspective. This study aims to explore how managers and employees experienced a transition period to ABWs through the lens of a sense of coherence. **Methods:** A qualitative design was applied through semi-structured interviews with six managers and focus group interviews with nine employees working in the public sector in Sweden. A content analysis of the interviews was conducted using Aaron Antonovsky's sense of coherence concept, with the three main aspects of comprehensibility, meaningfulness and manageability acting as a theoretical framework for the analysis. **Results:** Six sub-categories within the three main SOC categories were identified in the material and considered important to the participants during their transition to the ABW. The sub-categories were divided into facilitating factors and barriers to obtaining a sense of coherence. The identified factors were: information and preparation, clear rules, adaptability, leadership, social relations and health and well-being.

Conclusions: The analysis showed that the managers and employees were exposed to factors which may have acted as both facilitators and barriers to a sense of coherence during the transition to the ABW. When implementing ABWs, consideration must be given to the facilitators and barriers identified in this study during the transition process. The sense of coherence framework appears valuable for gaining a deeper knowledge of managers' and employees' experiences during the transition to ABW.

Hansson et al. 2025.

PLoS One, vol. 20, no. 3.

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Keywords: Managers; employees; activity-based workplace; public sector.

Evidence Level: 5B

Link: <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0320324>

Evaluating employee performance in smart work environment with focus on psychological distance and process versus outcome-centric approaches

The rapid development of IT technology and social changes has given rise to a new work modality known as smart work. This study explores how the psychological distance between evaluators and those evaluated in a smart work environment influences assessments, centering around construal level theory. The findings

reveal that smart work increases the psychological distance for evaluators, thereby elevating their level of construal and leading to outcome-focused thinking. In contrast, traditional work methods keep psychological distance relatively closer, fostering process-oriented thinking. This research highlights the crucial role of psychological distance in shaping evaluation strategies in workplaces and offers valuable insights for organizations aiming to effectively integrate smart work practices. This exploration not only contributes to our understanding of smart work's organizational and psychological dynamics but also suggests implications for performance management systems in contemporary work environments.

Seo et al. 2025.

Scientific Reports, vol. 15, no. 1.

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Keywords: Construal level theory; performance evaluation; psychological distance; smart work; virtuality.

Evidence Level: 6B

Link: <https://www.nature.com/articles/s41598-025-94254-0>