

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 April 2025 only.

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### **Evidence level definitions**

1. Level of evidence – Certain study designs are scientifically stronger at answering a question.

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
А	Study conducted in Australia or the study has been conducted outside Australia but confounders unlikely to affect relevance
В	Study conducted outside Australia and confounders likely to affect generalisability

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### Enabling healthy and safe workplaces

### Health and wellbeing

# Sleep quality and nighttime sleep duration mediated the association between occupational stress and work-related musculoskeletal disorders among bus drivers

Background: Work-related musculoskeletal disorders (WMSDs) significantly affect bus drivers' health and warrant adequate attention. Previous studies had reported associations between occupational stress exposure and WMSDs, but the underlying mechanisms remain unclear. This study aimed to evaluate the associations of occupational stress with WMSDs and the mediated effect of sleep quality and nighttime sleep duration. Methods: A total of 1,792 bus drivers with the available information from 5 subsidiaries of Shenzhen Bus Group were included by the convenience sampling method. Logistic regression model was used to estimate the associations of occupational stress, sleep quality and nighttime sleep duration with WMSDs. Mediation analysis was performed to explore the role of sleep quality and nighttime sleep duration in the association between occupational stress and WMSDs. Results: The prevalence rate of single-site, multiple-site, and overall WMSDs among bus drivers were 10.04%, 59.26%, and 69.31%, respectively. We found that occupational stress was significantly associated with an increased risk of both multiple-site WMSDs and overall WMSDs [OR (95% CI) = 1.92 (1.56, 2.36) and 2.03 (1.63, 2.55), respectively]. Compared to those with high sleep quality, bus drivers with poor sleep quality exhibited a higher risk of multiple-site WMSDs and overall WMSDs [OR (95% CI) = 3.73 (2.89, 4.84) and 4.82 (3.53, 6.71), respectively]. Each 1-hour increment in nighttime sleep duration was linked to a 36% declined risk of multiple-site WMSDs and a 37% reduced risk of overall WMSDs [OR (95% CI) = 0.64 (0.58, 0.71) and 0.63 (0.57, 0.70), respectively]. Moreover, mediation analysis showed that sleep quality mediated 48.94% and 48.70%, and nighttime sleep duration mediated 19.63% and 18.64%, of the associations between occupational stress and multiple-site WMSDs and overall WMSDs, respectively. Conclusion: Occupational stress and poor sleep quality significantly elevated the risk of both multiple-site and overall WMSDs, while increased nighttime sleep duration was associated with a reduced risk of multiple-site and overall WMSDs. Sleep quality and nighttime sleep duration emerged as potential mediators in multiple-site and overall WMSDs induced by occupational stress. Highlighting the importance of reducing occupational stress, maintaining good sleep quality and sufficient nighttime sleep duration for WMSDs prevention. Wang et al. 2025.

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

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Bus drivers; nighttime sleep duration; occupational stress; sleep quality; work-related musculoskeletal disorders.

Evidence Level: 5B

Link: http://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22236-y

# Associations of psychosocial and physical work demands with all-cause mortality: A pooled analysis of prospective cohort studies

**Background:** The findings regarding mortality risk attributable to psychosocial and physical work demands are inconsistent. Pooled estimates using participant-level data from multiple cohort studies may provide more conclusive evidence. **Methods:** Four prospective cohort studies conducted in England, Finland, France, and the USA were used (age 36-62 years; n = 41 760). We studied 34 903 and 36 076 individuals who had baseline (1981-2005) information on self-reported psychosocial and physical work demands, respectively. All-cause mortality until the year 2018 was ascertained through linkage to national registers, National Death Index, and company databases. We investigated the associations of psychosocial and physical demands with all-cause mortality separately for females and males using Cox regression models that were adjusted for socio-demographic and lifestyle factors. Using random-effects meta-analysis, we

calculated pooled estimates of all-cause mortality for moderate and high exposure levels. **Results:** During the mean follow-up of 25 years, 2105 deaths occurred among females and 5048 deaths occurred among males with information on psychosocial demands. The corresponding numbers for those with information on physical demands were 2176 and 5101. Fully adjusted models indicated that psychosocial demands were associated with both lower and higher all-cause mortality risks in both sexes. Physical demands increased the risk of all-cause mortality in both sexes and the association was strongest among males with moderate exposure levels (pooled hazard ratio 1.10, 95% confidence interval 1.02-1.19). **Conclusion:** The relationship between psychosocial work demands and all-cause mortality remains inconclusive, whereas moderate physical work demands increase the mortality risk among males.

### Tanjung et al. 2025.

### International Journal of Epidemiology, vol. 54, no. 3.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Individual participant data; meta-analysis; mortality; occupational physical activity; physical demands; psychological demands; work exposure.

Evidence Level: 4B

Link: https://academic.oup.com/ije/article/54/3/dyaf045/8112853?login=false

### Effect of simultaneous physical and auditory stressors on cardiorespiratory response

In occupational medicine, monitoring individual stress-related physiological responses is an effective tool for minimizing health risks at the workplace. From an audiology perspective, this particularly concerns the effects of auditory stress, which leads to increased listening effort with subsequent hearing fatigue. A study was conducted to investigate whether cardio-respiratory responses can detect the effects of a multi-level combination of physical and auditory stressors. To investigate their measurability and determine whether an interaction exists, a selection of cardio-respiratory vital parameters such as heart rate, features in the time and frequency domain of the heart rate variability, breathing rate, respiratory minute volume, and the respiratory quotient were analyzed. The results showed a significant main effect of physical stress on all assessed parameters. Auditory stress demonstrated a significant impact on breathing frequency, root mean square of successive differences of interbeat intervals, and the power components of the low and high frequency bands of the heart rate variability. No interaction between auditory and physical stressors was observed across any of the examined parameters. From these results we conclude that physiological responses to different sources of stress can be recorded within selected vital parameters, independent of external stimuli such as ambient noise. In an occupational context, we see potential in tracking individual auditory stress by monitoring cardio-respiratory parameters, especially breathing patterns. By knowing the individual (auditory) stress level, conclusions could be drawn about the worker's ability to concentrate and further measures could be taken to combat safety risks in the work environment. Buj et al. 2025.

### Scientific Reports, vol. 15, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Physical stressor; auditory stressor; cardiorespiratory response. Evidence Level: 3B Link: https://www.nature.com/articles/s41598-025-96845-3

# Impact of occupation on survival of esophageal squamous cell carcinoma patients following esophagectomy: A long-term survival analysis

**Background:** Esophageal cancer (EC), particularly esophageal squamous cell carcinoma (ESCC), is a major global health issue with high incidence and mortality rates in Asia. This study examines the impact of occupational background on the long-term survival of ESCC patients following esophagectomy. **Methods:** Data were obtained from the Sichuan Cancer Hospital & Institute Esophageal Cancer Case

Management Database (SCCH-ECCM Database), focusing on patients with ESCC who underwent esophagectomy between 2010 and 2017. Patients were classified into four occupational groups: Farmer, Civil Servant, Teacher, and Factory Worker. The primary outcome measured was overall survival (OS), which was analysed using Kaplan-Meier survival curves, Cox proportional hazards models, and restricted mean survival time (RMST). To account for potential confounding factors, propensity score matching (PSM) was employed. **Results:** Among the cohort, 67.5% were Farmers, 9.0% Civil Servants, 1.9% Teachers, and 21.6% Factory Workers. The median follow-up was 72.2 months, with a median OS of 49.8 months. One-, three-, and five-year OS rates varied slightly by occupation, with Factory Workers displaying the highest one-year survival rate at 91%. Significant survival differences were noted between Farmers and Civil Servants (HR: 1.291; 95% CI: 1.030 - 1.618; P = 0.027), the significance persisted even after PSM (HR: 1.376; 95% CI: 1.004 - 1.885; P = 0.047). Civil Servants, who presented with more advanced disease stages, had the lowest crude RMST, aligning more closely with other groups after adjustment. **Conclusions:** The results revealed that ESCC patients categorized as Civil Servants exhibited a poorer prognosis compared to those classified as Farmers.

### Li et al. 2025.

#### BMC Gastroenterology, vol. 25, no. 1.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Esophageal Squamous Cell Carcinoma; esophagectomy; occupation; risk factors; survival analysis.

Evidence Level: 4B

Link: https://bmcgastroenterol.biomedcentral.com/articles/10.1186/s12876-025-03890-3

### Work health and safety

### Age, inflammation, alkaline phosphatase, and coronary artery calcification in firefighters

Background: Firefighting involves exposure to hazardous conditions that may contribute to adverse long term health outcomes, including cardiovascular disease. While coronary artery disease (CAD) is a leading cause of morbidity among firefighters, the specific occupational contributions to Coronary Artery Calcification (CAC), a reliable predictor of CAD, are not well understood. Methods: We conducted a crosssectional study involving 410 firefighters, aged 35-68, who underwent comprehensive health assessments, including CAC measurement using computed tomography. Multiple logistic regression models were built to examine the associations of demographic, lifestyle, and clinical variables with CAC score. Results: Our analysis revealed statistically significant associations between several clinical indicators and CAC score. Age (odds ratio (OR): 1.12; 95% confidence interval (95% CI): [1.05, 1.19]) and percentage of monocytes (OR: 1.29; 95% CI: [1.06, 1.58]) were positively correlated with higher CAC score, highlighting the role of inflammation in CAD among firefighters. Moreover, the enzyme alkaline phosphatase emerged as an independent predictor of CAC score (OR: 1.02; 95% CI: [1.01, 1.04]), suggesting a novel biomarker of cardiovascular risk in this population. Conclusion: Our study identified several risk factors associated with increased CAC score in firefighters, including age, inflammation, and alkaline phosphatase. These findings underscore the importance of tailored health monitoring and interventions to mitigate CAD risk in firefighters, considering both general and occupation-specific risk factors. This study contributes to a better understanding of the occupational health challenges faced by firefighters and provides a foundation for future research and preventive strategies in this high-risk group.

### Li et al. 2025.

### BMC Cardiovascular Disorders, vol. 25, no. 1.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords:** Age; alkaline phosphatase; coronary artery calcification; firefighters; inflammation. **Evidence Level:** 4B

Link: https://bmccardiovascdisord.biomedcentral.com/articles/10.1186/s12872-025-04750-4

### Workplace Research Monthly May 2025

#### Occupational injury severity among healthcare workers: A retrospective study

Background: Healthcare workers (HCWs) are exposed to a multitude of hazards in the hospital environment, increasing their risks of sustaining injuries at a higher rate compared to workers in other sectors and resulting in substantial level of modified work and absenteeism. This study aims to examine the burden and determinants of occupational injury severity of HCWs at a tertiary care hospital in Lebanon. Methods: This retrospective cross-sectional study examined incident reports completed by HCWs over a period of 5 years (January 2018 to December 2022). Injury severity was assessed by HCWs' need for an Emergency Department (ED) visit after sustaining an injury at work. The association with age, sex, occupation, and type of injury was examined. Results were reported as adjusted OR, with their corresponding 95% confidence intervals and p-values, using logistic regression. Results: 1,772 injury reports were recorded, of which 790 were included for analysis since the sample was limited to the outpatient clinic opening hours to ensure a more accurate assessment of injury severity. Of these, 27% required an ED visit. Male sex (OR = 1.601, p-value = 0.005) was associated with more severe injuries. Transportation injuries (OR = 5.927, p-value = 0.001) were more severe compared to other injury mechanism, while needle-pricks (OR = 0.008, p-value = 0.000), exposure to blood products (OR = 0.025, p-value = 0.000), and exposure to harmful substances (OR = 0.209, p-value = 0.003) were less severe. Age and occupation only showed significance at the bivariate level. **Conclusion:** This study highlighted significant determinants of injury severity among HCWs, emphasizing the critical need for targeted interventions for individuals at risk. Implementing comprehensive safety and wellness programs can enhance the overall health and safety of HCWs in high-stress environments.

#### Khairallah et al. 2025.

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

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Blood-borne pathogens; emergency department; healthcare workers; injury severity; tailored interventions; transportation incidents.

### Evidence Level: 4B

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22727-y

### Acute exercise impacts heart rate variability but not cognitive flexibility during subsequent simulated firefighter occupational tasks

**Purpose:** Acute exercise can transiently enhance cognitive flexibility. The cognitive demand of firefighters makes it relevant to understand if on-shift exercise could produce similar improvements in cognitive performance during subsequent occupational tasks. Metrics of heart rate variability (HRV), such as timeand frequency-domain outcomes, may shed light upon the influence exercise has on cognition, as they discern information related to cardiac autonomic (sympathetic/parasympathetic) function. We aimed to determine if acute resistance and aerobic exercise impact cognitive flexibility during occupational tasks and its relation to HRV. Methods: 32 participants completed a baseline Wisconsin Card Sorting Task (WCST) and three experimental trials: resistance exercise (RE), aerobic exercise (AE), or a rested control (CON). An occupational task assessment (OTA) including four rounds of 10 deadlifts and a 0.15-mile sandbag carry in an environmental chamber (35 °C/50% humidity) was completed after each trial. The second round was followed by the WCST. Repeated measures ANOVAs were used to analyse differences by condition. **Results:** For the WCST, total, perseverative, and non-perseverative errors did not differ (ps > 0.39). Timedomain HRV metrics were not different (ps > 0.05). All frequency-domain metrics, other than lowfrequency power, were not different (ps > 0.24). Low-frequency power was lower based on condition (p =0.03). Post hoc analysis showed low-frequency power was lower following AE compared to RE and CON. Conclusion: Results suggest an acute bout of on-shift aerobic or resistance exercise may not impact cognitive flexibility during subsequent simulated occupational tasks, despite depressed metrics of heart rate variability following aerobic exercise. Agostinelli et al. 2025.

### European Journal of Applied Physiology, vol. 125, no. 4.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Executive function; heart rate variability; heat stress; high-intensity interval training; resistance training; tactical athletes.

Evidence Level: 3B

Link: https://link.springer.com/article/10.1007/s00421-024-05650-9

### When occupational cancer recognition falters

There are differences between epidemiology and legal medicine in addressing the problem of underreporting occupational cancers. Epidemiology focuses on systematically gathering data and identifying patterns of under-reporting, which is not deemed to pose ethical dilemmas, as its goal is to improve public health outcomes. Conversely, legal medicine investigates individual cases and ensures compliance with legal standards, presenting more complex ethical challenges. Considering workers' frustrations when dealing with unrecognized occupational diseases is essential. These workers experience significant physical and emotional distress and should not have to face a complicated compensation claims process. There is a need for ethical approaches that support workers in navigating their rightful claims for compensation, not challenging their mental and emotional well-being.

### Assennato et al. 2025.

La Medicina del Lavoro, vol. 116, no. 2.

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Keywords: Occupational cancer; epidemiology; legal medicine. Evidence Level: 6B Link: <u>https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16997</u>

### A 7-year active surveillance experience for occupational lung cancer in Bologna, Italy (2017-2023)

Background: In Italy, lung cancer is the second most frequent neoplasm in men and the third in women. Exposure to carcinogens in workplaces plays a significant role. Still, cases attributable to occupational exposure are currently under-reported as occupational diseases: the current National Prevention Plan also encourages active research projects for the detection of cancers attributable to occupational exposure. Methods: The Unit of Prevention and Safety in the Workplace of Bologna Local Health Authority (Azienda Unità Sanitaria Locale-AUSL-)created a network for active surveillance of occupational lung cancer cases with the dedicated Diagnostic and Therapeutic Care Pathways(PDTA). Possible occupational exposure cases were selected within all incident PDTA cases using a self-completed patient filter form. Only patients selected through the form were interviewed; occupational physicians collected personal, occupational, and clinical history. Definition of a cooperation system with the local office of the National Institute for Insurance(INAIL) for monitoring the process during the medico-legal assessments conducted by the insurance institute up to resolution. Results: 453 cases completed the filter form, 177 had a potential occupational exposure. Of these, 140 accepted the direct interview with occupational physicians. One hundred eleven cases interviewed were assessed with sure or suspect occupational origin: for 82, a claim for recognition was sent to the INAIL, while for the other 29 was sent to INAIL a report for epidemiological purposes. Out of 82 compensation claims, 18 individuals (4 females and 14 males) received compensation, while 4 cases remain under investigation. A total of 53 claims were rejected: 54.7% for lack of exposure to risk factors, 24.5% for insufficient exposure, 9.4% due to inadequate administrative documentation, 7.5% because of insufficient clinical documentation, and 3.8% for the absence of causal association. Conclusions: Several occupational lung cancers were found that otherwise would have been unrecognized. Asbestos was the most frequent agent occurring in the most widespread work sectors-construction and manufacture of metalworking products-and in the period of exposure from 1970 to 1980. Other relevant agents were

welding fumes and polycyclic aromatic hydrocarbons. Active surveillance, direct patient interviews, and claims for recognition integrated by a complementary report are essential to increase the INAIL compensation rate.

### Bogni et al. 2025.

La Medicina del Lavoro, vol. 116, no. 2.

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Keywords: Occupational lung cancer; active surveillance; Italy.

Evidence Level: 4B

Link: https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16173

## Chronic wounds and employment: Assessing occupation-related burden of patients with chronic wounds: Results of a pilot study

Chronic wounds can impact the quality of life of working-age individuals. However, the specific challenges and burdens these patients face in the workplace remain understudied. This study aimed to 1) investigate how chronic wounds affect work life and 2) develop a screening tool for identifying highly affected patients. In total, 51 patients with chronic wounds answered a questionnaire on demographics, employment status, wound-related limitations, workplace conditions, social welfare use and subjective burden of disease. To assess the subjective burden, we developed a specific research tool on employment and chronic wounds (REACH Score) to measure and quantify the impact of the chronic wound on working patients. The patients, who answered the questionnaire, were employed (78%), on sick leave (18%) or retired (4%). They spent an average of 5.3 h per week on wound-related activities. Regarding workplace stressors, we found that taking breaks when needed was correlated with less time off sick and better work-related quality of life. Patients reported career concerns and reduced productivity. The REACH score was significantly correlated with sick leave, work difficulties, time consumed by the wound and overall quality of life. According to our pilotstudy, the impact of chronic wounds on patients of working age is most evident in the form of sick leave and reduced work performance and in a reduced quality of life. It is crucial to identify the key factors contributing to stress in the work environment in a larger sample in order to improve the working conditions of patients and detrimental socioeconomic effects on the workforce. The REACH score is a novel tool to screen employed patients with chronic wounds for reduced work capacity and quality of life. Busch et al. 2025.

### International Wound Journal, vol. 22, no. 4.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords:** Chronic wounds; employment; quality of life; work; wound healing. **Evidence Level:** 4B

Link: https://onlinelibrary.wiley.com/doi/10.1111/iwj.70372

# Electromyography-informed estimates of joint contact forces within the lower back and knee joints during a diverse set of industry-relevant manual lifting tasks

Repetitive manual labor tasks involving twisting, bending, and lifting commonly lead to lower back and knee injuries in the workplace. To identify tasks with high injury risk, we recruited N = 9 participants to perform industry-relevant, 2-handed lifts with a 11-kg weight. These included symmetrical/asymmetrical, ascending/descending lifts that varied in start-to-end heights (knee-to-waist and waist-to-shoulder). We used a data-driven musculoskeletal model that combined force and motion data with a muscle activation-informed solver (OpenSim, CEINMS) to estimate 3-dimensional internal joint contact forces (JCFs) in the lower back (L5/S1) and knee. Symmetrical lifting resulted in larger peak JCFs than asymmetrical lifting in both the L5/S1 (+20.2% normal [P < .01], +20.3% shear [P = .001], +20.6% total [P < .01]) and the knee (+39.2% shear [P = .001]), and there were no differences in peak JCFs between ascending versus

descending motions. Below-the-waist lifting generated significantly greater JCFs in the L5/S1 and knee than above-the-waist lifts (P < .01). We found a positive correlation between knee and L5/S1 peak total JCFs (R2 = .60, P < .01) across the task space, suggesting motor coordination that favors sharing of load distribution across the trunk and legs during lifting.

### Davenport et al. 2025.

Journal of Applied Biomechanics, vol. 41, no. 2.

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**Keywords:** Injury risk; internal joint loading; lumbar spine; musculoskeletal modeling. **Evidence Level:** 3B

Link: <a href="https://journals.humankinetics.com/view/journals/jab/41/2/article-p151.xml">https://journals.humankinetics.com/view/journals/jab/41/2/article-p151.xml</a>

## Testing job wellbeing indicators among community behavioral health workers: Community-based participatory research

Many community behavioral health organizations (CBHOs) continue to struggle with their employees' reduced job wellbeing and job disengagement (i.e., turnover intentions, actual turnover). Understanding employees' job wellbeing priorities in their organizational contexts is essential to address the challenges, especially for workers in diverse work settings such as CBHOs. We used community-based participatory research (CBPR) strategies to develop and test job wellbeing indicators. The current study implemented 11 indicators with 168 people employed at a CBHO through initial and 6-month follow-up surveys. Positive endorsement of job wellbeing indicators differed based on employees' demographic (e.g., race, education, marital status) and job (e.g., exempt status, clinical positions) characteristics. Several indicators declined from the initial to the follow-up surveys (e.g., communication, job fairness, decision-making involvement, expectation alignment, supervisory support, career development opportunities). The change rates also varied by employee characteristics (e.g., work years, race, exempt status, full-time). The current study illustrates the utility of CBPR strategies to implement job wellbeing indicators based on employees' priorities and diverse job wellbeing experiences among employee subpopulations. Further, the developed indicators revealed job wellbeing heterogeneity by employee subpopulations within an organization that is often overlooked. Efforts to understand varying job wellbeing characteristics among diverse employees may eventually help develop organization-tailored interventions to improve job wellbeing and reduce turnover.

Fukui et al. 2025.

PLoS One, vol. 20, no. 4.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Wellbeing; community behavioral health workers. Evidence Level: 5B

Link: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0321351

### **Ergonomics**

## Evaluation of self-contained breathing apparatus (SCBA) weight on firefighter stamina, comfort, and postural stability

Firefighters wear personal protective equipment to protect them from the thermal and chemical environment in which they operate. The self-contained breathing apparatus (SCBA) provides isolation of the airway from the hazardous fireground. National standards limit SCBA weight, however, integration of additional features could result in an SCBA exceeding the current limit. The purpose of this study was to examine the effects of increased SCBA weight on firefighters' physiological responses, work output, dynamic stability, and comfort. Completion of simulated firefighting activities induced a strong

physiological response. Peak oxygen consumption was higher with the lightest SCBA than the heaviest SCBA. Few other physiological differences were noted as SCBA weight increased. Importantly, increased SCBA weight resulted in significantly more negative perceptions by the firefighters and a trend towards significance for the duration of work time prior to reaching volitional fatigue. These results should be considered when assessing changes to existing SCBA weight limits.

### Kesler et al. 2025.

### Ergonomics, vol. 68, no. 4.

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**Keywords:** Personal protective equipment (PPE); firefighting; functional balance; self-contained breathing apparatus (SCBA).

#### Evidence Level: 5B

Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC11704086/

## Mixed adverse ergonomic factors exposure in relation to work-related musculoskeletal disorders: A multicenter cross-sectional study of Chinese medical personnel

Exposure to adverse ergonomic factors is associated with elevated risk of work-related musculoskeletal disorders (WMSDs) in medical personnel. We aimed to reveal how different adverse ergonomic factors act individually and in combination to influence the risk of WMSDs in medical personnel. From June 2018 to December 2020, we applied multistage cluster random sampling to select a total of 6,099 medical personnel from 54 hospitals in 12 cities in China. All participants were aged over 18 years and had at least one year of hospital working experience. The weighted quantile sum (WQS) model was employed to evaluate the effect of mixed exposures of multiple adverse ergonomic factors on the risk of WMSDs. Compared to a single factor, multiple adverse ergonomic factors significantly increased the risk of WMSDs across body parts, with an OR ranging from 2.83 (95% CI: 2.33, 3.43) to 6.92 (95% CI: 4.91, 9.74). "Working in awkward positions" had the greatest impact on the risk of WMSDs in the neck, shoulder, upper back, and lower back, while "standing for prolonged periods of time" mostly affected the risk of WMSDs in the foot, leg, and knee. Compared with single factor exposure, mixed exposure resulted in a higher risk of WMSDs **Liu et al. 2025.** 

### Scientific Reports, vol. 15, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Adverse ergonomic factors; medical personnel; mixed exposure; WMSDs. Evidence Level: 4B

Link: https://www.nature.com/articles/s41598-025-99477-9

### **Chronic health issues**

#### Assessing the impact of asthma: A cross-sectional study in workers undergoing therapy

**Background:** This study aimed to investigate the impact of asthma on work productivity among adults receiving asthma therapy. **Methods:** A cross-sectional study involving 101 asthmatic patients treated at the Pulmonology Department of University Hospital in Mahdia (Tunisia) who had been employed for at least six months was conducted over the course of a year. Recruited patients were asked to complete a self-administered questionnaire that consisted of the Simplified Medication Adherence Questionnaire (SMAQ), the Work Productivity and Activity Impairment (WPAI), and the Pichot questionnaire. **Results:** The study's participants had a sex ratio of 0.51 and a mean age of 44.1±13.2 years. Exposure to aerocontaminants was high among 64.4% of patients. The majority of the patients were treated with inhaled corticosteroids (ICS) and long-acting beta-agonists (LABA) (54.4%), and nearly half were classified as having moderate asthma. Our findings revealed significant challenges faced by these patients, with 62.4% experiencing poorly

controlled or uncontrolled asthma. Additionally, 69.3% were non-adherent to treatment, and 71.3% reported worsening symptoms while at work. They worked an average of 38.3±16.4 hours per week. The impact of general health status on work productivity was measured at 3.3±2.5. Absenteeism and presenteeism rates were 4.2% and 33.1%, respectively, resulting in a productivity loss of 30.4%. Activity impairment was associated with factors such as gender, alcohol consumption, and uncontrolled asthma. **Conclusion:** Addressing asthma control, working conditions, and mental health emerges as essential strategies to enhance workplace productivity. When evaluating the effectiveness of interventions among active asthmatic patients, presenteeism, absenteeism, and productivity loss should be considered. **Omrane et al. 2025.** 

### La Medicina del Lavoro, vol. 116, no. 2. User License: Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) (<u>https://creativecommons.org/licenses/by-nc/4.0/</u>) Keywords: Asthma; surgery. Evidence Level: 4B Link: <u>https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/15786</u>

### Role of perceived organization support to promote diabetes treatment among workers

This study investigated association of Perceived Organization Support (POS) with diabetes treatment among workers. This prospective cohort study was conducted online, and parts of nations wide study stratified similarly with workers' characteristic in Japan. Samples were screened to those who had diabetes in the baseline years. Binary regression analysis and p for trend were used for statistical analysis. There were 1,203 participants with diabetes followed up regarding their treatment behavior. Higher POS were likely to seek appropriate diabetes treatment after adjustment with personal and occupational factors (p=0.032) but became marginally significant when adjusted with night shift status (p=0.051). Further analysis found that POS was only associated with diabetes treatment among workers with night shift. Higher POS was likely associated with proper diabetes treatment specifically among workers with night shift.

### Adi et al. 2025.

### Industrial Health, vol. 63, no. 2.

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**Keywords:** Diabetes; night shift; Perceived organization support (POS); treatment; workers. **Evidence Level:** 4B

Link: https://www.jstage.jst.go.jp/article/indhealth/63/2/63\_2024-0060/\_article

### **Occupational exposure**

### Risk of Raynaud's phenomenon among workers in the occupational disease surveillance system

**Introduction**: Raynaud's phenomenon (RP) is linked to occupational exposures such as vibration, cold temperature, and chemicals. However, large cohort studies examining RP by occupation and sex are scarce. To address this gap, this study aimed to assess risk of RP by both occupation and sex in a large cohort of workers in Ontario, Canada. **Methods**: Workers with accepted lost-time compensation claims were linked to physician billing records to identify diagnoses of RP between 2002 and 2020. A 3-year washout (disease-free) period was applied, and follow-up was limited to 5 years. Cox proportional hazard models were used to estimate hazard ratios (HR) and 95% confidence intervals (CI) for diagnoses of RP, adjusted for age at start of follow-up, birth year, and stratified by sex. **Results**: A total of 7,131 RP cases were identified among 810,739 workers. Among men, higher risks were observed for truck drivers (HR = 1.23, 95% CI = 1.08-1.41), driver-salesmen (HR = 2.54, 95% CI = 1.21-5.34), those in mining and quarrying-related cutting, handling,

and loading (HR = 2.57, 95% CI = 1.29-5.15), and construction trades laboring and elemental work (HR = 1.70, 95% CI = 1.24-2.34). Among women, higher risks were observed for those working in waitressing and related (HR = 1.70, 95% CI = 1.22-2.38), food and beverage preparation (HR = 1.34, 95% CI = 1.02-1.76), and electrical equipment fabricating and assembling (HR 1.96, 95% CI = 1.08-3.55). **Conclusion**: Study findings show elevated risks of RP among various occupations, with notable differences between men and women. These differences may be attributable to variations in potential exposures and susceptibility to RP. Findings underscore the need for large cohort studies to examine RP across various occupational groups and both sexes.

#### Yeo et al. 2025.

#### American Journal of Industrial Medicine, vol. 68, no. 4.

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**Keywords:** Raynaud's phenomenon; occupation; sex differences; surveillance; vibration white finger. **Evidence Level:** 4B

Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.23700

### Evaluation of urinary metabolites as biomarkers for occupational p-chloronitrobenzene exposure: A pilot study

We explored the feasibility of using urinary metabolites of p-chloronitrobenzene (p-CNB) as exposure biomarkers of occupational p-CNB exposure. Forty-two workers exposed to p-CNB during their jobs at a chemical enterprise in Shaoxing, Zhejiang Province, China were included in the exposure group, while administrative personnel who do not come into contact with p-CNB at work were included in the control group. Each worker in the exposure group was equipped with a personal air sampler to collect airborne p-CNB samples, and urine samples were collected at the conclusion of each shift. After sample collection, the airborne p-CNB concentrations and urinary metabolite concentrations were detected by gas chromatography-tandem mass spectrometry and ultra-performance liquid chromatography - quadrupole orbitrap high resolution mass spectrometry, respectively. The urinary metabolite concentrations were corrected by the content of urinary creatinine. Subsequently, the correlations between the urinary metabolite concentrations and the p-CNB time-weighted average (TWA) concentrations were assessed using correlation analysis. All p-CNB TWA concentrations measured in this study were below the occupational exposure limit in the Chinese national standards. In the exposure group, N-acetyl-S-(4nitrophenyl)-L-cysteine (NANPC), 2-chloro-5-nitrophenol (2C5NP), p-chloroacetanilide (p-CAA), pchlorooxanilic acid (p-COA), 2-amino-5-chlorophenol (2A5CP), and p-chloroaniline (p-CA) were detected at varying levels. The percentages of NANPC, 2C5NP, p - CAA, p - COA, 2A5CP, and p - CA were 64.1%, 5.1%, 0.3%, 15.1%, 5.1%, and 10.3%, respectively. We found extremely significant positive relationships (p < 0.01) between the urinary metabolite concentrations (p-CA, 2C5NP, 2A5CP, NANPC, and p-COA) and the p-CNB TWA concentrations, with respective correlation coefficients of 0.827, 0.673, 0.790, 0.714, and 0.741. Thus, these five metabolites may be used as exposure biomarkers of occupational p-CNB exposure. Moreover, among these metabolites, NANPC was identified as the most suitable exposure biomarker because it had the highest correlation coefficient and the highest content in urine. Wang et al. 2025.

#### Scientific Reports, vol. 15, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Biomarkers; metabolites; occupational exposure; p-Chloronitrobenzene. Evidence Level: 3B

Link: https://www.nature.com/articles/s41598-025-96891-x

## Welding fumes exposure and the risk of head and neck and gastrointestinal cancer: A systematic review and meta-analysis

Background: The association between welding fumes and cancers other than lung cancer remains undefined. We conducted a systematic review and meta-analysis on occupational exposure to welding fumes and the risk of head and neck cancer (HN, comprising oral, pharynx, and larynx) and gastrointestinal cancer (GI, comprising oesophagus, stomach, colorectal, liver, and pancreas). Methods: A systematic search was performed in PubMed, Scopus, and Embase using PRISMA guidelines. Cohort studies on occupational exposure to welding fumes were identified. Study quality was assessed through the CASP score. Data were analysed in random-effects models to calculate the relative risks (RR) and 95% confidence intervals (CI) of HN and GI cancer overall and stratified by cancer site. Results: Seven independent studies with data on oral, pharynx, larynx, oesophagus, stomach, colorectal, liver, or pancreas cancer were identified. We observed the following associations: HN RR=1.10 (95% CI 1.00-1.22); GI RR= 1.03 (95% CI 0.97-1.10); oral and pharynx RR=1.06 (95%, CI 0.93-1.20, eleven risk estimates); larynx RR=1.17 (95%, CI 1.01-1.37, nine risk estimates); oesophagus RR=0.98 (95%, CI 0.83-1.15, three risk estimates); stomach RR= 1.10 (95%, CI 1.02-1.19, five risk estimates); colorectal RR=0.99 (95%, CI 0.85-1.15, seven risk estimates); liver RR=1.23 (95%, CI 0.79-1.90, five risk estimates); and pancreas cancer RR=1.05 (95%, CI 0.94-1.16, three risk estimates). **Conclusions:** We observed an association between occupational exposure to welding fumes and larynx and stomach cancer. No association was found for other HN or GI cancers. Our study stresses the need to investigate the risk of cancers other than lung following occupational exposure to welding fumes. Siea et al. 2025.

### La Medicina del Lavoro, vol. 116, no. 2.

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**Keywords:** Welding; fumes; head; neck; gastrointestinal cancer. **Evidence Level:** 1A

Link: https://mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16092

#### Daily noise dose and power tool characterization of steel stud framers on commercial construction sites

The construction industry is well-documented as having numerous sources of hazardous noise on the job. Framers who cut and install steel studs on commercial construction sites use a variety of power tools throughout the course of their normal workday and have the potential to be exposed to levels of noise that can lead to occupational noise-induced hearing loss. This study assessed the noise dose of commercial steel stud framers and characterized the noise of common power tools that contribute to their daily noise dose. Occupational exposure limits exist in both required and recommended forms to protect workers; however, large differences in the level of worker protection are apparent between the mandated Occupational Safety and Health Administration (OSHA) permissible exposure limit (PEL) and the voluntary National Institute for Occupational Safety and Health (NIOSH) recommended exposure limit (REL) for noise exposure. Steel stud framers in this study had a mean OSHA PEL dose of 27.6% and a mean NIOSH REL dose of 340.7% for the same workers. As a comparison, ambient equivalent noise doses at the construction site were 1.4% for PEL criteria and 12.4% for REL criteria. Of task assignments during the workday, workers who were assigned primarily as saw operators had statistically significant higher noise exposures than workers who were assigned as stud installers (P = 0.037). Octave band analysis was conducted for full-day exposures and indicated an upward trend of higher noise exposures at higher frequencies. Overall, among all steel stud framers involved in this study, all workers had noise doses below the OSHA PEL (range 5.8% to 61.4%), and all but 2 workers (n = 35) had noise doses above the NIOSH REL (range 63.9% to 823.2%), indicating exposure to hazardous levels of noise based on more protective RELs. Schutt et al. 2025.

Annals of Work Exposures and Health, vol. 69, no. 4.

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**Keywords:** Construction hazards; framing; noise exposure; noise-induced hearing loss; power saw. **Evidence Level:** 5B

Link: https://pmc.ncbi.nlm.nih.gov/articles/PMC12018075/

### Assessment of a systematic screening of occupational exposures in malignant hemopathies in the rhonealpes area: Prolymphome study

Background: Several studies have highlighted the role of environmental exposures in malignant hemopathies aetiology. Some patients with malignant hemopathies can be compensated as occupational diseases. The Prolymphome research aimed to assess a systematic screening of occupational exposures in patients with lymphoma or myeloma treated in three hospitals in the Rhône-Alpes region. Methods: Patients received a self-administered questionnaire to fill in at home to collect their job history and potential occupational exposures to carcinogens. A physician assessed the questionnaire to determine if a dedicated consultation was required and the possibility of claiming compensation. Patients were systematically assisted by a social worker for administrative procedures. Results: In 12 months, 754 patients were enrolled in the study, and 361 (48%) returned the questionnaire. A specialized consultation was proposed for 123 patients, and 98 patients attended the consultation. Overall, a compensation claim was proposed to 18 patients: 11 have been occupationally exposed to pesticides and seven to trichloroethylene. **Conclusions:** Our results confirmed the feasibility of the systematic screening procedure. Barriers were observed at every step of the process, and it underlined that patients are rarely informed about occupational exposures. As the prevalence of occupational exposures in malignant hemopathies remains scarce, a systematic targeted screening could be relevant in this population. Pérol et al. 2025.

### La Medicina del LavoroJ, vol. 116, no. 2.

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**Keywords:** Occupational exposures; malignant hemopathies. **Evidence Level:** 5B

Link: https://mail.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16270

### Exposure profiles for the long-term use of disinfectants and cleaning products and asthma

Background: Using disinfectants and cleaning products (DCPs) at home and work is known to influence both the onset and course of asthma, but most epidemiological studies did not consider the multiplicity and correlations of exposures to DCPs. We aimed to identify exposure profiles for the long-term weekly use of DCPs by latent class analysis (LCA) and assess their associations with asthma. Methods: LCA was conducted on data from 1143 young adults initially recruited in the German centers of Phase II of the International Study of Asthma and Allergies in Childhood (ISAAC) and followed up three times. In our LCA model, we included the use of cleaning sprays, disinfectant sprays, and nonspray disinfection methods, measured at ages 19-24 (first assessment) and 29-34 years (second assessment). Associations between identified exposure profiles and current as well as incident asthma/wheeze were evaluated by logistic regression. Results: We identified five long-term exposure profiles to DCPs (latent classes): no weekly use of DCPs (55% of participants), use in first assessment (7%), use in second assessment (18%), persistent use (8%), and persistent cleaning sprays use (12%). Compared to "no weekly use," being in the "persistent use" profile was associated with both current asthma (OR = 1.68, 95% CI = [0.48-5.88]) and current wheeze (OR = 1.71, 95% CI = [0.75-3.90]). For incident asthma/wheeze, interval estimates were very wide. **Conclusions**: Our study identified five distinct long-term exposure profiles to DCPs. Among those, only a persistent weekly use of multiple DCPs over time seemed to have an adverse effect on asthma. However, large confidence intervals indicate considerable uncertainty.

#### Pacheco De Silva et al. 2025.

Allergy, vol. 80, no. 4. User License: Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) (https://creativecommons.org/licenses/by-nc/4.0/)

**Keywords:** Asthma; disinfectants and cleaning products; exposure profiles; latent class analysis; sprays. **Evidence Level:** 4B

Link: https://onlinelibrary.wiley.com/doi/10.1111/all.16456

## Characterization of bioaerosol exposures in wastewater treatment plant workers and serum levels of lung and inflammatory markers

Wastewater treatment plant (WWTP) workers are exposed to bioaerosols containing bacteria, fungi, and endotoxin, potentially posing health risks to workers. This study quantified personal exposure levels to airborne bacteria and fungi, endotoxin, and dust among 44 workers during two seasons at four WWTPs. Associations between the exposure measurements and serum levels of biomarkers CRP, SAA, and CC16 were also assessed. The potential deposition of viable microorganisms in workers' airways were explored using stationary fractionating samplers. Microbial communities were characterized using long-read nanopore amplicon sequencing and MALDI-TOF mass spectrometry to identify species, including pathogenic or allergenic microorganisms. We found that bacterial and fungal exposure levels were significantly associated with work task (p < 0.001 and p = 0.00041, respectively), with high exposure variability within and between tasks. Workshop, sewer system inspection, and sewer cleaning were associated with the highest exposure levels. A significant positive correlation was found between CRP and bacterial exposure (p = 0.013), while significant negative correlations were found between CRP and endotoxin and dust exposures (p = 0.012 and p = 0.018, respectively). No significant associations were found between SAA or CC16 and the exposure measures. Microbial community composition in bioaerosols differed significantly between some work tasks while others showed similar compositions. Viable hazardous microorganisms such as Clostridium perfringens and Aspergillus fumigatus were found in workers' exposures and in respiratory fractions of stationary air samples, indicating potential lung deposition. Further research is needed to assess possible long-term health risks from bioaerosol exposure at WWTPs.

### Møller et al. 2025.

### Journal of Hazardous Materials, vol. 487.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Bioaerosol exposures; CC16; CRP; microbial communities; SAA; wastewater workers; work tasks. Evidence Level: 5B

Link: https://www.sciencedirect.com/science/article/pii/S0304389425001669?via%3Dihub

### Occupational benzene exposure and risk of nervous system cancers: A systematic review and metaanalysis

**Background:** Benzene is a solvent that has played a significant role in various industries and applications over time, but its use declined due to its carcinogenic nature. Classified as a human carcinogen since 1979, benzene exposure is linked to leukemia and possibly other cancers. The global rise of nervous system cancers urges investigation into the possible role of benzene. Our aim is to investigate this association through a systematic review and meta-analysis of occupational cohort and case-control studies. **Methods:** We registered our study protocol and followed established guidelines (Registration No. CRD42022379720). A systematic search across databases yielded 36 independent cohort and case-control studies. We conducted a random-effects meta-analysis of relative risks (RR) for nervous system cancers. Analyses were stratified based on various factors such as region, study design, and exposure level. Publication bias was evaluated using a funnel plot and Egger test. **Results:** Our meta-analysis indicates an

association between benzene exposure and risk of overall nervous system cancers (RR = 1.21, 95 % confidence interval [CI] = 1.05-1.38). Stratified analyses showed an association with glioma (RR = 3.88, 95 % CI = 1.33-11.31, N risk estimates=2). Publication bias was detected (p = 0.01). **Conclusion:** Our study found an association between occupational benzene exposure and increased risks of nervous system cancers, which however cannot be interpreted as causal. While these findings highlight the need for stringent safety measures, they also reveal gaps in literature. Further research is essential to address these limitations and deepen our understanding of benzene's health implications.

### Mangiaterra et al. 2025.

Cancer Epidemiology, vol. 95.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: CNS; benzene; central nervous system; malignant; occupational factors. Evidence Level: 1A

Link: https://www.sciencedirect.com/science/article/pii/S1877782125000396?via%3Dihub

## Monitoring construction workers' mental workload due to heat exposure using heart rate variability and eye movement: A study on pipe workers

Monitoring the mental workload of construction workers is effective in detecting risky subjects because cognitive overload may threaten their safety. This study aimed to measure workers' mental workload caused by heat exposure using heart rate variability (HRV) and eye movement features. Inexperienced pipe workers (n = 30) were invited to perform an installation task in a normothermic (26 °C, 50% RH) and a hyperthermic (33 °C, 50% RH) condition. Their HRV and eye movement features were recorded as the inputs of training models classifying mental workload between the two thermal conditions, using supervised machine learning algorithms, including Support Vector Machines (SVM), KNearest Neighbor (KNN), Linear Discriminant Analysis (LDA), and Random Forest (RF). The results show that applying eight HRV features through the KNN algorithm could obtain the highest classification accuracy of 90.00% (Recall = 0.933, Precision = 0.875, F1 = 0.903, AUC = 0.887). This study could provide a new perspective for monitoring the mental workload of construction workers, and it could also provide a feasible approach for the construction industry to monitor workers' mental workload in hot conditions. **He et al. 2025.** 

### Concore vol 25 no

Sensors, vol. 25, no. 8.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: HRV; eye movement; heat exposure; mental workload; pipe workers. Evidence Level: 5B Link: http://mdpi.com/1424-8220/25/8/2377

Link: http://mdpi.com/1424-8220/25/8/2377

## Cigarette smoking decreases macrophage-dependent clearance to impact the biological effects of occupational and environmental particle exposures

The retention of occupational and environmental particles in the lung is a primary determinant of biological effects. In the distal respiratory tract, particle clearance includes phagocytosis by alveolar macrophages (AMs), migration to the terminal bronchiole, and transport of AMs and particles by the mucociliary escalator. With increasing particle exposure, a focal collection of particle-laden macrophages results at the respiratory bronchiole (RB) which is that site in the clearance pathway demanding the greatest traverse by these cells after a commencement from the alveoli. With the greatest particle doses, there is "particle overload" and impaired mobility which is reflected by an excess accumulation of particle-laden macrophages throughout the RBs, alveolar ducts, and alveoli. With deposition of fibrous particles in the distal respiratory tract, the AM is unable to extend itself to enclose fibers with a major diameter of 10-20 microns or longer resulting in "frustrated phagocytosis" and longer retention times. Clearance pathways for particles are shared. There can be a summation of particle exposures with exhaustion in the capacity of the

AMs for transport. Cigarette smoking (CS) is the greatest particle challenge humans encounter. Associated with its enormous magnitude, CS profoundly impacts the clearance pathways and subsequently interacts with other particle exposures to increase biological effects. Interstitial lung disease, pulmonary function, chronic obstructive pulmonary disease, infections, lung cancer, and mortality can be altered among smokers exposed to occupational and environmental particles (e.g., silica, coal mine dust, air pollution particles, other particles, and asbestos). It is concluded that both decreasing CS and controlling particle exposures are of vital importance in occupational and environmental lung disease.

### Ghio et al. 2025.

### Frontiers in Public Health, vol. 13.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords:** Anthracosis; asbestosis; environmental exposures; occupational exposures; silicosis; smoking. **Evidence Level:** 6A

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1558723/full

## Biomarkers of exposure to polycyclic aromatic hydrocarbons in urine of municipal police officers: Impact of inhalation on total exposure

Polycyclic aromatic hydrocarbons (PAHs) are ubiquitous environmental contaminants that adversely affect human health, mainly through their carcinogenic and mutagenic properties. Monitoring the exposure to PAHs of the inhabitants of air polluted regions is important because of the impact of these pollutants on human health. The aim of this study was to assess the exposure to PAHs of municipal police officers (nonsmokers) living in three localities in the Czech Republic (strategically selected according to the level of air pollution) and determine how air pollution impacts personal exposure to PAHs via inhalation. Twenty PAHs were determined in the inhaled air collected from personal air samplers. Simultaneously, the total exposure to PAHs was investigated by evaluating the concentrations of 11 monohydroxylated polycyclic aromatic hydrocarbons (OH-PAHs) in urine samples. Despite the observed differences in the concentrations of PAHs in the air from the personal samplers between the three locations, no statistically significant differences were found in the concentrations of OH-PAHs in the urine samples. Outcomes of this study indicate that inhalation exposure is not the primary source of PAHs exposure for Czech municipal police officers, but that diet may also be an important contributor to total body burden. The levels of OH-PAHs found in urine of Czech municipal police officers were very similar to those found in the urine of the Czech mothers from our previous study. This study provided the data about the body burden of potentially occupationally exposed group that has not yet been studied in the Czech Republic. Gomersall et al. 2025.

### Environmental Science and Pollution Research, vol. 32, no. 17.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Air pollution; biomonitoring; Czech Republic; GC–MS/MS; PAHs; personal air samplers; UHPLC – MS/MS; urine analysis.

Evidence Level: 5B

Link: https://link.springer.com/article/10.1007/s11356-025-36342-2

### Addressing the need for individual-level exposure monitoring for firefighters using silicone samplers

**Background:** Firefighters are occupationally exposed to hazardous chemical mixtures. Silicone passive sampling devices capture unique exposures over time with minimal impact to the participant and allow for the analysis of a broad chemical space. **Objective:** Silicone dog tags were worn by firefighters while on- and off-duty to measure individual exposures, identify potential occupational exposures, and assess their relation to occupational variables including fire response frequency, rank, and years as a firefighter. **Methods:** Fifty-six firefighters were recruited from two fire departments with relatively high and low call volumes in the Kansas City metropolitan area to wear two different silicone dog tags as passive samplers

while on- and off-duty. Each dog tag was worn for a cumulative 30-day exposure period. Extracts of the dog tags were analysed with gas chromatography, mass spectrometry methods for 43 flame retardants (FRs), 21 volatile organic compounds (VOCs), 42 polychlorinated biphenyls (PCBs), and 63 polycyclic aromatic hydrocarbons (PAHs). Results: Ninety-two total chemicals were detected, with eight chemicals not previously reported in firefighter exposure studies. Based on the magnitude and frequency of increased exposure in on-duty dog tags, relative to paired off-duty dog tags, five PBDEs and sec-butylbenzene were identified as potential occupational exposures; sec-butylbenzene and PBDE 49 have not previously been reported in firefighter exposure studies to the authors' knowledge. Multivariate analyses for these six compounds indicated that firefighter rank, fire response rates, and years in the fire service were poor indicators of increased occupational exposure. The greatest on-duty exposures to PBDEs were found in the low-call volume department among operational firefighters. Dog tags from firefighters at the high-call volume department accounted for 75% of PCB detections; one particular fire response may have contributed to this. Additionally, there was measurable similarity in total chemical exposure profiles between paired on- and off-duty tags for some firefighters. Impact: This study used personal silicone passive samplers in the configuration of dog tags worn around the neck to quantify firefighter occupational exposure in on-duty samples relative to paired off-duty samples for several chemical categories: flame retardants, VOCs, and PCBs. Five PBDEs and sec-butylbenzene were identified as potential occupational exposures, however their prevalence in on-duty tags was not associated with frequency of fire responses, firefighter rank, or years the firefighter has been in the fire service. Additionally, similarity between chemical exposures in on- and off-duty tags from the same firefighter invites further investigation into individual behaviours influencing occupational and para-occupational exposures. Bonner et al. 2025.

Journal of Exposure Science and Environmental Epidemiology, vol. 35, no. 2.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Exposure; Fire; Firefighters; Silicone.

Evidence Level: 5B

Link: https://www.nature.com/articles/s41370-024-00700-y

#### Occupational exposure to wildland firefighting and its effects on systemic DNA damage

Background: Portugal is among the European Union countries more devastated by forest fires. Wildland firefighters are at the forefront of this battle, facing exposure to a wide range of harmful pollutants. Epidemiological studies have highlighted a potential link between occupational firefighting exposure and several diseases, including cancer. To date, very few studies have explored the biological mechanisms associated with such exposure. The present longitudinal study aims to assess changes in early effect biomarkers following wildland firefighters' occupational exposure to a real wildfire event. Methods: Paired blood samples from 59 healthy Portuguese wildland firefighters were collected at two different time points: before wildfire season and after a fire event during wildfire season. Sociodemographic variables (e.g., age, sex) and work-related factors (e.g., years of service) were assessed via a self-reported questionnaire. Levels of early effect biomarkers, such as primary DNA damage and oxidative DNA damage (oxidised purines) were assessed via comet assay. DNA double-strand breaks (DSBs) were evaluated by phosphorylated H2AX (yH2AX). Moreover, hydroxylated polycyclic aromatic hydrocarbon metabolites (OHPAHs) and metal(loid)s were quantified in urine samples. The influence of urinary OHPAHs, urinary metal(loid)s, and other exposure-related factors (e.g., firefighting duration) on changes ( $\Delta$ ) in early effect biomarkers (post-vs. baseline levels) was investigated. Results: Firefighting activities led to a significant increase in both primary DNA damage and oxidative DNA damage by 22 % (95 % CI: 1.11-1.35; p < 0.05) and 23 % (95 % CI: 1.04-1.45; p < 0.05), respectively. Results from linear regression revealed that per each unit increase of urinary 2-hydroxyfluorene (2-OHFlu) ( $\mu$ mol/mol creatinine), the risk of  $\Delta$  oxidative DNA damage increased by 20 % [FR: 1.20 (1.09-1.32); p < 0.01]. Additionally, each unit increase in urinary cesium (Cs) ( $\mu$ g/L) resulted in a significant 4 % increase in  $\Delta$  primary DNA damage [FR: 1.04 (1.01-1.06); p < 0.05] and a

3 % increase in  $\Delta$  oxidative DNA damage [FR: 1.03 (1.01-1.05); p < 0.05]. Post-exposure levels of  $\gamma$ H2AX were significantly correlated with urinary 2-OHFlu levels assessed after firefighting (r = 0.30; p < 0.05). Furthermore, exposure duration and reported breathing difficulties during firefighting were significantly associated with increased levels of primary DNA damage. **Conclusion:** Results obtained provide insights into the potential human health effects of wildland firefighting occupational exposure at the genetic and molecular levels, offering new and important mechanistic data. These findings are crucial for implementing health and safety measures, recommendations, and best practices to mitigate occupational risks and protect the health of wildland firefighters.

Esteves et al. 2025.

### International Journal of Hygiene and Environmental Health, vol. 266.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Biomonitoring; DNA damage; firefighting; genotoxicity biomarkers; occupational exposure; wildland firefighters.

Evidence Level: 5B

Link: https://www.sciencedirect.com/science/article/pii/S1438463925000586?via%3Dihub

## How do environmental and operational factors impact particulate matter dynamics in building construction? Insights from real-time sensing

Construction activities are major contributors to particulate matter (PM) pollution, posing significant risks to workers and nearby populations. However, PM mitigation strategies in the complex nature of construction environments remain underexplored, with limited understanding of how environmental and operational factors jointly influence PM dynamics in real-world settings. This study employs high-resolution real-time monitoring to investigate PM1, PM2.5, and PM10 interactions within an active construction site, focusing on the roles of environmental and operational drivers. Over 28,000 measurements were collected from construction zones, complemented by external reference points. The findings reveal that smaller particles (PM1 and PM2.5) serve as critical intermediaries influencing larger particles (PM10). PM10 concentrations peaked at 1763.37  $\mu$ g/m3, far exceeding regulatory thresholds. Temperature influenced PM10 primarily through its effect on PM2.5 (57 %), while construction scenarios had 72 % of their impact on PM10 mediated via PM2.5. Distinct PM relationships emerged based on activity types and worker proximity to sensors, with hazardous PM levels persisting in 81.61 % of low-activity periods, highlighting the risks of residual exposure even without active construction. This study underscores the importance of on-site, multi-indicator monitoring systems to capture dynamic PM variations and identify high-risk scenarios. By providing a detailed understanding of PM interactions in active construction settings, these findings offer a robust foundation for developing targeted mitigation strategies and advancing air quality management in construction environments.

### Fang et al. 2025.

### Journal of Environmental Management, vol. 380.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Construction scenarios; construction site monitoring; PM exposure risks; particulate matter dynamics; real-time multi-indicator systems.

Evidence Level: 5B

Link: https://www.sciencedirect.com/science/article/pii/S0301479725010746?via%3Dihub

### Occupational exposure and chronic bronchitis in a sample of the general population in Telemark, Norway: A two-phased cross-sectional study

**Objectives:** We aimed to estimate the prevalence of chronic bronchitis (CB), examine its association with occupational exposure to irritants assessed by self-reporting or the Nordic job exposure matrix (N-JEM) stratified by smoking status and estimate the population-attributable fraction (PAF) of CB from

occupational exposure. **Methods:** A two-phased, cross-sectional design was used to analyse a random sample collected in 2013 and 2018 of the population aged 16-55 years in Telemark County, Norway. CB was defined as cough and sputum production for ≥3 months over 2 consecutive years. The participants' occupational histories were categorised using the International Standard Classification of Occupations and linked to the N-JEM. Self-reported occupational exposure was also assessed. Logistic regression was performed with adjustments for age, sex and smoking status and yielded ORs, 95% CIs and associated PAFs. **Results:** Of the 20 282 participants, 5.3% reported CB symptoms. CB was associated with the frequency of self-reported occupational exposure to vapours, gas, dust and fumes (VGDF), with increasing ORs ranging from 1.6 (95% CI 1.3 to 1.9) for seldom to 3.6 (95% CI 2.9 to 4.5) for daily exposure. Among ever-smokers, the N-JEM 'irritants' category was associated with CB (OR 1.4; 95% CI 1.1 to 1.8) to a similar degree as in the group that reported VGDF exposure (OR 2.1; 95% CI 1.7 to 2.5). The PAFs for CB from VGDF exposure were 41% overall, 49% among ever-smokers and 37% among never-smokers. **Conclusions:** Occupational exposure to VGDF was associated with CB, when self-reported and for smokers when assessed by the N-JEM. Workplace exposure contributed to more than one third of the overall CB burden. **Fell et al. 2025.** 

Occupational and Environmental Medicine, vol. 82, no. 2.

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**Keywords:** Bronchitis; cross-sectional studies; dust; epidemiology; occupational health. **Evidence Level:** 4B

Link: https://oem.bmj.com/content/82/2/98.long

### **Sedentary practices**

## Effects of workplace interventions on sedentary behaviour and physical activity: An umbrella review with meta-analyses and narrative synthesis

Background: Physical inactivity is rising globally, exacerbating the burden of preventable deaths and diseases. Despite extensive research on promoting physical activity in the workplace, synthesising the existing literature is challenging due to the wide variety of interventions and outcomes. This study aims to provide a comprehensive synthesis of intervention effects to inform health promotion initiatives and guide future research efforts. Methods: In this umbrella review, we conducted systematic searches of six databases (Cochrane, MEDLINE, Embase, CINAHL, Scopus, and Web of Science) for systematic reviews and meta-analyses published between Jan 1, 2000, and May 31, 2024, evaluating workplace interventions targeting sedentary behaviour or physical activity in working adults aged 18 years and older without specific health conditions or mobility impairments. Outcomes encompassed any behavioural changes related to sedentary behaviour or physical activity. Evidence for each relevant combination of intervention and outcome categories was summarised using either meta-analysis or narrative synthesis, with primary study data extracted as needed. This study is registered with PROSPERO, CRD42020171774. Findings: We included 36 systematic reviews and meta-analyses covering 214 unique primary studies. Despite considerable heterogeneity in the evidence, several effect trends emerged with moderate-to-high confidence. First, sit-to-stand workstations produced the largest reductions in sedentary time, decreasing it by up to 75 min per day (95% CI -109 to -41) when used alone, with reductions increasing by up to 33% when paired with psychosocial strategies. However, these interventions did not significantly increase physical activity at any intensity. Second, self-monitoring combined with psychosocial strategies yielded the largest increases in step count, with average gains of 1056 steps per day (371 to 1740). Third, no specific strategy consistently increased moderate-to-vigorous physical activity, although the available evidence remains sparse. Additional trends were observed but with lower confidence levels. Analysis of publication bias suggested an inflated effect of environmental-level interventions on occupational sedentary time. Adjusting for this bias using the trim-and-fill method only slightly reduced the effect size, but this result

should be interpreted with caution due to high heterogeneity (I<sup>2</sup>=84·80%). **Interpretation:** Current evidence highlights the modest effect of existing workplace interventions on physical activity. Some strategies, such as sit-to-stand workstations and gamified interventions, effectively reduce sedentary behaviour and encourage lighter forms of physical activity, but none consistently improves moderate-to-vigorous physical activity, which provides the greatest health benefits. With many countries falling short of the WHO target to reduce physical inactivity prevalence by 15% from 2010 levels by 2030, intensified efforts are needed to address this gap, meet global goals, and alleviate the health burden of physical inactivity. **Funding:** None. **Rouyard et al. 2025.** 

### The Lancet Public Health, vol. 10, no. 4.

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**Keywords**: Sedentary behavior, physical activity; workplace. **Evidence Level:** 1A **Link**: https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(25)00038-6/fulltext

### **Physical activity**

## Low occupational physical activity is associated with incident type 2 diabetes in overweight and obese individuals: A population-based cohort study

Background: Leisure-time physical activity decreases the risk of type 2 diabetes. Whether occupational physical activity affects the risk of type 2 diabetes is still not fully understood. The primary aim of this study was to investigate the association between occupational physical activity and 10-year diabetes incidence in a general adult population in Northern Sweden. The secondary aim was to explore the moderating role of BMI on this association. Methods: This population-based, longitudinal cohort study included 16,282 diabetes-free individuals aged 28-52 years who participated in a cardiovascular intervention programme in Northern Sweden, and who reported the same occupational physical activity level at baseline and at 10year follow-up. Incident type 2 diabetes was diagnosed based on oral glucose tolerance testing or a register-based diagnosis. Occupational physical activity was self-reported and categorized as: a) Low: 'Sedentary or standing' or 'Light but partly physically active', b) Moderate: 'Light and physically active', or c) High: Sometimes physically strenuous or 'Physically strenuous most of the time'. Odds ratios (OR) and 95% confidence intervals (CI) for incident diabetes were calculated using multivariable logistic regression analysis, adjusting for age, sex, smoking, education level, family history of diabetes, country of birth, intake of fruits and vegetables, leisure-time physical activity, prediabetes and BMI. Potential interactions between BMI category and T2D were tested using interaction terms in the multivariable model. **Results:** Six hundred twenty-four individuals developed type 2 diabetes in the 10 years between the first visit and the follow-up. A significant moderation effect of BMI on occupational physical activity was found (p = 0.01). Having a low level of occupational physical activity, compared with a moderate level of occupational physical activity, was associated with an increased risk of incident type 2 diabetes in overweight and obese individuals (OR 1.46, 95% CI 1.09-1.96), but not in those with normal weight (OR 0.80, 95% CI 0.52-1.23). High level of occupational physical activity was not associated with type 2 diabetes (OR 1.12, 95% CI 0.82-1.54). **Conclusions:** Low occupational physical activity was associated with incident type 2 diabetes in overweight and obese individuals. Public-health efforts may benefit from encouraging less sitting and standing and more light physical activity during the workday.

Syrjälä et al. 2025.

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

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Obesity; occupational physical activity; occupational sitting; overweight; prevention; public health; type 2 diabetes.

Evidence Level: 4B

#### Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22534-5

## Prevalence of musculoskeletal disorders among Polish white-collar workers: The role of physical activity and risk factors

Objective: This study evaluated the prevalence of self-reported musculoskeletal disorders (MSDs) among white-collar workers and investigated their associations with physical activity (PA) levels, time spent sitting, sleep duration, and BMI. Methods: The study included 440 white-collar workers (355 female and 85 male) aged 20-64 years, from randomly selected public institutions, companies, and corporations in the Upper Silesia region, Poland. Participants completed the Nordic Musculoskeletal Questionnaire and the Seven-Day Physical Activity Recall. Statistical analysis included comparisons of PA between workers with and without MSDs and between genders, correlations between MSDs, PA, and sleep duration, and logistic regression assessing associations between potential predictors and MSD presence. Independent variables included age, BMI, daily and occupational sitting time, sleep duration, and PA. Results: The 12-month prevalence of MSDs was highest for lower back pain (65.9%), neck pain (59.8%), and upper back pain (43.9%), with a similar pattern observed over 7 days. Workers reporting neck pain over the past 12 months engaged in significantly less vigorous PA and high vigorous PA compared to those without neck pain (p = 0.019, r =0.11), while those with knee pain reported higher levels of moderate PA (p = 0.018, r = 0.11). Age and BMI significantly influenced pain in multiple regions, including the neck, shoulder, back, hip/thigh, knee, and ankle/foot. Daily sitting time was a significant predictor for most MSDs, except for hip pain, while sitting during work specifically predicted lower back pain over 12 months. Each additional year of age, unit increase in BMI, and hour of sitting increased the likelihood of pain. Sleep duration and PA levels were not significant predictors. Conclusion: These findings emphasize the importance of BMI management and reducing prolonged sitting as key workplace interventions, particularly in sedentary occupations. Grabara 2025.

#### Frontiers in Public Health, vol. 13.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: BMI; age; lower back pain; neck pain; prolonged sitting; sleep duration. Evidence Level: 4B

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1551728/full

### Occupational but not leisure-time physical activity associated with high-risk of obstructive sleep apnea status: A population-based study

Purpose: Despite the well-documented benefits of physical activity, the distinct impacts of occupational physical activity (OPA) and leisure-time physical activity (LTPA) on the risk of obstructive sleep apnea (OSA) remain poorly understood. The objective of this study was to examine the relationship between OPA/LTPA and the risk of developing OSA within a nationally representative sample. We hypothesized that highintensity OPA could potentially elevate the risk of OSA, whereas the effect of LTPA on OSA risk might be different. Methods: The cross-sectional study utilized data from the Korean National Health and Nutritional Examination Survey database (2019-2020), encompassing a total of 8093 participants. OSA risk was assessed using the STOP-BANG questionnaire, where a score of  $\geq$  3 signified high risk. Physical activity levels were evaluated using questions adapted from the Korean version of the Global Physical Activity Questionnaire. Participants were allocated based on their high or low levels of LTPA or OPA. Logistic regression analyses were conducted to unveil the associations between OSA and LTPA/OPA. Results: The multivariate regression analysis revealed that high-intensity OPA posed a risk factor for OSA (odds ratio [OR] = 1.738, 95% confidence interval [CI]: 1.134, 2.666), particularly among individuals with age  $\geq 60$  years old (OR = 1.321, 95% CI: 1.036, 1.682), those with a BMI ≥ 25 (OR = 1.967, 95% CI: 1.027, 3.767), and individuals with hypertension (OR = 3.729, 95% CI: 1.586, 8.768). Furthermore, a visible association was observed between high-intensity OPA and increased tiredness (OR = 1.447, 95% CI: 1.107, 1.891). However, no notable correlation was detected between LTPA and OSA prevalence in both overall and subgroup

analyses (all P > 0.5). **Conclusion:** The study supported the link between high-intensity OPA and an elevated risk of OSA, suggesting the need to manage the duration and intensity of OPA. **Chen et al. 2025.** 

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

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Leisure-time physical activity; obstructive sleep apnea; occupational physical activity; population-based study.

Evidence Level: 4B

Link: https://bmcpulmmed.biomedcentral.com/articles/10.1186/s12890-025-03672-3

### **Musculoskeletal health**

### Associations between knee pain and knee-loading physical activities at work and leisure - A crosssectional study based on accelerometer measurements

Background: Knee pain is often an early sign of knee osteoarthritis (KOA). Physical activities (PA) constitute the recommended regime to those affected. However, knee-loading PA at work is linked to an increased risk for KOA. The primary aim of this study was to investigate associations between knee pain and accelerometer-measured knee-loading PA, at work and leisure respectively. The secondary aim was to investigate knee-related problems in relation to self-reported physical effort at work. Methods: This crosssectional study included 107 working participants (aged 30-67) with knee pain. Knee pain was evaluated using the Knee Injury and Osteoarthritis Outcome Scale (KOOS), subscale Pain. Knee-loading PA (including daily steps, time in upright position, stair walking), and sitting/lying were measured by accelerometer for one week. Each knee-loading PA was analysed separately for the measurement periods: (1) total period, (2) time at work, and (3) leisure on workdays. Knee-related problems were evaluated by the KOOS subscales Symptoms, Activities of Daily Living, Function in Sport and Recreation, and Quality of Life. Analyses were made with linear regression, and stratified by high or low self-reported physical effort at work. **Results:** Participants with more knee pain walked on average fewer steps per day, and spent less time in an upright position during leisure on workdays, unstandardized coefficient ( $\beta$ ) = 0.001, p = 0.044,  $\beta$  = 0.075, p = 0.001 respectively, i.e. spent less time in knee-loading PA. The associations were stronger for those reporting high physical effort at work,  $\beta = 0.116$ , p = 0.016. Participants with high physical effort at work rated their (knee-related) quality of life worse. There were no associations between knee pain and kneeloading PA during work hours. Conclusions: Participants with more knee pain were less physically active during leisure, with stronger associations among those with higher physical effort at work. Those reporting high physical effort at work had worse (knee-related) quality of life compared to participants reporting low effort at work. This highlights the importance of taking knee-loading PA at work and leisure into account when recommending exercise regimes to individuals with knee pain.

### Törnblom et al. 2025.

### BMC Musculoskeletal Disorders vol. 26, no. 1.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords:** Knee load; knee osteoarthritis; objective measurement; physical activity; physical effort at work. **Evidence Level:** 4B

Link: https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-025-08589-w

# Experiences and perceptions of employees and healthcare professionals on a multidisciplinary program for the secondary prevention of low back pain

Low back pain (LBP) can lead to disability and sick leave, impacting work participation and overall health. Given the complex and multifactorial nature of LBP, Belgium's Federal Agency for Occupational Risks (FEDRIS) promotes a secondary prevention strategy for LBP among workers engaged in ergonomically

demanding tasks. This strategy includes multidisciplinary-based rehabilitation (MBR) and an optional workplace intervention. This paper explored the experiences and perceptions of employees and healthcare professionals (HCPs) regarding the secondary prevention program with a focus on the MBR component, aiming to identify its strengths, challenges, and potential solutions. A multicenter qualitative design involving six semistructured focus groups was employed. The participants included 15 employees who attended the program because of LBP and 24 HCPs involved in its delivery. The data were analyzed via thematic analysis. Three major themes were identified: functional and work-related outcomes, contentrelated factors, and duration and continuation. Positive outcomes included improvements in pain, function, and return to work (RTW), with workplace adaptations and ergonomic guidance playing key roles. Success factors such as education, exercise therapy, motivation, and social interaction were highlighted. However, challenges were identified, including limited communication between centers and employers, insufficient psychological support, and a lack of follow-up to sustain the program's effects. This qualitative evaluation highlights that person-centered, biopsychosocial approaches-encompassing individualized education, ergonomic adaptations, and psychological support-are crucial for optimizing the FEDRIS MBR program's long-term impact on LBP and RTW outcomes. Consistency in staffing, structured follow-up, and systematic prescreening are key areas for improvement. Although limited by a small sample size and retrospective design, these findings pinpoint actionable refinements that future longitudinal studies can explore to ensure sustained, cost-effective rehabilitation benefits.

#### Bernaers et al. 2025.

#### Scientific Reports, vol. 15, no. 1.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Focus groups; low back pain; multidisciplinary rehabilitation; qualitative research; return to work; secondary prevention.

Evidence Level: 5B

Link: https://www.nature.com/articles/s41598-025-97683-z

### Guiding and supporting mental health and wellbeing

### **Mental health**

## Navigating the Road to Resilience (RR): Understanding the work environment's influence on mental health among Indian truck drivers

**Objectives:** This paper explores the prevalence and factors contributing to depression among truck drivers in India. The aim is to identify specific factors associated with depression in this population and to provide suggestions for mitigating these factors. **Methods:** The study employs an observational cross-sectional analytical approach to explore truck drivers on National Highways through Jaipur, Rajasthan. It explored how work routine, workspace conditions, and family/social engagement impact depression. Variables included work hours, rest breaks, driving conditions, and social factors like police harassment. A sample of 300 drivers was selected using Probability Proportional to Size sampling from four randomly chosen halt points, based on average truck traffic, meeting criteria like experience and vehicle type. **Results:** The study surveyed truck drivers aged 22-56 years (average 35, SD = 6.6) and identified significant associations between depression and factors like working hours ( $\chi 2 = 51.227$ , p = .000), police humiliation ( $\chi 2 = 21.740$ , p = .000), workspace distraction ( $\chi 2 = 89.463$ , p = .000), and uncomfortable workspace conditions ( $\chi 2 = 7.997$ , p = .005). Age ( $\chi 2 = 3.083$ , p = .079) and marital status ( $\chi 2 = 1.782$ , p = .182) were not significant. Job satisfaction (B = 1.813, p = .001) and supervisor support (B = 1.156, p = .018) were significantly linked to depression. **Conclusions:** The study concludes that multiple factors significantly influence the likelihood of experiencing depression among truck drivers. Based on these findings, several recommendations are

proposed to help reduce depression rates in this population. These include making mental health services readily available and accessible, implementing strict regulations on working hours to prevent excessive fatigue, and preventing police humiliation and abuse. This research contributes to the growing concern about the mental health of truck drivers in India and underscores the need for effective interventions to address these issues comprehensively.

### Tripathi et al. 2025.

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

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Depression; heavy truck; job satisfaction; loneliness; mental health; police humiliation; truck drivers; work environment.

### Evidence Level: 4B

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22370-7

## Burnout syndrome and psychological workplace violence among Peruvian physicians: A cross-sectional study

Background: Physicians face increased emotional weariness as a result of the inherent stress and responsibility of their roles. In addition, they are vulnerable to abuse, coercion, and aggressiveness in their workplace settings. The link between burnout syndrome and psychological workplace violence (WPV) is complex and must be viewed as bidirectional. We assessed the association between the levels of burnout and psychological WPV among their colleagues among Peruvian physicians. Methods: We performed a cross-sectional study that surveyed licensed Peruvian physicians actively practicing clinical medicine from April to December 2023. A non-probability convenience sampling via hospital interviews and diffusion through online platforms was carried out. The SPV-Health scale, validated for the Peruvian context, assessed psychological violence, while the MBI-HSS evaluated burnout dimensions. Descriptive statistics and Poisson regression models, adjusting for covariates, were employed for analysis. Results: We included 384 medical doctors; most participants worked in urban areas, with nearly half being specialists or subspecialists, predominantly in medicine services. Physicians experiencing burnout were 4.04 times more likely to encounter psychological violence compared to those without burnout (95% CI: 2.45-6.57), even after adjusting for age, sex, medical positions and years of medical practice (PR: 3.93; 95% CI: 2.35-6.57). Among the risk factors for psychological violence, being a resident practitioner was the only significant one (PR: 1.79; 95% CI: 1.18-2.73). Conclusion: Our study underscores a significant association between Burnout Syndrome among Peruvian doctors and their experience of psychological WPV from colleagues. Tailored interventions addressing these challenges are imperative, with organizational strategies offering potential while interventions for WPV require further investigation.

#### Nombera-Aznaran et al. 2025.

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

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Burnout; Peru (source: MeSH); professional; workplace violence. Evidence Level: 4B

Link: https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-025-12387-4

### Work-family conflict, overwork and mental health of female employees in China

**Introduction:** The "Green Paper on the Mental Well-being of Chinese Career Women" indicates that around 85% of Career Women face mental health challenges such as anxiety, depression, and anger, with these issues being more common than in their male counterparts in China. Both work and family are identified as two major contributors to these problems. Utilizing Conservation of Resources theory, this paper examines work-family conflict and overwork as significant explanatory variables and develops a moderated mediation model to investigate the mechanisms affecting mental health issues among Chinese career women. **Methods:** Data were gathered through a questionnaire survey, with 500 questionnaires distributed and 393 responses received. Hayes' PROCESS macro for SPSS was employed to examine moderated mediation models, with Bootstrap resampling set at 1000. **Results:** (1) Work-family conflict (abbreviated as WFC) is significantly associated with emotional exhaustion (abbreviated as EE) and mental health problems in career women, with emotional exhaustion serving as a mediator between work-family conflict and mental health. (2) Overwork is positively linked to emotional exhaustion and influences the relationship between work-family conflict and emotional exhaustion. (3) Overwork also moderates the mediation effect of work-family conflict on mental health via emotional exhaustion, amplifying the mediation effect when career women are overburdened. **Discussion:** This study provides fresh insights into the mechanisms underlying mental health issues among career women, offering valuable information for addressing these challenges. **Ma et al. 2025.** 

### Frontiers in Public Health, vol. 13.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Career woman; mental health; moderated mediation model; overwork; work–family conflict. **Evidence Level**: 5B

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1483746/full

## Why do emergency medical service employees (not) seek organizational help for mental health support?: A systematic review

Emergency medical service (EMS) ambulance employees play a critical role in emergency healthcare delivery. However, work-related experiences can compromise their mental health and job satisfaction. Despite available supportive services offered by EMS organizations, employee uptake remains low, while mental ill health and suicide rates remain higher than those of the general population. Understanding barriers to and enablers of such support is crucial for addressing factors that connect employees with the services designed to help. This systematic review identified 34 relevant articles and utilized an innovative process of integrating quantitative and qualitative aspects of the primary and gray literature to provide a qualitative synthesis of barriers and facilitators as perceived by EMS employees. Themes of employee (in)ability to ask for help, tailored person-centered support, and education and training about mental health were overarched by organizational culture. Barriers included perceived organizational obligation rather than genuine care, alongside machismo and stigma. Enablers included valuing and acknowledging employee risk by providing time and normalizing support utilization at work. Reframing machismo from dominance, competition, and toughness to respect, perseverance, and courage; promoting adaptive coping; and providing time and training were essential. Future research should aim to understand the factors influencing employee utilization of supportive interventions based on these themes. Johnston et al. 2025.

International Journal of Environmental Research and Public Health, vol. 22, no. 4.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Ambulance; barriers; culture; emergency medical services; enablers; mental health; organizational support; paramedic; psychology.

Evidence Level: 1A

Link: https://www.mdpi.com/1660-4601/22/4/629

### The dialectical relationship between burnout and work engagement: A network approach

Based on previous empirical evidence, scholars have argued for a dialectical relationship between burnout and work engagement. However, these conclusions largely rely on latent variable models, which have inherent limitations due to strong hierarchical assumptions about data. As a result, previous findings should be considered preliminary indications rather than conclusive evidence. In this study, we introduce network analysis to investigate the relationship between burnout and work engagement. We demonstrate its utility by comparing the fit indices of the network model and three factor models in a cross-national sample with 2469 employees from Norway and 879 employees from the US and UK. Based on theory and fit indices, we conclude that the network model was preferred in both samples. Using this model, we uncovered positive relationships between two work engagement variables and the exhaustion component of burnout. Theoretically, this study broadens our understanding and show support for the dialectical relationship between burnout and work engagement. Furthermore, by introducing the network model to empirical research, we provide a novel approach that contribute to nuance and ideas for research on burnout and work engagement variables.

### Hafstad et al. 2025.

Stress and Health, vol. 41, no. 2. User License: Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0) (<u>https://creativecommons.org/licenses/by-nc/4.0/</u>) Keywords: Burnout; network analysis; psychological well-being; work engagement. Evidence Level: 4B Link: https://onlinelibrary.wiley.com/doi/10.1002/smi.3514

### Gender differences of the association between work-related stressors and mental health among Chinese

medical professionals: A nationwide cross-sectional studyBackground: Chinese medical professionals are under tremendous work pressure, which greatly

undermines their mental health, hinders professional performance and impairs the quality of healthcare. However, the specific work-related stressor that affects mental health most and whether gender difference plays a role are not yet known. This study aims to investigate the association between work-related stressors and mental health among medical professionals in China. Methods: A cross-sectional online survey was conducted from September 29, 2022 to January 18, 2023 by recruiting 2,976 medical professionals from three representative provinces in China through purposive sampling. Anxiety and depressive symptoms were measured by the 7-item Generalized Anxiety Disorder (GAD-7) scale and Patient Health Questionnaire-9 (PHQ-9) scale. Logistic regression models were performed to identify work-related stressor significantly associated with mental health and stratified by gender. Results: The prevalence of major depressive and anxiety symptoms among Chinese medical professionals was 28.2% (839/2976) and 24.0% (714/2976), respectively. Among the subjects, 43.7% (1,302/2976) of subjects reported having  $\geq 3$ work-related stressors, which was positively related to both major depressive and anxiety symptoms. The following work-related stressors were positively associated with major depressive symptoms: violence against medical staff and promotion pressure among males; medical dispute among females. The following work-related stressors were positively associated with major anxiety symptoms: medical dispute and promotion pressure among males. While no work-related stressor showed significant association with major anxiety symptoms among females. Conclusion: These findings identified the specific work-related stressors related with the mental health, and gender differences are indicated in this relationship. Interventions directing at improving doctor-patient relationship may help to improve mental health of Chinese medical professionals. Reforming promotion system may mitigate the anxiety symptoms of male medical professionals.

### Chen et al. 2025.

### Frontiers of Public Health, vol. 13.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Gender difference; medical dispute; medical professionals; mental health; promotion pressure; work-related stressor.

#### Evidence Level: 4B

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1561588/full

## 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 fulltime employment for women were associated to lower mental health after two years, compared to SERlike 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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**Keywords:** Employment quality; gender; Germany; mental health; precarious employment; values. **Evidence Level:** 4B

Link: https://www.sciencedirect.com/science/article/pii/S0277953625002357?via%3Dihub

#### 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 and positive 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

### Workplace Research Monthly May 2025

### Bullying, harassment and occupational violence

## Workplace violence in tertiary hospitals: Unraveling its detrimental effects on healthcare workers' job engagement

**Background:** Workplace (WPW) violence is a significant issue among healthcare workers (HCWs) in hospitals and negatively impacts the healthcare workforce. WPW can have more severe consequences, especially in tertiary hospitals with a concentrated, specialised workforce. In this regard, the study aimed to identify the dynamics of workplace violence exposure among HCWs in a tertiary hospital. It also investigated its impact on job engagement. **Methods:** The study was designed as a descriptive crosssectional study conducted between June and September 2023. The study involved 3,526 HCWs at a tertiary hospital in Turkey, all invited, with 390 participating. The study examined healthcare workers' ability to handle WPV. It also examined their exposure to violence, their perception of safety against violence at work, and their engagement in their jobs. **Results:** Exposure to WPV among HCWs included in the study significantly predicts job engagement, with a negative relationship ( $\beta$ : -0.473). Additionally, as HCWs' skills in managing WPV increase, job engagement also increases ( $\beta$ : -0.279). Among younger and less experienced HCWs, WPV exposure and job engagement scores were significantly lower (p<0.05). **Conclusions:** WPV, common among health workers, is an essential factor that reduces work engagement. Identifying and controlling the dynamics of WPV is critical to enhancing job engagement among healthcare workers and preventing related adverse outcomes.

### Balsak et al. 2025.

#### La Medicina del Lavoro, vol. 116, no. 2.

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**Keywords:** Workplace violence; hospitals; healthcare workers; job engagement. **Evidence Level:** 4B

Link: https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/16271

## Customer verbal abuse is associated with depressive symptoms among high-workload cosmetics sales workers in South Korea

This study sought to investigate whether association between customer verbal abuse and depressive symptoms differed by workload. We conducted a cross-sectional survey of 795 cosmetics sales workers at department store in South Korea. Experience of customer verbal abuse over the past one month was measured by using a yes/no question. Depressive symptoms during the preceding week were assessed by using 20 items from the Center for Epidemiologic Studies-Depression scale. Workload during the past week was measured by asking the number of customers a worker dealt with on average in a day and classified into two categories: 1) Low (15 people or less), and 2) High (more than 15 people). Cosmetics sales workers' experience of customer verbal abuse was associated with a higher prevalence of depressive symptoms (PR: 1.37, 95% CI: 1.15-1.63). After being stratified by workload, customer verbal abuse showed a statistically significant association with depressive symptoms among high workload groups (PR: 1.46, 95% CI: 1.19- 1.79), whereas the association was not statistically significant among low workload group (PR: 1.23, 95% CI: 0.91-1.65). Our findings suggest that experience of customer verbal abuse could have a negative influence on depressive symptoms among high-workload cosmetics sales workers in South Korea. **Kim et al. 2025.** 

### Industrial Health, vol. 63, no. 2.

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**Keywords:** Customer verbal abuse; depressive symptoms; sales workers; South Korea; workload; workplace violence.

Evidence Level: 4B

### Link: https://www.jstage.jst.go.jp/article/indhealth/63/2/63\_2023-0178/\_article

## Does mindfulness moderate between incivility, aggression and conflict at work? Findings from symmetric and asymmetric modeling approaches

This study intended to explore the pivotal role of mindfulness in fostering workplace harmony in the Indian hospitality industry. The present study examines how workplace incivility intensifies conflict and aggression at the workplace. Moreover, the mediating role of workplace conflict in the association between incivility and aggression has been examined. Furthermore, the moderating role of mindfulness in incivility, conflict, and aggression has been examined. Data were collected through a two-wave survey from 359 employees working in 3-4 star hotels in India and analysed through SmartPLS (v4.0). The results have revealed that workplace incivility significantly and positively affects conflict and aggression. Workplace conflict also emerged as a critical mediator in the incivility-aggression relationship. Mindfulness significantly moderates between workplace incivility, workplace aggression and workplace conflict. The fuzzy-set qualitative comparative analysis (fsQCA) highlighted the conditions under which mindfulness mitigates the escalation of incivility into conflict and aggression. The research underscores mindfulness as a transformative tool for enhancing workplace dynamics. It offers evidence-based recommendations for embedding mindfulness practices into organizational policies to alleviate the detrimental effects of incivility and promote workplace harmony.

Singh et al. 2025.

Acta Psychologica, vol. 254.

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**Keywords:** Mindfulness; workplace aggression; workplace conflict; workplace incivility. **Evidence Level:** 4B

Link: https://www.sciencedirect.com/science/article/pii/S000169182500157X?via%3Dihub

### **Psychosocial issues**

### Work-family practices and work-family relationship: The role of boundary management

Work-family practices are defined as instruments which are used to facilitate reconciliation between work and family. However, research regarding the role of boundary management in shaping such interconnection is still needed. Based on border theory, this study aims to explore boundary control and work-family segmentation enactment as mechanisms to explain the relationship between work-family practices and work-family relationship (conflict and enrichment). The effect was evaluated through a twowave data collection from 222 Portuguese bank employees. We observed that boundary control fully mediates the relationship between work-family practices and work-family conflict and partially mediates this relationship with work-family enrichment. Moreover, work-family segmentation enactment moderates the relationship between work-family practices and boundary control, weakening this relationship. Taking these results together, this study adds that employees' boundary management strategies were imperative to explain and support the relationship between work-family practices, along with the prominence of border theory for the field and offer implications for future research and organizational practice.

### Geraldes et al. 2025.

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

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Boundary control; work-family practices; work-family relationship; work-family segmentation enactment.

Evidence Level: 5B

### Workplace Research Monthly May 2025

### Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22512-x

#### The impact of psychological capital on job performance among government employees in China

As China advances the construction of a modern national governance system and governance capacity, improving the job performance of government employees is a crucial component. Positive psychology theory suggests that psychological capital, as a positive psychological resource, is a crucial factor in enhancing individual well-being and job performance. This paper conducts an empirical study on the impact of psychological capital on job performance by surveying 2,357 government employees. We also examine whether psychological capital affects job performance through job engagement and whether job satisfaction plays a moderating role. The results indicate that the psychological capital of government employees has a significant positive effect on their job performance. Psychological capital can enhance job performance by improving job engagement. As job satisfaction increases, the positive impact of psychological capital on job performance also strengthens. In addition, female, highly educated and post-1990s government employees tend to have relatively higher job performance and job satisfaction. Based on these findings, it is recommended that the government implement targeted psychological capital training and development programs to improve the overall work efficiency and service quality of government employees.

#### Jia et al. 2025.

#### Scientific Reports, vol. 15, no. 1.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords:** Job engagement; job performance; job satisfaction; mediation model; moderating model; psychological capital.

Evidence Level: 5B Link: https://www.nature.com/articles/s41598-025-98045-5

### Psycho-physiological impact of virtual non-verbal communication on Gen Z workforce: A study of memes

Memes have become a distinct form of language on the virtual media and a more frequent way of nonverbal communication, especially among Generation Z. Memes can be used to convey information, humor, criticism, or sarcasm, usually as a form of expression of one's feelings. Existing research on memes is predominated by humor as a coping mechanism for stress. However, the negative impact of memes on Gen Z remains an under-researched area. Since the young generation places a high value on virtual communication and how they are perceived online, they are likely to be affected psycho-physiologically, at times becoming victims of depression due to the negative impact of memes at their workplace or homes. This study used the validated Patient Health Questionnaire and conducted a survey among Gen Z workforce across the fintech, information technology, manufacturing, and retail sectors. 528 responses were analyzed using SPSS and SmartPLS 4. This study is perhaps the first of its kind to examine the gender-based psychophysiological impact of memes as virtual nonverbal communication, on Gen Z. This study is unique as it examines the psycho-physiological impact of memes on male and female Generation Z workers. The analysis revealed in relation to memes, among the Gen Z workforce, females exhibit more hardiness as compared to males. This study has practical implications for managers of this young workforce, as it provides them insights on the negative influence on virtual nonverbal communication and the importance of sensitizing their young workers about the negative psycho-physiological impact of memes. Lamba et al. 2025.

### Acta Psychologica, vol. 254.

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**Keywords:** Gen Z; hardiness; meme; non-verbal communication; psycho-physiological impact; virtual communication.

Evidence Level: 5B

### Link: https://www.sciencedirect.com/science/article/pii/S0001691825001611?via%3Dihub

### Psychosocial work exposures as risk factors for skin problems in a general working population: Crosssectional and prospective associations

**Objective:** The potential contribution of psychosocial work exposures to skin problems is largely overlooked in the occupational health literature. To address this knowledge gap, we examined crosssectional and prospective associations between six psychosocial work exposures (i.e., quantitative demands, job control, social support, emotional demands, role conflict, and interpersonal conflict) and selfreported skin problems. Methods: Data came from a probability sample of the general working population in Norway surveyed in 2016 (N = 7833) and 2019 (N = 8038). The prospective sample comprised 3430 participants. Data were analysed with ordered logistic regression, adjusting for age, sex, occupation, and exposure to cleaning products, water, and dry indoor air. Results: Cross-sectional analyses indicated statistically significant associations with skin problems for emotional demands, role conflict, and interpersonal conflict in 2016 and 2019, and for social support in 2019. In prospective analyses, emotional demands (OR 1.12, 95% CI 1.01-1.23), role conflict (OR 1.14, 95% CI 1.00-1.29), and interpersonal conflict (OR 1.24, 95% CI 1.01-1.52) significantly predicted subsequent skin problems. Interpersonal conflict (OR 1.26, 95% CI 1.01-1.57) was a significant predictor above and beyond baseline levels of skin problems. Quantitative demands and job control was generally non-significant, except for a significant interaction in the 2019 sample. Conclusion: Exposure to certain psychosocial work stressors may be a risk factor for experiencing skin problems, particularly if you are exposed to interpersonal conflict. Preventive efforts to reduce the occurrence of skin problems in work settings should also target psychosocial stressors. Borge et al. 2025.

#### International Archives of Occupational and Environmental Health, vol. 98, no. 3.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Epidemiology; general working population; occupational dermatology; psychosocial work environment; skin disease; work stress.

Evidence Level: 4B

Link: https://link.springer.com/article/10.1007/s00420-025-02135-w

### **Fostering work participation**

### **Return to work**

#### Quality of life and return to work rates in the first two years following major burn injury

Background: A better understanding of how major burns patients recover following injury is vital in assessing trauma care and informing healthcare and rehabilitation provision. We aimed to describe the longer-term health and return to work status of major burns patients and identify factors associated with positive outcomes i.e., reporting no problems with health-related quality of life, returning to work). Methods: This registry-based cohort study included adult (≥ 16 years) patients with a burn injury affecting ≥ 20 % total body surface area registered by the Victorian State Trauma Registry with a date of injury from July 1 2009 to June 30 2022. Patients were followed-up at six, 12, and 24 months post-injury, completing the 3-level or 5-level EuroQoL 5 dimensions questionnaire (depending on their date of injury) and return to work-related questions at each time point. Mixed effect regression models were used to predict factors associated with quality of life outcomes. Modified binary Poisson models were used to model the probability of experiencing no problems in each of the quality of life domains, and mixed effects linear regression was used to model the overall utility score. Results: Two hundred and eighty-seven patients

### Workplace Research Monthly May 2025

were included; 63 (21.9 %) did not die but were completely lost to follow-up. The prevalence of reporting no problems at 24 months post-injury was 70.2 % for mobility, 77.8 % for self-care, 48.0 % for usual activities, 49.7 % for pain or discomfort, and 51.5 % for anxiety or depression. The predicted probability of reporting no problems in each of the EQ-5D health states was lowest at six-months and increased over time. **Conclusions:** The prevalence of ongoing problems - particularly with usual activities, pain, and anxiety/depression - at 24 months post-injury is high, confirming that major burns are often an ongoing disorder. Greater investment in interventions designed to reduce these problems is needed. **Tracy et al. 2025.** 

Burns, vol. 51, no. 3.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Burn; follow-up; pain; quality of life; recovery; return to work Evidence Level: 4A Link: https://www.sciencedirect.com/science/article/pii/S0305417924003954?via%3Dihub

## The return to work after sick leave due to common mental disorders among young employees: A qualitative interview study with young employees and managers

Background: Studies focusing on the return for young employees are scarce. The aim of this study was to investigate the return to work process after a period of sick leave due to common mental disorders among young male and female employees, with a specific focus on promoting and hindering factors. A gender perspective was applied to examine potential patterns of similarities and differences in the study participants' experiences. Methods: A qualitative approach with an applied gender perspective was used to capture both young employees' and managers' experiences of the return to work process. The data consisted of interviews with 12 young male and 13 young female employees (aged 20-29) and 23 interviews with managers with experience of supervising at least one young employee during return to work. An inductive, conventional content analysis was conducted. Results: The analysis resulted in three main categories and five subcategories describing hindering and promoting factors in young employees' return to work processes. The main and subcategories were (1) "Coordinating, planning, and timing the return to work process" (with subcategories "Lack of coordination and support from key stakeholders", "The importance of a return to work plan and follow-up", and "The timing of the return to work"); (2) "Gaining sufficient support and having personal resources" (with subcategories: "Level and quality of support in the work environment", and "Resources and obstacles on a personal level"); and (3) "Poor match between the young employees' capabilities and the work demands or working conditions". Conclusion: The study participants identified similar factors that promoted and hindered the return to work process. Young employees need more support from employers and various welfare agencies. Managers need to know more about the return to work process and the responsibility of involved stakeholders. No expressed gender differences were identified.

### Olsson et al. 2025.

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

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Anxiety; common mental disorders; depression; employers; gender perspective; return to work; sickness absence; stress; young female; young male.

### Evidence Level: 5B

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22607-5

### Presenteeism and absenteeism

## Joint association of daily rest periods and sleep duration with sick leave: A one-year prospective cohort study of daytime employees in Japan

Daily rest period (DRP) refers to the interval between the end of one workday and the start of the next. This study examined the joint association of DRP and sleep duration with subsequent sick leave among Japanese daytime employees. A total of 5,593 participants were assessed for DRP and sleep duration at baseline and for sick leave at a one-year follow-up. They were categorized into ten groups based on their DRP and daily sleep duration. Logistic regression analyses for individuals experiencing sick leave for longer than a month showed that the combination of short DRP (<11 h) and sleep duration (<6 h) had a higher odds ratio (4.981, 95% confidence interval [CI]=1.126-22.046) than the reference group. Furthermore, the combination of short DRP and normal sleep duration had a higher odds ratio (8.152, 95% CI=1.801-36.902) than the reference group. Short DRP was associated with subsequent long sick leave. **Ikeda et al. 2025.** 

Industrial Health, vol. 63, no. 2.

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**Keywords:** Absenteeism; long working hours; quick return; sickness absence; sleep quantity. **Evidence Level:** 4B

Link: https://www.jstage.jst.go.jp/article/indhealth/63/2/63\_2024-0069/\_article

### Workers compensation

### Relationship between the timing of physical therapy commencement and the duration of work disability: A retrospective cohort analysis of work-related low back pain claims

Background: Early physical therapy for workers reporting low back pain (LBP) may reduce disability and improve return to work. This study aimed to explore the relationship between the timing of physical therapy commencement and the duration of work disability after the onset of compensable LBP. Methods: We conducted a retrospective cohort analysis of workers with workers' compensation claims for LBP in two Australian states. We investigated the association between the timing of physical therapy commencement and work disability duration using an accelerated failure time model. Median duration of work disability in paid calendar weeks was the principal outcome. **Results:** We examined 9160 accepted workers' compensation claims for LBP. Patients who had not seen a physical therapist had the shortest duration of disability (median, 4.1 weeks). In those who had seen a physical therapist, the median duration of work disability was associated with the timing of commencement of physical therapy, from 8.0 weeks for care within 7 days of the injury to 34.7 weeks when care was commenced greater than 30 days after the onset of injury. Our adjusted model demonstrated that, compared to physical therapy within 7 days of injury onset, commencement of physical therapy between 8 and 14 days, 15 and 30 days, and greater than 30 days was associated with a 37.0% (Time ratios (TR) 1.37; 95% CI (1.23, 1.52)), 119% (TR 2.19; 95% CI (1.96, 2.44)) and 315% (TR 4.51; 95% CI (4.06, 5.02)) increased likelihood of longer disability duration, respectively. Conclusions: In workers with work-related LBP undertaking physical therapy, early commencement of physical therapy was associated with a significantly shorter duration of disability. Although we cannot establish causality, our findings highlight the potential benefits of initiatives that promote timely initiation of treatment in reducing extended work disability for injured workers undergoing physical therapy for LBP.

#### Mekonnen et al. 2025.

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

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**Keywords:** Low back pain; physical therapy; return to work; timing of care; work disability; workers' compensation. **Evidence Level:** 4A

Link: https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-025-22574-x

### Wellness programs

Maintenance effects of a multilevel workplace intervention to reduce sedentary time: Twenty-fourmonth follow-up of the group randomized clinical trial 'Stand and Move at Work'

Background: The long-term impact of multilevel workplace sedentary behaviour interventions has not been established beyond 12-months. We conducted a 2-arm group randomized trial examining the 24-month efficacy of a multilevel workplace intervention with sit-stand workstations (SSW) relative to the same multilevel intervention with delayed SSW implementation until 12-months. Methods: Worksites (N = 24 worksites, N = 630 employees) were randomized to participate in Stand and Move at Work and received: (a) STAND +, a 12-month multilevel behavioural intervention targeting reductions in sedentary time and increases in light physical activity (LPA) with SSW delivery during the 12-months or (b) MOVE + , the same multilevel intervention, however with SSW delivery at the end of the 12-month primary assessment period. We present maintenance endpoints (24-month follow-up) of objectively measured sedentary behaviour variables as well as cardiometabolic biomarkers of the total sample and an at-risk exploratory dysglycemic (prediabetes or diabetes) subgroup per study arm. **Results:** All worksites (N = 24; from academic [n = 8], industry/healthcare [n = 8], and government [n = 8] sectors) were retained and participated in 24-month follow-up data collection. A total of 464 participants (248 STAND + , 216 MOVE + ; 19 ± 6 per worksite; 45.8 ± 10.6 years of age, 73% female) completed the 24-month assessment. At 24 months, the adjusted withinarm difference in sitting was -37.3 (CI:-51.9, -22.7) min per 8 h workday for STAND + and -23.4 (-39.7, -7.0) min per 8 h workday for MOVE + . Findings at 12-months were reproduced at 24-months, in which the majority of reductions in sitting translated to increasing standing with minimal change in LPA. There were no significant changes in cardiometabolic risk within the total sample, while there were some significant changes in triglycerides and blood pressure for the dysglycemic participants. **Conclusions:** Multilevel workplace interventions incorporating SSWs have the potential to sustain reductions in workplace sedentary time through 24-months. Further, delayed introduction of SSWs following a 12-month multilevel workplace intervention seem to produce similar sitting time reductions relative to immediate introduction. SSWs are a robust environmental stimulus within multilevel interventions targeting workplace sedentary behaviour. A larger sample size is needed to detect concomitant impact on cardiometabolic health. Trial registration: ClinicalTrials.gov Identifier: NCT02566317.

Leonard et al. 2025.

International Journal of Behavioral Nutrition and Physical Activity, vol. 22, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Maintenance; multilevel; sedentary behavior; workplace. Evidence Level: 2B

Link: https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-025-01731-w

## A stress management and health coaching intervention to empower office employees to better control daily stressors and adopt healthy routines

The present pilot randomized control study examined the effectiveness of an 8-week stress management and health coaching intervention on perceived stress, healthy routines, sleep quality, self-efficacy, selfesteem and happiness. A total of 38 office employees were randomly assigned to the intervention group (IG, n = 20) or the control group (CG, n = 18) and validated tools were used to assess outcomes. Statistically significant differences in the IG after the 8 weeks were observed in perceived stress (i.e., a decrease in PSS- 14 score, p = 0.043), in "Daily Routine", i.e., an increase in control over the consistent timing of meals and sleep (p = 0.001) and in "Social and Mental Balance", i.e., an increase in inclination to socialize, balance leisure and personal time and adopt positive thinking or cognitive control over stressors (p = 0.003). These improvements were reflected in an increase in total healthy lifestyle and personal control score (HLPCQ, p =0.048). Short time and stress management and coaching interventions at workplaces can empower employees to increase control over stressors and to take the first step in adopting healthy behaviours by recognizing bad habits. Furthermore, in building sustainable employment, an empowered employee would participate at an organizational level more actively. Our preliminary results strongly support the idea that primary health care professionals should be educated in health coaching and relaxation techniques. **Ziaka et al. 2025.** 

#### International Journal of Environmental Research and Public Health, vol. 22, no. 4.

**User License**: *Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>)* **Keywords**: Coaching; empowerment; health promotion; lifestyle medicine; occupational health; occupational stress; randomized control trial; routine; wellbeing.

Evidence Level: 3B

Link: https://www.mdpi.com/1660-4601/22/4/548

### **Organisational issues**

### Low back pain and work-related factors among home health care workers with self-governing or conventional team structure: A natural experiment with a cross-sectional design

Objectives: Compare home health care (HHC) with self-governing and conventional team structure regarding self-reported low back pain (LBP) and work-related factors. **Methods:** A natural experiment was assessed using a cross-sectional design. Primary outcome was LBP intensity; secondary outcomes included LBP duration and work limitations as well as intensity, duration and work limitations of neck/shoulder pain, stress, productivity, influence at work, meaning at work, sickness absence, interpersonal collaboration, and variation in physical behaviour. Home health care (HHC) workers in the self-governing teams were surveyed about their appraisal of the self-governing structure. Data were collected through a questionnaire, except for physical behaviour, which was obtained via accelerometry. Differences between groups were analysed using t-tests. Results: From 10 HHC-teams across four municipalities, 125 HHC-workers completed the questionnaire (self-governing n = 60; conventional n = 65). LBP intensity was similar among HHC-workers in the two team structures (self-governing = 4.1; conventional = 4.0, 0-10 scale). Self-governing teams experienced significantly higher levels of (i) meaning at work (5.8 points, 0-100 scale), (ii) improved collaboration with manager (7.5 points, 0-100 scale) and (iii) improved collaboration with needs assessors (11.9 points, 0-100 scale) compared to conventional teams. No significant differences were found in the other outcomes. Conclusions: The higher scores for self-governing teams in meaning at work, collaboration with manager and collaboration with needs assessors are positive. The lack of a lower report in LBP and neck/shoulder pain calls for more focused efforts to enhance HHC-workers' health in addition to the reorganization into the self-governing structure.

#### Schmidt et al. 2025.

International Archives of Occupational and Environmental Health, vol. 98, no. 3.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Home health care; LBP; natural experiment; self-governing teams. Evidence Level: 4B

Link: https://link.springer.com/article/10.1007/s00420-025-02134-x

### Job Design

### A comparison of office workers' co-creation experiences: A Health CASCADE multiple case study

Objectives: Co-creation can used to develop public health interventions, improve their effectiveness, and increase intervention uptake through engaging stakeholders, but there is little in-depth exploration of the co-creators' experience of taking part. Understanding the experience of taking part in a co-creation process can enhance future participation experiences, promote engagement and help design better co-creation processes in the future. The objective of this study was to explore the experiences of co-creators (i.e., office workers) involved in the co-creation process to address workplace sedentary behaviour. Study design: Multiple case study. Methods: Three small-to-medium sized enterprises participated in separate co-creation processes. Data were generated from observations during the workshops and semi-structured interviews (n = 31) employing elicitation techniques conducted after the co-creation process was completed. Each of the three cases were analysed separately (using thematic analysis), which then informed the cross-case comparison, the focus of this study. Results: Comparison of co-creators' experiences across the three cases identified psychological, emotional, social and cognitive experiences which occurred before, during and after the co-creation process. The analysis identified both intended (e.g., sedentary behaviour awareness) and unintended (e.g., forming relationships) outcomes from these experiences. These experiences and outcomes were influenced by factors such as workplace environment and structure, design of the co-creation process and how it was facilitated, highlighting the interplay between the co-creation context and the broader work context. **Conclusion:** This study contributes to the understanding of co-creation experience in the workplace setting. Recommendations were derived from using an iterative reflection process of the three cases.

McCaffrey et al. 2025.

Public Health, vol. 241.

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**Keywords:** Co-design; evaluation; group dynamics; participatory; perceptions; workplace. **Evidence Level:** 4B

Link: https://www.sciencedirect.com/science/article/pii/S0033350625000551?via%3Dihub

### Shift work

# Personalized physician-assisted sleep advice for shift workers: Algorithm development and validation study

**Background:** In the modern economy, shift work is prevalent in numerous occupations. However, it often disrupts workers' circadian rhythms and can result in shift work sleep disorder. Proper management of shift work sleep disorder involves comprehensive and patient-specific strategies, some of which are similar to cognitive behavioural therapy for insomnia. **Objective:** Our goal was to develop and evaluate machine learning algorithms that predict physicians' sleep advice using wearable and survey data. We developed a web- and app-based system to provide individualized sleep and behaviour advice based on cognitive behavioural therapy for insomnia for shift workers. **Methods:** Data were collected for 5 weeks from shift workers (N=61) in the intensive care unit at 2 hospitals in Japan. The data comprised 3 modalities: Fitbit data, survey data, and sleep advice. After the first week of enrolment, physicians reviewed Fitbit and survey data to provide sleep advice and selected 1 to 5 messages from a list of 23 options. We handcrafted physiological and behavioural features from the raw data and identified clusters of participants with similar characteristics using hierarchical clustering. We explored 3 models (random forest, light gradient-boosting machine, and CatBoost) and 3 data-balancing approaches (no balancing, random oversampling, and synthetic minority oversampling technique) to predict selections for the 7 most frequent advice messages related to bedroom brightness, smartphone use, and nap and sleep duration. We tested our predictions

### Workplace Research Monthly May 2025

under participant-dependent and participant-independent settings and analysed the most important features for prediction using permutation importance and Shapley additive explanations. **Results:** We found that the clusters were distinguished by work shifts and behavioural patterns. For example, one cluster had days with low sleep duration and the lowest sleep quality when there was a day shift on the day before and a midnight shift on the current day. Our advice prediction models achieved a higher area under the precision-recall curve than the baseline in all settings. The performance differences were statistically significant (P<.001 for 13 tests and P=.003 for 1 test). Sensitivity ranged from 0.50 to 1.00, and specificity varied between 0.44 and 0.93 across all advice messages and dataset split settings. Feature importance analysis of our models found several important features that matched the corresponding advice messages sent. For instance, for message 7 (darken the bedroom when you go to bed), the models primarily examined the average brightness of the sleep environment to make predictions. **Conclusions:** Although our current system requires physician input, an accurate machine learning algorithm shows promise for automatic advice without compromising the trustworthiness of the selected recommendations. Despite its decent performance, the algorithm is currently limited to the 7 most popular messages. Further studies are needed to enable predictions for less frequent advice labels.

#### Shen et al. 2025.

### JMIR Formative Research, vol. 9.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: CBT; app-based intervention; cognitive behavioral therapy; health care workers; machine learning; medical safety; shift work; wearable sensors; web-based intervention; well-being. Evidence Level: 3B

Link: https://formative.jmir.org/2025//e65000/

## Sleep disturbances, shift work, and epigenetic ageing in working-age adults: Findings from the Young Finns study

Background: Sleep disturbances are known to have adverse effects on health, but knowledge on the effect of sleep disturbances on epigenetic ageing is limited. We investigated (1) whether symptoms of insomnia, obstructive sleep apnoea, sleep deprivation, and circadian rhythm lateness are associated with epigenetic ageing, and (2) whether years spent in shift work moderates these associations. Methods: We used the population-based Young Finns data (n = 1618). Epigenetic clocks such as AgeDev<sub>Hannum</sub>, AgeDev<sub>Hannum</sub>, AgeDev<sub>Pheno</sub>, AgeDev<sub>Grim</sub>, and DunedinPACE were utilized to measure epigenetic ageing. Sleep was evaluated using various validated self-report questionnaires. Covariates included sex, array type, smoking status, health behaviours, socioeconomic factors, and cardiovascular health factors. Results: Among the various sleep measures, obstructive sleep apnoea symptoms were most consistently linked to accelerated epigenetic ageing, as measured by AgeDev<sub>Grim</sub> and DunedinPACE. Insomnia, sleep deprivation, and years spent in shift work were not associated with epigenetic ageing after adjusting for health-related or socioeconomic covariates. Additionally, we found interactions between years spent in shift work and sleep disturbances when accounting for epigenetic ageing. Among those with little to no history of shift work, both insomnia and sleep deprivation were associated with more accelerated epigenetic ageing in AgeDev<sub>Grim</sub> when compared to long-term shift workers. However, the pace of epigenetic ageing (measured with DunedinPACE) appears to be higher in those with both sleep deprivation and longer history of shift work. Conclusions: Among various sleep measures, symptoms of obstructive sleep apnoea appear to be most consistently associated with accelerated epigenetic ageing even after adjusting for various healthrelated and socioeconomic factors. Shift work seems to have a crucial role in the relationship between sleep disturbances and epigenetic ageing in working-age adults.

### Autio et al. 2025.

#### Clinical Epigenetics, vol. 17, no. 1.

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**Keywords:** Biological ageing; chronotype; epigenetic clock; insomnia; obstructive sleep apnoea; shift work; sleep quality.

### Evidence Level: 4B

Link: https://clinicalepigeneticsjournal.biomedcentral.com/articles/10.1186/s13148-025-01860-w

### Blunted blood pressure dipping during night shift work: Does it matter? Can we intervene?

Cardiovascular disease (CVD) is the leading cause of adult death in the United States. Numerous studies show that night shift workers face a disproportionately higher risk of CVD compared to non-shift workers. Despite these data, the scientific and medical communities have not identified the physiological mechanisms that contribute to increased CVD risks for night shift workers. We propose that repetitive exposure to blunted blood pressure (BP) dipping associated with sleep loss during night shift work is an important, clinically meaningful, understudied, and modifiable contributor to increased risk of CVD. Blunted BP dipping occurs when BP fails to decrease or "dip" 10%-20% during nighttime hours (typically while sleeping) relative to daytime hours (typically while awake). Blunted BP dipping is widely considered a clinically meaningful indicator of poor cardiovascular health. Previous research suggests it is a common consequence of night shift work and occurs during sleep before and immediately after night shifts. Relatively few studies of shift work and CVD have focused on blunted BP dipping as a mechanism of CVD risk. Recent experimental research shows that restoration of normal BP patterns-during night shift work-is achievable with strategic napping and may reduce the risk of CVD. We present a series of important mechanistic-related questions and next steps for future research focused on blunted BP dipping and night shift work.

### Patterson et al. 2025.

### American Journal of Industrial Medicine, vol. 68, no. 4.

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**Keywords:** Blood pressure; CVD; cardiovascular disease; shift work. **Evidence Level:** 6B

Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.23711

### Supporting the management of long-term health risk from night work

Societal demands mean that many companies operate throughout the day to provide services. The impact of night work on long-term health is not clear, but there is sufficient evidence for closer monitoring of this as a concern and industry is not sure what more they need to do about this potential problem. There are many health conditions and potential interventions to reduce risks from night working, but there is no clarity on how to design and implement intervention programmes for long-term health issues. This paper reports on a rapid review of 24 articles to examine how interventions can minimise long-term health risk from night work. The analysis has identified eight types of intervention that have been used in relation to seven types of long-term health conditions but has highlighted weaknesses in evaluation, in relation to the current knowledge of the implementation and effectiveness of the interventions for long-term health. Commentary is provided on how researchers and industry practitioners need to think about risk in different ways, improve implementation of interventions through a systemic approach to work design and organisation, and employ more participatory approaches to embed cultural change in organisations. **Ryan et al. 2025.** 

### Industrial Health, vol. 63, no. 2.

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**Keywords:** Health; health risks; interventions; night work; risk factors; systems ergonomics. **Evidence Level:** 1A

Link: https://pubmed.ncbi.nlm.nih.gov/39143017/

### Workplace Research Monthly May 2025

## Daytime eating during simulated night work mitigates changes in cardiovascular risk factors: Secondary analyses of a randomized controlled trial

Effective countermeasures against the adverse cardiovascular effects of circadian misalignment, such as effects experienced due to night work or jet lag, remain to be established in humans. Here, we aim to test whether eating only during daytime can mitigate such adverse effects vs. eating during the night and day (typical for night shift workers) under simulated night work (secondary analysis of NCT02291952). This single-blind, parallel-arm trial randomized 20 healthy participants (non-shift workers) to simulated night work with meals consumed during night and day (Nighttime Meal Control Group) or only during daytime (Daytime Meal Intervention Group). The primary outcomes were pNN50 (percentage consecutive heartbeat intervals >50 ms), RMSSD (root mean square of successive heartbeat differences), and LF/HF (low/high cardiac frequency). The secondary outcome was blood concentrations of prothrombotic factor plasminogen activator inhibitor-1 (PAI-1). These measures were assessed under Constant Routine conditions, before (baseline) and after (post misalignment) simulated night work. The meal timing intervention significantly modified the impact of simulated night work on cardiac vagal modulation and PAI-1 (pFDR = 0.001). In the Control Group, the post misalignment Constant Routine showed a decrease in pNN50 by 25.7% (pFDR = 0.008) and RMMSD by 14.3% (pFDR = 0.02), and an increase in LF/HF by 5.5% (pFDR = 0.04) and PAI-1 by 23.9% (pFDR = 0.04), vs. the baseline Constant Routine. In the Intervention Group, there were no significant changes in these outcomes. For exploratory outcomes, the intervention significantly modified the impact of simulated night work on blood pressure (P < 0.05), with no significant change in the Control Group, and a significant reduction by 6-8% (P < 0.01) in the Intervention Group; without significant effects for heart rate or cortisol. These findings indicate that daytime eating, despite mistimed sleep, may mitigate changes in cardiovascular risk factors and offer translational evidence for developing a behavioral strategy to help minimize the adverse changes in cardiovascular risk factors in individuals exposed to circadian misalignment, such as shift workers.

#### Chellappa et al. 2025.

### Nature Communications, vol. 16, no. 1.

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Keywords: Daytime eating; night work; cardiovascular risk.

#### Evidence Level: 2B

Link: https://www.nature.com/articles/s41467-025-57846-y

#### The relationship between shift work, sleep, and work hours on wellbeing

We investigated the role of sleep and work hours on wellbeing among day- and shift workers. We tested a mediation-moderation hypothesis proposing that; 1) sleep would mediate the association between the work schedule and the impact of sleep/sleepiness on wellbeing; 2) work hours would moderate the link between work schedule and sleep. We made random phone calls to 1,162 participants and identified 172-d and 130 shift workers that worked  $\geq$ 35 h/week. The work schedule had a positive indirect effect on the impact of sleep/sleepiness via sleep duration ( $\beta$ =0.0511, SE=0.0309, [0.0008, 0.3219]. The relationship between shift work and sleep duration was negative ( $\beta$ =-0.35, SE=0.14, p<0.01), and sleep duration was negatively associated with a greater impact of sleep/sleepiness on wellbeing ( $\beta$ =-0.15, SE=0.06, p<0.02). The path between the work schedule and sleep duration was moderated by work hours; fewer work hours resulted in shift workers reporting a greater impact of sleep/sleepiness on wellbeing. The results support the mediation-moderation hypothesis. Work hours and sleep duration are key characteristics in work schedule design.

#### DI Milia et al. 2025.

#### Industrial Health, vol. 63, no. 2.

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### Workplace Research Monthly May 2025

**Keywords:** Shift work; sleep; wellbeing; work hours. **Evidence Level:** 4B **Link:** https://www.jstage.jst.go.jp/article/indhealth/63/2/63 2024-0088/ article

### **Management and Leadership**

# The impact of perceived negative supervisor gossip on employee emotional exhaustion: A moderated mediation model of impression management and task interdependence

Negative gossip is a common behavior in the workplace. However, little research focuses on the employee perception of negative supervisor gossip in workplace. This study proposes that employee perceived negative supervisor gossip is a stressor that may lead employees to try coping using impression management tactics but ultimately to experience emotional exhaustion. Data were collected from 406 full-time Chinese employees and assessed with a time-lagged design. The results show that employee perceived negative supervisor gossip has a significant positive relationship with impression management, and impression management is positively correlated to emotional exhaustion. Furthermore, impression management mediates the relationship between perceived negative supervisor gossip and emotional exhaustion. Finally, task interdependence moderates the direct and indirect effects among perceived negative supervisor gossip, impression management, and emotional exhaustion. This study also discusses the theoretical and practical implications for managers. Specifically, supervisors should minimize the frequency of negative gossip behavior, encourage self-actualization among employees, and provide employees with more collaborative tasks.

### Cheng et al. 2025.

### Frontiers of Public Health, vol. 13.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Emotional exhaustion; impression management; moderated mediation model; negative supervisor gossip; task interdependence.

Evidence Level: 5B

Link: https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2025.1575259/full

## Employee informal coaching and job performance in higher education: The role of perceived organizational support and transformational leadership

The existing literature has not adequately explored the connection between informal coaching and employees' job performance, particularly in higher education institutions (HEIs). Anchored in the social exchange theory, this study aims to investigate the impact of informal coaching practices on job performance, as well as the mediating and moderating roles of perceived organizational support and transformational leadership. Results from a time-lagged study of 768 participants in HEIs in Vietnam indicate that informal coaching from supervisors and peers is crucial in directly enhancing employee performance. Furthermore, the research indicates that perceived support from the organization plays a vital role in mediating the impact of informal coaching on individual job performance. Interestingly, the study suggests that high levels of transformational leadership strengthen the relationships between informal coaching from supervisors and employees' job performance, as well as informal coaching from supervisors and employees' job performance, as well as informal coaching from supervisors and perceived organizational support. However, contrary to expectations, transformational leadership does not moderate the influence of informal coaching from peers on job performance and perceived organizational support.

### Nguyen et al. 2025.

### PLoS One, vol. 20, no. 4.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Coaching; job performance; support; leadership.

### Work ability

## Work participation in patients with carpal tunnel syndrome referred to departments of occupational medicine: A Danish register-based cohort study

**Background:** We describe long-term work participation of patients with carpal tunnel syndrome (CTS) referred to Danish departments of occupational medicine and compare to patients with contact dermatitis. Methods: One thousand seven hundred and sixty CTS-patients were included in this register-based nationwide longitudinal follow-up study and compared to 3158 contact dermatitis patients. We extracted register data on public benefits 5 years before and after assessment at a department of occupational medicine between 2000 and 2013. We defined a work participation score (WPS) as weeks where the patient was working divided by number of potential work weeks per year, dichotomized into low and high at the 75<sup>th</sup> percentile. We analyzed the risk of low WPS and of receiving permanent health-related public benefits during follow-up. Results: Before assessment, both CTS and contact dermatitis patients had high work participation. In the follow-up period work participation decreased permanently for both patient groups. Comparing women with CTS to women with contact dermatitis, odds ratios (OR) of low WPS were 2.56 (2.11-3.11) and 1.68 (1.38-2.05) one and 5 years after assessment. For men, OR of low WPS were 2.01 (95% CI, 1.67-2.44) and 1.27 (95% CI, 1.04-1.56). ORs of receiving permanent health-related public benefits during follow-up were 2.10 (95% CI, 1.56-2.83) for men and 1.97 (95% CI, 1.54-2.54) for women with CTS compared to those with contact dermatitis. Conclusions: Patients referred to Danish departments of occupational medicine due to CTS have increased risk of reduced long-term work participation and of receiving permanent health-related public benefits compared to patients referred due to contact dermatitis.

### Aagaard et al. 2025.

### American Journal of Industrial Medicine, vol. 68, no. 4.

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**Keywords:** Carpal tunnel syndrome; employment; mononeuropathy; peripheral neuropathy; work. **Evidence Level:** 4B

Link: https://onlinelibrary.wiley.com/doi/10.1002/ajim.23716

### Employment and work ability in individuals living with rare diseases: A systematic literature review

**Background:** The socioeconomic impact of rare diseases has been mostly studied at the macrolevel, but evidence at the microlevel is lacking, which overshadows health-related social inequalities affecting people with rare diseases, namely, health selection effects. **Aim:** This study presents an overview of employment and work ability in individuals living with rare diseases, two factors related to health selection effects. **Methods:** A systematic literature review was conducted using the PRISMA checklist. Three electronic databases, PubMed, Embase, and Web of Science, were searched from 2013 to 2023. Eligible studies needed to investigate at least one work-related outcome measuring employment or work ability in individuals living with rare diseases and to compare it with a control group. Indeed, including only studies with matched or standardized control groups is essential for ensuring the reliability and validity of research findings. **Results:** Of the 7,694 abstracts identified, 44 studies, including 34 rare diseases, met the inclusion criteria. Administrative databases were used to collect work-related data in 48% of the studies, and 73% of the studies employed matching methods for comparison. Overall, 52% of the studies focused solely on employment, 14% focused solely on work ability and 34% included both categories. Individuals with rare diseases were less likely to be employed or more likely to be unemployed than controls in 68% of the

studies and 87% of the studies reported that individuals with rare diseases were more likely to be work disabled. Regarding work ability, 90% of the studies reported more missed work time in cases than in controls, and more perceived impairment at work was found in 100% of the studies.

**Discussion/conclusion:** These results show that individuals with rare diseases tend to have poor work outcomes, but methodological limitations hamper the understanding of health selection effects. Implications for future research and policy-making are discussed.

#### Bougas et al. 2025.

#### Orphanet Journal of Rare Diseases, vol. 20, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Absenteeism; employment; presenteeism; quality of life; rare diseases; work. Evidence Level: 1A

Link: https://ojrd.biomedcentral.com/articles/10.1186/s13023-025-03691-7

### Effects of pain management on work ability in aging workers with chronic musculoskeletal pain: A crosssectional study

With increasing life expectancy and an aging population, societies worldwide are experiencing a growing workforce affected by chronic musculoskeletal pain (MSP). However, the impact of pain management on work ability in this demographic remains uninvestigated. This cross-sectional study aimed to examine the association between pain-management strategies and work ability among aging workers with MSP. Data were collected from 264 aging workers ( $\geq$  45 years of age) experiencing chronic MSP for at least three months. Participants completed face-to-face interviews using the Thai versions of the Brief Pain Inventory, Pain Coping Inventory, and Work Ability Index (WAI) questionnaires. Information on job characteristics and health status was recorded. Pain-management approaches were categorized into pharmacological treatments, non-pharmacological treatments, and self-pain-coping strategies. The results revealed that pharmacological (69.3%), non-pharmacological (60.3%), and self-pain-coping (90.9%) strategies were commonly used for pain relief. Pain-management strategies significantly associated with work ability included pharmacological treatment (p = 0.011), combined pharmacological, and non-pharmacological treatments (p = 0.013), continuing activities at a slower pace (p = 0.011), retreating to a restful environment (p = 0.018), and continuous focus on the pain (p = 0.025). Ordinal logistic regression analysis identified returning home immediately when outdoors as significant risk factors for poor work ability. In conclusion, this study highlights the significant role of pain management in maintaining work ability among aging workers. Pharmacological and combined treatments were commonly used, but coping strategies such as returning home immediately were linked to reduced work ability. Pain severity, interference, and chronic conditions (hypertension, dyslipidemia, knee pain, and low back pain) were key risk factors for decreased work ability.

#### Komolsuradej et al. 2025.

### Scientific Reports, vol. 15, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) Keywords: Aging worker; musculoskeletal pain; work ability. Evidence Level: 4B

Link: https://www.nature.com/articles/s41598-025-95665-9

### Adapting to the future of work

### Ageing workforce

### Determinants of job continuity among older workers: A mixed-methods research in Japan

This study aims to determine the factors that encourage older workers to continue working. This study had an exploratory sequential design using a mixed-methods approach, including interviews and questionnaire surveys. In the interview survey, we targeted 30 workers aged between 60-65 across three manufacturing companies. After using the results of the content analysis in the interviews, we conducted an online questionnaire survey with 1,500 workers aged between 60-89 across the country. We analyzed whether the 15 factors were related to intention to continue working using logistic regression analysis. We identified factors affecting job continuity from three perspectives: individual, company, and life. We determined several factors: health condition, job performance, self-esteem, conservatism, employment system, workload, medical insurance and welfare programs, monetary and non-monetary rewards, relationships, attachment to the organization, distance between living and work, social support, economic situation, and employment policy. In the questionnaire survey, some factors had no relationship with job continuity, including conservatism, employment systems, monetary rewards, and the distance between living and work. Employers and policymakers can use the findings to consider appropriate ways of supporting older workers.

### Sakai et al. 2025.

Industrial Health, vol. 63, no. 2.

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**Keywords:** Continued employment; job retention; mixed-methods study; older worker; super-aged society. **Evidence Level:** 5B

Link: https://www.jstage.jst.go.jp/article/indhealth/63/2/63\_2024-0081/\_article

### Physical and mental demands of work associated with dementia risk in later life

Background: Work occupies a significant portion of adult life, and both cognitive stimulation and physical activity have been suggested as factors that may lower dementia risk in later life. **Objectives:** To examine the association between mental and physical demands at work and the risk of dementia. Design: A cohort study. Setting: Seven selected districts in Taiwan, covering both urban and rural areas. Participants: 4,083 community-dwelling healthy adults aged 55 and older from the Healthy Aging Longitudinal Study. Measurements: A job matrix of work conditions by occupation was generated using data from a representative national survey. Mental demands were assessed by job control and psychological demands from the Job Content Questionnaire, as well as skill levels. Physical demands were assessed using a 4-point Likert scale and dichotomized into high and low levels. Dementia diagnoses were identified based on physician diagnosis registered in the National Health Insurance database. Results: Over a follow-up period of 6.2 years, 513 participants were diagnosed with dementia. After adjusting for confounding factors in cox regression models, high (vs. low) job control, high -skilled jobs (vs. low), and high physical demands (vs. low) were associated with a reduced future risk of dementia. Psychological demands were not associated with dementia risk. Conclusions: Greater utilization of job skills and engagement in physically demanding activities at work may help mitigate the risk of developing dementia. The effects of different dimensions of psychological demands on cognitive health warrant further investigation. Yang et al. 2025.

### The Journal of Prevention of Alzheimer's Disease, vol. 12, no. 4.

**User License**: *Creative Commons Attribution (CC BY 4.0)* (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords:** Cognitive functions; job control; job strain; physical activity; psychological demands.

### **Evidence Level:** 4B **Link:** https://www.sciencedirect.com/science/article/pii/S2274580725000287?via%3Dihub

### Technology

## Internal branding and technostress among employees: The mediation role of employee wellbeing and moderating effects of digital internal communication

Integrating technology with communication makes work comfortable, but it simultaneously interrupts employees' personal life. Internal branding strategies attempts to improve employee's psychological and physiological wellbeing, yet the extensive integration of technology with work and workplace activities posit serious challenges in the form of technostress. In the context of communication, digital tools and mode of work increases efficiency, yet their impact of wellbeing and technostress experienced by employees needs to be examined. The present study aims to analyse the impact of internal branding on employee wellbeing and technostress under the influence of digital internal communication. The paper also examines if digital internal communication can moderate the impact of internal branding on employee wellbeing and also the impact of employee wellbeing on technostress experienced at workplace. The mediation effect of employee wellbeing between internal branding and technostress is also analysed. The conceptual model was built on the premises of job demands-resources theory, technology acceptance model, and transactional theory of stress and coping. Data collected from 401 employees from information technology sector was analysed using Smart PLS4. Results of structural and measurement model using PLS SEM indicate that internal branding improves wellbeing and reduces technostress under the influence of digital internal communication. Employee wellbeing is found to mediate the impact of internal branding as well as digital internal communication on technostress. Findings support the moderating effects of digital internal communication in reducing technostress and improving employee wellbeing. The hypothesised research model integrates three theories making a novel contribution by analysing wellbeing and technostress and exploring internal branding and internal communication in the digital context. Raj et al. 2025.

### Acta Psychologica, vol. 255.

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**Keywords:** Digital internal communication; employee wellbeing; internal branding; job demands-resources theory; technology acceptance model; technostress.

### Evidence Level: 5B

Link: https://www.sciencedirect.com/science/article/pii/S0001691825002562?via%3Dihub

## The constant ping: Examining the effects of after-hours work connectivity on employee turnover intention

In today's technology-driven work environments, it is essential to understand how digital tools influence employee behaviour and overall well-being. It is crucial to gain insights into these impacts, which is why this study aims to explore how employees perceive technology and how these perceptions influence their job engagement, burnout, and attitudes toward work connectivity after hours, resulting in employee turnover intentions. The study hypothesized that employees perceiving technology as a demand (e.g., requiring constant attention) would experience higher burnout, turnover intentions, and negative attitudes toward after-hours connectivity. Conversely, those perceiving technology as a resource (e.g., enabling flexibility) were expected to exhibit higher job engagement, positive attitudes toward after-hours connectivity, and lower burnout and turnover intentions. Drawing on the Job Demands-Resources theory, the research surveyed 250 government employees in Azerbaijan. Participants' perceptions of technology as demand and resource, job engagement, burnout, turnover intentions, and work connectivity after-hours attitude were assessed. Partial Least Squares Structural Equation Modelling analysis was used to test the research model. The results supported the hypotheses. Employees who perceived technology as a demand reported higher burnout, turnover intentions, and negative attitudes toward after-hours connectivity. In contrast, those who perceived technology as a resource exhibited higher job engagement, positive attitudes toward after-hours connectivity, and lower burnout and turnover intentions. These findings highlight the importance of considering technology's dual nature as both a demand and a resource in workplace design and management.

#### Rasulova et al. 2025.

Acta Psychologica, vol. 255.

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**Keywords:** After-hours attitude; burnout; job engagement; technology perception; turnover intention; work connectivity.

Evidence Level: 5B

Link: https://www.sciencedirect.com/science/article/pii/S0001691825001027?via%3Dihub

### User experience of and adherence to a smartphone app to maintain behaviour change and selfmanagement in patients with work-related skin diseases: Multistep, single-arm feasibility study

Background: Smartphone apps are a growing field supporting the prevention of chronic diseases. The user experience (UX) is an important predictor of app use and should be considered in mobile health research. Long-term skin protection behaviour is important for those with work-related skin diseases. However, altering health behaviour is complex and requires a high level of self-management. We developed a maintenance program consisting of the Mein Hautschutz im Alltag (MiA; "My skin protection in everyday life") app combined with an individual face-to-face goal-setting interview to support patients in the implementation of skin protection behaviour after inpatient rehabilitation. Objective: The objectives of this paper are to (1) describe the intervention in a standardized manner; (2) evaluate the UX, subjective quality, and perceived impact of the MiA app; and (3) evaluate the adherence to the MiA app. **Methods:** We followed a user-centred and multistage iterative process in 2 steps that combined qualitative and quantitative data. The maintenance program was tested over 12 weeks after discharge from rehabilitation. The UX, subjective quality, and perceived impact were evaluated formatively based on the user version of the Mobile Application Rating Scale after 12 weeks (T2). Adherence was measured using the frequency of interactions with the app. Results: In total, 42 patients took part (with a dropout rate of n=18, 43% at T2). The average age was 49.5 (SD 13.1) years, and 57% (24/42) were male. We found high ratings for the UX, with an average score of 80.18 (SD 8.94) out of a theoretical maximum of 100, but there were a few exceptions in the usability and interaction with the app. The app was most frequently rated with 4 out of 5 stars (15/24, 65%), which indicates a high subjective quality. Furthermore, the app seemed to influence important determinants to implement skin protection behaviour. Adherence to skin protection tracking was higher over the study period than adherence to skin documentation and goal assessment. The number of adherent participants to skin protection tracking was higher in the skin care and skin cleansing categories (28/42, 67% each) compared to the skin protection category (13/42, 31%) on day 1 and decreased until day 84 in all dimensions (12/42, 29% each for skin care and skin cleansing; 9/42, 21% for skin protection). Conclusions: The results in terms of adherence met the expectations and were consistent with those of other studies evaluating the use of apps for chronic diseases. Interaction with the app could be increased using artificial intelligence to determine eczema severity via photos. It should be investigated which subgroups have difficulties with usability to individualize the support to a greater degree during onboarding. There is a need for further research regarding the effectiveness of the MiA app on skin protection behaviour, quality of life, and eczema severity.

Ristow et al. 2025.

JMIR Formative Research, vol. 90.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: App; artificial intelligence; behavior change; complex intervention; mHealth; mobile health; occupational dermatology; skin diseases; smartphone.

### Evidence Level: 5B

Link: https://formative.jmir.org/2025/1/e66791

### Psychometric properties of telepressure measures in the workplace and private life among Frenchspeaking employees

**Background:** Workplace telepressure and private life telepressure refer to the preoccupation with and the urge to respond quickly to electronic messages from people at work or in private life, respectively. We aimed to adapt and validate workplace and private life telepressure measures in French and to explore their nomological networks and relationships with psychological health and wellbeing.

Methods: Participants were recruited via flyers, local press, and social media to complete two online surveys. Participants had to be French-speaking employees working in Switzerland and regularly using information and communication technologies for work purposes. The sample included 347 employees (200 females, 146 males, one nonbinary individual; mean age: 36.8 years) who completed both surveys. The first questionnaire assessed sociodemographic characteristics and the workplace and private life telepressure measures. The second questionnaire, which was administered approximately two weeks later, assessed complementary sociodemographic characteristics, nomologicals (five technostress creators, workaholism, neuroticism, conscientiousness, and mindfulness), measures of psychological health and wellbeing (depression, anxiety, stress, and psychological detachment from work), and the two telepressure measures. **Results:** Both telepressure measures exhibited strong psychometric properties, including validity, reliability, and measurement invariance across age, gender, and time. Confirmatory factor analysis revealed that the two-factor model (preoccupation and urge factors) provided a better fit than did the one-factor model for both measures. Correlation analyses revealed that both telepressure measures were significantly positively associated with techno-invasion, techno-complexity, techno-insecurity, workaholism, and neuroticism and negatively associated with mindfulness. However, only workplace telepressure was significantly associated with techno-overload, and neither telepressure measure was significantly associated with technouncertainty. Structural equation modelling showed that workplace telepressure significantly predicted stress, anxiety, depression, and psychological detachment from work, whereas private life telepressure significantly predicted stress, anxiety, and psychological detachment from work, but not depression. Most effects were significantly greater for workplace telepressure than for private life telepressure. **Conclusions:** This study confirms the validity of the workplace telepressure and private life telepressure measures for use in French-speaking populations and contributes to our understanding of the role of these two constructs in employees' psychological health and wellbeing.

### Semaan et al. 2025.

### BMC Psychology, vol. 13, no. 1.

**User License**: Creative Commons Attribution (CC BY 4.0) (<u>https://creativecommons.org/licenses/by/4.0/</u>) **Keywords**: Autonomy paradox; confirmatory factor analysis; digital wellbeing; health; information and communication technology; private life telepressure; psychological detachment from work; stress; workplace telepressure.

#### Evidence Level: 5B

Link: https://bmcpsychology.biomedcentral.com/articles/10.1186/s40359-025-02616-0

### Work environment

## Psychosocial working conditions and mental well-being of remote and stationary employees: A longitudinal study

**Objectives:** The aim of the article is to compare people working remotely and people working at the employer's premises in terms of psychosocial working conditions and mental well-being. **Material and methods:** A longitudinal study conducted on a group of 494 people working remotely (N = 206) and those working stationary (N = 288) in 2021-2022 using the *Copenhagen Working Conditions Questionnaire*. **Results:** The results of analysis of variance in the mixed design showed that some psychosocial conditions of their work (e.g., emotional work demands, demands for hiding emotions, control at work, role conflict and trust in co-workers) were assessed better by remote workers than by people working stationary. Remote workers also had better mental well-being over time than those working at the employer's premises, especially in relation to psychological strain, depression and burnout. **Conclusions:** The results of this study therefore suggest that remote work may be a desirable form of work from the point of view of improving psychosocial working conditions and the mental well-being of employees, and thus increase the quality of life of working people. Int J Occup Med Environ Health. 2025;38(2):135-50.

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### Evidence Level: 4B

Link: https://ijomeh.eu/Psychosocial-working-conditions-and-mental-well-being-of-remote-and-stationaryemployees,200669,0,2.html