



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 February 2023 only.

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## Description of Evidence Levels Definitions Used in this Review

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

Level of Evidence	Description
Level 1	Evidence from a systematic 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 (scoping or narrative).

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

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

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## Enabling Safe and Healthy Work

### Health and Wellbeing

*This month we explore building a safety culture for infection prevention and control adherence, and associations between sleep duration and metabolic syndrome and oral diseases and work productivity loss. In firefighter related research we explore associations between cardiovascular disease risk factors and cardiorespiratory fitness and occupational factors and the risk of preterm birth*

#### **Building a safety culture for infection prevention and control adherence at Howard Springs: A workplace survey**

**Background:** Building a safety culture is essential to facilitate infection prevention and control (IPC) adherence in workplaces. We aimed to explore perceptions, barriers and facilitators to IPC procedures by the Australian Medical Assistance Team (AUSMAT) at Howard Springs International Quarantine Facility (HSIQF). **Methods:** We performed a descriptive analysis of a cross-sectional survey administered to the AUSMAT employed at HSQIF from October 2020 to April 2021. We described motivation, training and compliance to IPC adherence and Likert scales described the level of agreement to the success of IPC procedures across the domains of communication, risk, trust, safety and environment, from the individual, team and organisational perspective. **Results:** There were 101 participants (response rate 59%, 101/170) and 70% (71/101) were clinical. There was strong agreement to the success of IPC procedures, with a median 4 (agree) or 5 (strongly agree) across each domain and perspective of the 67 Likert items. Clinical staff reported slightly higher agreement than non-clinical staff across Likert items. To improve IPC compliance, most reported that daily training should be provided (77/97, 79%) and daily training was very or extremely effective (91/97, 93%). Participants were motivated by protecting self, friends, family and the community rather than workplace pressures. Barriers to IPC compliance were the ambient environment and fatigue. **Conclusions:** A safety culture was successfully built at HSQIF to optimise IPC adherence whilst managing multiple hazards including prevention of COVID-19 transmission. Strategies implemented by AUSMAT at the quarantine facility may inform the development of safety culture in other settings.

**Curtis et al. 2023.**

**Infection, Disease and Health, vol. 28, no. 1.**

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**Keywords:** COVID-19; Emergencies; Outbreak; Personal protective equipment; Quarantine; Risk management.

**Evidence Level:** 4A

**Link:** [https://www.idhjjournal.com.au/article/S2468-0451\(22\)00048-7/fulltext](https://www.idhjjournal.com.au/article/S2468-0451(22)00048-7/fulltext)

#### **Association between sleep duration and metabolic syndrome: Linear and nonlinear mendelian randomization analyses**

**Background:** Observational studies have found that both short and long sleep duration are associated with increased risk of metabolic syndrome (MetS). This study aimed to examine the associations of genetically determined sleep durations with MetS and its five components (i.e., central obesity, high blood pressure, dyslipidemia, hypertriglyceridemia, and hyperglycemia) among a group of elderly population. **Methods:** In 335,727 participants of White British from the UK Biobank, linear Mendelian randomization (MR) methods were first employed to examine the causal association of genetically predicted continuous sleep duration with MetS and its each component. Nonlinear MR analyses were performed to determine the nonlinearity of these associations. The causal associations of short and long sleep duration with MetS and its components were further assessed by using genetic variants that associated with short ( $\leq 6$  h) and long sleep ( $\geq 9$  h) durations. **Results:** Linear MR analyses demonstrated that genetically predicted 1-h longer sleep duration was associated with a 13% lower risk of MetS, a 30% lower risk of central obesity, and a 26% lower risk of hyperglycemia. Non-linear MR analyses provided evidence for non-linear associations of genetically predicted sleep duration with MetS and its five components (all P values  $< 0.008$ ). Genetically

predicted short sleep duration was moderately associated with MetS and its four components, including central obesity, dyslipidemia, hypertriglyceridemia, and hyperglycemia (all P values < 0.002), whereas genetically long sleep duration was not associated with MetS and any of its components. **Conclusions:** Genetically predicted short sleep duration, but not genetically predicted long sleep duration, is a potentially causal risk factor for MetS.

**Liang et al. 2023.**

**Journal of Translational Medicine, vol. 21, no. 1.**

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**Keywords:** Hyperglycemia; mendelian randomization; metabolic syndrome; obesity; sleep duration.

**Evidence Level:** 4B

**Link:** <https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-023-03920-2>

### **Association between cardiovascular disease risk factors and cardiorespiratory fitness in firefighters: A systematic review and meta-analysis**

**Background:** Approximately 45% of on-duty related mortalities were due to sudden cardiac death, with many of these fatalities related to cardiovascular disease and overexertion, while performing emergency duties. Therefore, the aim of this systematic review was to determine the association between cardiovascular disease risk factors and cardiorespiratory fitness in firefighters. **Methods:** A literature search of PubMed, SCOPUS, Web of Science, Embase, EBSCOHost, and ScienceDirect was conducted; the Rayyan® intelligent systematic review tool was used to screen and select studies for inclusion. The appraisal tool for cross-sectional studies and the Critical Appraisal Skills Programme toolkit were used for methodological assessment of included studies. **Results:** Data were analyzed using the Review Manager 5.3 and MedCalc® statistical softwares to determine the effects of obesity ( $Z = 10.29$ ,  $p < 0.001$ ) and aging ( $Z = 4.72$ ,  $p < 0.001$ ) on cardiorespiratory fitness. Furthermore, there was a significant effect for cardiorespiratory fitness level on systolic blood pressure ( $Z = 5.94$ ,  $p < 0.001$ ), diastolic blood pressure ( $Z = 2.45$ ,  $p < 0.001$ ), total cholesterol levels ( $Z = 3.80$ ,  $p < 0.001$ ), low-density lipoprotein cholesterol ( $Z = 4.44$ ,  $p < 0.001$ ), triglycerides ( $Z = 3.76$ ,  $p < 0.001$ ) and blood glucose concentration ( $Z = 4.78$ ,  $p < 0.001$ ). Cardiovascular disease risk factors and cardiorespiratory fitness were significantly and inversely associated in firefighters.

**Conclusions:** Fire service departments should adopt behavioral intervention strategies to maintain optimum cardiovascular disease risk factor profiles and cardiorespiratory fitness among firefighters to ensure their occupational well-being.

**Ras et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Aging; cardiorespiratory fitness; cardiovascular disease risk factors; diabetes; dyslipidemia; firefighters; hypertension; obesity; systematic review.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/20/4/2816>

### **Cross-sectional associations between oral diseases and work productivity loss among regular employees in Japan**

**Background:** The association between oral diseases and work productivity loss remains unclear. This study examined whether dental caries, tooth loss, and poor periodontal status were associated with absenteeism and presenteeism. **Methods:** This cross-sectional study used two independent datasets: 184 employees at a medical university and 435 employees from among the registrants of an online research company. Absenteeism and presenteeism, according to the World Health Organization Health and Work Performance Questionnaire, were dependent variables. The independent variables were the number of decayed and filled teeth (DFT), missing teeth (MT), and self-reported periodontal status. Multivariable linear regression models were developed to estimate unstandardised coefficients with 95% confidence intervals (CIs) for absenteeism and presenteeism. **Results:** After adjusting for covariates, among the 435 employees enrolled from among the registrants of an online research company, poor periodontal status was significantly associated with a 7.8% (95%CI = -14.5, -1.0) decline in presenteeism but not absenteeism. DFT and MT were not significantly associated with either absenteeism or presenteeism in both populations.

**Conclusions:** Given that periodontal status was potentially associated with a 7.8% decline in work performance, occupational specialists, managers, and dental health professionals should be aware of the impact on work productivity.

**Sato et al. 2023.**

**Industrial Health, vol. 61, no. 1.**

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**Keywords:** Absenteeism; oral health; presenteeism; work performance; work productivity.

**Evidence Level:** 4B

**Link:** [https://www.jstage.jst.go.jp/article/indhealth/61/1/61\\_2021-0274/article](https://www.jstage.jst.go.jp/article/indhealth/61/1/61_2021-0274/article)

### **Firefighter occupational factors and the risk of preterm birth: Results from a survey of women firefighters in the USA**

**Background:** Previous research has suggested that women firefighters may have a greater risk of adverse reproductive outcomes compared with non-firefighting women. In this study, we investigated the association between firefighter occupational factors and risk of preterm birth. **Methods:** This cross-sectional analysis of US firefighters surveyed in 2017 compared preterm birth among firefighters to non-firefighters using age-at-pregnancy-standardised prevalence ratios. Generalised estimating equations estimated relative risks and 95% CIs between firefighter occupational factors (career or volunteer, wildland status, shift schedule, fire responses, work restriction) and preterm birth risk. We adjusted for age-at-pregnancy, education, gravidity, BMI, and smoking and considered effect modification by age-at-pregnancy and career versus volunteer status. **Results:** Among 934 women who reported 1356 live births, 12% were preterm (n=161). Preterm birth prevalence among firefighters was 1.41 times greater than non-firefighters (95% CI 1.18 to 1.68). Among wildland and combination wildland/structural firefighters, volunteers had 2.82 times the risk of preterm birth (95% CI 1.19 to 6.67) compared with career firefighters. Firefighters who started restricting their work in the 2nd trimester had a nonsignificant 0.67 times lower risk of preterm birth than those who started in the 3rd trimester or did not restrict work at all (95% CI 0.43 to 1.03).

**Conclusions:** Firefighters may have greater risk of preterm birth than non-firefighters, which could be influenced by roles in the fire service and work restrictions taken.

**Jung et al. 2023.**

**Occupational and Environmental Medicine, vol. 80, no. 2.**

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**Keywords:** Firefighters; occupational health; pregnancy outcome.

**Evidence Level:** 4B

**Link:** <https://oem.bmj.com/content/80/2/77.long>

### **Work Health and Safety**

*This month we explore fatigue in pilots and Australian truck drivers, occupational cancer and disease mortality rates amongst firefighters and exertion-related injuries and fatalities in labourers. In Covid-19 related research we explore factors related to musculoskeletal discomfort and working from home, occupational skin dermatitis among healthcare worker and characteristics of workers' compensation claim applications for COVID-19 infections.*

### **Prediction of work from home and musculoskeletal discomfort: An investigation of ergonomic factors in work arrangements and home workstation setups using the COVID-19 experience**

**Background:** The COVID-19 pandemic provided an opportunity for office workers to experience work from home (WFH). The aims of this study are to investigate the prevalence rate of musculoskeletal discomfort (MSD) and the work conditions of homeworkers during WFH as well as to evaluate the association and predicted risk of ergonomic factors and MSD. **Methods:** A total of 232 homeworkers completed questionnaires. Chi-square test and logistic regression were used to analyze the association and prediction of work arrangements and home workstation setups and musculoskeletal outcomes. **Results:** The result

showed that 61.2% of homeworkers reported MSD while WFH. Because of the small living spaces in Hong Kong, 51% and 24.6% of homeworkers worked in living/dining areas and bedrooms, respectively, potentially affecting their work and personal life. Additionally, homeworkers adopted a flexible work style, but prolonged computer use while WFH. Homeworkers who used a chair without a backrest or a sofa could predict a significantly higher risk of MSD. The use of a laptop monitor posed about a 2 to 3 times higher risk of suffering from neck, upper back, and lower back discomfort than the use of a desktop monitor.

**Conclusions:** These results provide valuable information to help regulators, employers, homeworkers, and designers create better WFH guidelines, work arrangements, and home settings.

**Chim et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** COVID-19; home furniture; home workstation; laptop computer; musculoskeletal health; office worker; work arrangements; work chair; work from home.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3050>

### **Characteristics of workers' compensation claim applications for COVID-19 infections in South Korea**

**Background:** This study aimed to identify the major industries and jobs with the highest proportion of workers' compensation (WC) claims for COVID-19, characterize COVID-19 WC claims in terms of their demographic properties and disease severity, and identify factors influencing the approval of COVID-19 WC claims as occupational disease. **Methods:** A total of 488 workers who submitted COVID-19-related claims to the Korea Workers' Compensation and Welfare Service (KWCWS) from January 2020 to July 2021 were analyzed. A Fisher's exact test was employed to associate the severity of COVID-19 infection with demographic properties. **Results:** The highest proportion of all COVID-19 WC claims compensated as occupational disease (N=462) were submitted by healthcare workers (HCW=233, 50%), while only 9% (N=41) of the total originated from manufacturing industries. The 5% (N=26) of the COVID-19 WC claims accepted were evaluated as severe (N=15) and acute respiratory distress syndrome (N=9). A total of 71% (N=329) of the COVID-19 patients compensated (N=462) were from workplaces with infection clusters. A total of 26 WC cases were rejected for various reasons, including unclear infection routes, infection at private gatherings (including within families), no diagnosis, and more. **Conclusions:** Given our findings, we suggest an official system should be established to detect and compensate more job-associated infectious diseases like COVID-19.

**Nam et al. 2023.**

**Industrial Health, vol. 61, no. 1.**

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**Keywords:** COVID-19; COVID-19 workers' compensation; healthcare workers; Industrial Accident Compensation Insurance Acts; infectious disease.

**Evidence Level:** 5B

**Link:** [https://www.istage.jst.go.jp/article/indhealth/61/1/61\\_2021-0271/article](https://www.istage.jst.go.jp/article/indhealth/61/1/61_2021-0271/article)

### **Factors associated with fatigued driving among Australian truck drivers: A cross-sectional study**

**Background:** Fatigued driving is one of the leading factors contributing to road crashes in the trucking industry. The nature of trucking, prolonged working time, and irregular sleep patterns can negatively impact drivers' health and wellbeing. However, there is limited research in Australia investigating the impact of demographic, occupational, or lifestyle factors on fatigue among truck drivers. **Objective:** This cross-sectional study examines the role of demographic, occupational, lifestyle, and other health risk factors associated with fatigue among Australian truck drivers. **Method:** This study was part of a larger study that used a short online survey with a follow-up telephone survey to capture in-depth information on a wide range of determinants related to truck drivers' physical and mental health outcomes. Fatigue was measured by three questions, including the frequency of fatigue, fatigue management training, and strategies used to combat fatigue. Multivariate regression analysis was used to determine the specific impact of demographics, occupational factors, lifestyle factors, and other health risk factors on fatigue.

**Results:** In total, 332 drivers completed both the online and telephone surveys; 97% were male, representing drivers from broad age groups and professional experience. The odds of being in the high-risk fatigue group were nearly three times higher in drivers who worked 40-60 h compared to those who worked < 40 h. Poor sleep increased the odds of high-risk fatigue by seventimes (95% CI: 2.26-21.67,  $p = 0.001$ ). Drivers who reported experiencing loneliness also had double the odds of being at high risk of fatigued driving. **Conclusions:** The increased risk of fatigue in truck drivers is associated with prolonged working hours, poor sleep, and social aspects such as loneliness. Further interventions seeking to reduce driver fatigue should consider the impact of work schedules, the availability of quality sleeping spaces, and the level of social connections.

**Ren et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Fatigue; fatigue driving; heavy vehicle drivers; occupational risk factors; truck drivers.

**Evidence Level:** 4A

**Link:** <https://www.mdpi.com/1660-4601/20/3/2732>

### **Occupational skin dermatitis among healthcare workers associated with the COVID-19 pandemic: A review of the literature**

**Background:** The skin is the outermost layer of the human body and is continually exposed to numerous external stimuli, which can cause unwanted skin irritation. Occupational skin diseases are the most prevalent form of work-related illness and are found in a variety of sectors, particularly healthcare. During the recent COVID-19 pandemic, healthcare professionals experienced a variety of unexpected, unusual occupational skin diseases associated with COVID-19-engaged employment. **Methods and**

**Results:** Because the clinical characteristics of these types of skin inflammation are unique, this review focuses on the characteristics of a large category of occupational workers, namely COVID-19-engaged healthcare professionals. Furthermore, we examined the potential pathogeneses of occupational skin disorders associated with COVID-19-engaged labor, as well as different preventative methods.

**Sawada 2023.**

**International Journal of Molecular Sciences, vol. 24, no. 3.**

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**Keywords:** COVID-19; acne vulgaris; allergic contact dermatitis; irritant contact dermatitis; occupational skin diseases.

**Evidence Level:** 6A

**Link:** <https://www.mdpi.com/1422-0067/24/3/2989>

### **Scottish firefighters occupational cancer and disease mortality rates: 2000-2020**

**Background:** Increased mortality from cancers and other diseases has been reported in USA, Canadian, and Nordic firefighters. However, UK firefighters are understudied. To determine whether UK firefighters suffer increased mortality from cancers and other diseases when compared with the general population.

**Methods:** Mortality from cancer and other diseases in Scottish male firefighters between 2000 and 2020 was compared with the general Scottish male population and expressed as standardized mortality ratios (SMRs) (with 95% confidence intervals, CI). **Results:** Significant overall excess cancer mortality was found for Scottish firefighters compared with the general population (SMR 1.61, CI 1.42-1.81). Scottish firefighters were nearly three times more likely to die of malignant neoplasms (unspecified sites) (SMR 2.71, CI 1.71-4.00). Excess cancer mortality was also found for several site-specific cancers, including prostate (SMR 3.80, CI 2.56-5.29), myeloid leukaemia (SMR 3.17, CI 1.44-5.58), oesophagus (SMR 2.42, CI 1.69-3.29) and urinary system (kidney and bladder) (SMR 1.94, CI 1.16-2.91). Mortality from neoplasms of unknown behaviour was over six times greater in Scottish firefighters (SMR 6.37, CI 2.29-12.49). Additionally, significantly higher mortality was found for: acute ischaemic heart diseases (SMR 5.27, CI 1.90-10.33), stroke (SMR 2.69, CI 1.46-4.28), interstitial pulmonary diseases (SMR 3.04, CI 1.45-5.22), renal failure (SMR 3.28, CI 1.18-6.44) and musculoskeletal system diseases (SMR 5.64, CI 1.06-13.83). **Conclusions:** UK firefighters suffer significant excess mortality from cancer and other diseases when compared with the general population.

Preventative health monitoring and presumptive legislation are urgently required to protect UK firefighters' health.

**Stec et al. 2023.**

**Occupational Medicine, vol. 73, no. 1.**

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**Keywords:** Cancer; disease; mortality rates; occupational cancer; firefighters.

**Evidence Level:** 4A

**Link:** <https://academic.oup.com/occmed/article/73/1/42/6964909?login=true>

### **Pilot fatigue survey: A study of the mutual influence among fatigue factors in the "work" dimension**

**Background:** Fatigue risk management for pilots has received increasing attention. The existing fatigue management systems have detailed descriptions of the factors and the mutual influences among the factors that affect the dimension of "sleep", which is one of the most important causes of fatigue. However, the analysis of the influencing factors of the "work" dimension of fatigue causes has not been very detailed or accurate, especially the exploration of the mutual influence among many fatigue-influencing factors in the "work" dimension. **Objective:** The purpose of this study was to explore the mutual influence among fatigue-influencing factors related to the "work" dimension in the analysis of pilot fatigue causes. **Methods:** This study designed a questionnaire on the dimension of "work" in the causes of pilot fatigue and collected a total of 270 feedback data points from international flight pilots. Based on the questionnaires and data, descriptive statistical analysis, exploratory factor analysis and confirmatory factor analysis were performed to explore the influencing factors and their mutual influences on the "work" dimension of pilot fatigue. **Results:** There is a strong, mutual influence relationship among the fatigue causes of long-haul flight pilots - working status, working conditions and working schedules - in the dimension of "work". The workload only has a strong correlation with the working schedule, and the interaction relationships with the working status or working conditions are weak. **Conclusion:** This study analyses the mutual influence among the influencing factors of the "work" dimension of pilot fatigue, and we expect to provide empirical data for pilot fatigue risk management and to help improve fatigue risk management systems.

**Jun-Ya et al. 2023.**

**Frontiers in Public Health, vol.11.**

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**Keywords:** Fatigue factors; long-haul flights; mutual influence; pilot fatigue; "work" dimension.

**Evidence Level:** 5B

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1014503/full>

### **Analysis of exertion-related injuries and fatalities in laborers in the United States**

**Background:** Laborers are particularly vulnerable to exertional injuries and illnesses, as they often engage in heavy physical work for prolonged hours, yet no studies have examined the top causes of catastrophic exertional injuries and fatalities among this population. The purpose of the investigation was to characterize the top causes of exertional injury and fatality within open access, Occupational Safety and Health Administration (OSHA) reportable data. **Methods:** A secondary analysis of OSHA reported injury and fatality data was performed through open access records from OSHA Severe Injury Reports (2015-2022) and OSHA fatality inspection data (2017-2020), respectively. The research team characterized each reported injury and fatality as "exertion-related" or "non-exertion-related. Injury and fatality rates were reported per 100,000 equivalent full-time worker years and included 95% confidence intervals (95% CI). **Results:** Of 58,648 cases in the OSHA Severe Injury Report database from 2015-2020, 1682 cases (2.9%) were characterized as exertional (0.20 injuries per 100,000 full-time worker years, 95% CI: 0.19, 0.22). Heat-related injuries encompassed 91.9% of the exertional injuries (n = 1546). From the 2017-2022 OSHA fatality inspection database, 89 (1.9%) of 4598 fatalities were characterized as exertion-related (fatality rate: 0.0160 per 100,000 full-time equivalent workers, 95% CI: 0.009, 0.0134). The exertion-related fatalities primarily consisted of heat-related cases (87.6%). Exertion-related injuries and fatalities were most reported in Southeast states, in the construction and excavation industry, and among nonunionized workers. **Conclusions:** As heat stress continues to be recognized as an occupational health and safety



hazard, this analysis further highlights the need for targeted interventions or further evaluation of the impact of heat stress on construction and excavation workers, nonunionized workers, and workers in Southeastern states.

**Morrissey et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Epidemiology; heat stress; physical activity; work.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/3/2683>

## Risk Assessment

*This month we explore occupational risk factors across a range of sectors, and the factors influencing hearing protection device usage among industrial workers*

### **Occupational risk factors by sectors: An observational study of 20,000 workers**

**Background:** We aimed to assess the prevalence of exposure by sector and the sectors of activity most exposed to each exposure, using routine occupational health data, and to quantify the risk of being exposed. **Method:** Occupational risk factors were assessed by workers followed by the Occupational Health Service of Cher, using self-reported questionnaires. The sectors of activity were grouped into seven sectors, and the risks were grouped into six occupational exposure groups. Comparisons were made using the Chi-squared test and Cramer's V, and the odds ratios were calculated by using logistic regression. **Results:** We included 19,891 workers. The construction sector had the highest prevalence ( $p < 0.05$  vs. all other sectors) of exposure to physical (76%) and biomechanical factors (82%), as well as chemical risks (75%). Human health and social work was the sector with the highest prevalence of exposure to biological factors (69%), psychosocial factors (90%), and atypical working hours (61%). With workers from administrative and support sectors as the reference, construction workers had more chance of declaring exposure to physical factors (OR = 3.28, 95%CI = 2.89 to 3.72), biomechanical factors (1.82, 1.58 to 2.09), and chemical agents (3.83, 3.38 to 4.33). Workers from the human health and social sectors had more chance of being exposed to biological agents (13.4, 11.9 to 15.2), atypical working hours (1.93, 1.75 to 2.14), and psychosocial factors (2.74, 2.38 to 3.16). **Conclusion:** Psychosocial risk factors were commonly reported in all sectors. Workers in the construction, human health, and social sectors seem to report more exposures than those in other sectors. The analysis of occupational exposures is a necessary basis to build an efficient preventive strategy for occupational health.

**Dogbla et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Occupational health; prevalence; sectors of activity; work exposure.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3632>

### **Organizational risk factors for aircrew health: A systematic review of observational studies**

**Background:** Addressing the field of health and safety at work, the primary objective of the present systematic review was to analyze the organizational risk factors for aircrew health according to professional category (flight attendants and pilots/co-pilots) and their consequences. The secondary objective was to identify the countries in which studies were carried out, focusing on the quality of content of the publications. **Methods:** The Medline/Pubmed, Cochrane, Web of Science, and Scopus databases were searched for eligible studies according to PRISMA statements. The risk of bias and the methodological quality of the studies were assessed using the Newcastle-Ottawa scale and Loney tools. Of the 3230 abstracts of articles screened, 36 studies met the inclusion criteria. **Results:** Most of the research conducted on risk factors for the work organization of aircrew was carried out in the United States and the European Union and had moderate or low-quality methodology and evidence. However, the findings are homogeneous and allow the most prevalent organizational risk factors for the health of aircrew to be

determined, namely, high work demand, long hours, and night work. Consequently, the most pervasive health problems were sleep disturbances, mental health disorders, musculoskeletal disorders, and fatigue. **Conclusions:** Thus, the regulation of the aircrew profession must prioritize measures that minimize these risk factors to promote better health and sleep for these professionals and, consequently, to provide excellent safety for workers and passengers.

**Marqueze et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Co-pilots; flight attendants; occupational exposure; pilots; public health.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/20/4/3401>

### **A systematic literature review of the factors influencing hearing protection device usage among industrial workers**

**Background:** This systematic literature review (SLR) aims to determine the factors influencing the use of hearing protection devices (HPDs) among industrial workers. **Methods:** This study was guided by the PRISMA Statement (Preferred Reporting Items for Systematic reviews and Meta-Analyses) review method, and four databases comprising Scopus, Science Direct, PubMed, Wiley Online Library, and Google Scholar were employed. A total of 196 articles were identified, and 28 studies on the factors associated with HPD use among industrial workers from 2006 to 2021 met the inclusion criteria. **Results:** Resultantly, five main themes emerged from this review: sociodemographic (29%), interpersonal influences (18%), situational influences (18%), cognitive-perceptual (29%), and health-promoting behavior (6%) associated with HPD use among industrial workers. A total of 17 sub-themes were identified, including age, gender, educational level, noise level, working experience, social models, interpersonal support, social norms, safety climate, training, organizational support, perceived barrier, perceived susceptibility, perceived severity, perceived benefit, self-efficacy, and cues to action. The significant factors influencing workers to use HPDs are sociodemographic, interpersonal influences, situational influences, and health-promoting behavior. Future studies should focus on the cues to action toward human behavior influencing the use of HPDs, workers' health status, and comorbidities of hearing loss. **Conclusions:** Therefore, this systematic study gives valuable reference resources for up-and-coming researchers as well as new knowledge to expert professionals and academics in various industries.

**Fauzen et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Factors; hearing protection device; industrial workers; preferred reporting items for systematic; systematic literature review.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/20/4/2934>

### **Chronic Health Issues**

*This month we explore group therapy for work-related mental disorders and managers' sick leave recommendations for employees with common mental disorders*

#### **Evaluation of a group therapy for work-related mental disorders**

**Background:** Work-related mental distress is one of the most dominant reasons for sick leave and early retirement. Specialized therapy programs for work-related mental health problems are rare, especially in a group setting. This study evaluates the severity of depression, anxiety, somatization and burnout symptoms before and after a work-related group therapy program. **Methods:** Patients of a psychosomatic outpatient clinic with work-related mental disorders completed 12 sessions of a manual-based group training with reference to the workplace. Data were collected using the Patient Health Questionnaire-9 (PHQ-9), Patient Health Questionnaire-15 (PHQ-15), General Anxiety Disorder Scale-7 (GAD-7) and the Maslach Burnout Inventory (MBI) before (T1) and directly after the intervention (T2). **Results:** Overall, 48 participants

completed the intervention. The participants' symptoms of depression (T1: M = 11.06, SD = 6.19, T2: M = 8.92, SD = 8.17;  $p < 0.001$ ,  $d = 0.53$ ) and anxiety (T1: M = 9.94, SD = 5.18, T2: M = 7.13, SD = 5.69;  $p = 0.001$ ,  $d = 0.49$ ) as well as their emotional exhaustion (T1: M = 4.63, SD = 0.95, T2: M = 4.05, SD = 1.35;  $p < 0.001$ ,  $d = 0.55$ ) decreased significantly, and the difference was clinically relevant at T2. For cynicism (T1: M = 3.93, SD = 0.99, T2: M = 3.70, SD = 1.32;  $p = 0.14$ ,  $d = 0.22$ ) and personal fulfillment at work (T1: M = 4.30, SD = 0.83, T2: M = 4.41, SD = 0.94;  $p = 0.24$ ,  $d = 0.17$ ), the difference between T1 and T2 was not significant. Women benefited more than men (PHQ-9:  $p < 0.001$ ,  $d = 0.96$ ; GAD-7:  $p < 0.001$ ,  $d = 0.91$ ; PHQ-15:  $p < 0.001$ ,  $d = 0.76$ ) from the training. **Conclusions:** Participants' mental health symptoms were substantially reduced during the course of the work-related group therapy. As mental health problems account for the largest group of work disability days, the potential of group therapy should be better exploited in health care services.

**Hondong et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Anxiety; burnout; depression; mental health treatment; work-related mental disorders.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/3/2673>

### **Managers' sick leave recommendations for employees with common mental disorders: A cross-sectional video vignette study**

**Background:** To better understand the initial phases of sickness absence due to common mental disorders (CMD), the aim of the present video vignette study was to test the following three hypotheses: (1) Managers who have negative attitudes towards employees with CMD will not recommend sick leave. (2) Managers with experience of CMD recommend sick leave to a significantly higher extent than managers lacking this experience. (3) Managers with previous experience of recommending sick leave for people with CMD will recommend sick leave to a significantly higher extent also based on the vignettes. **Methods:** An online survey, including a CMD-labelled video vignette, was sent to 4737 Swedish managers (71% participated,  $n = 3358$ ). For aims (1) and (2), a study sample consisting of 2714 managers was used. For aim (3), due to the design of the survey questions, a subsample ( $n = 1740$ ) was used. **Results:** There was no significant association between negative attitudes towards employee depression and managers' recommendation of employee sick leave with the vignette case. The bivariate analysis showed that personal experience of CMD was associated with managers' recommendation of employee sick leave. In the adjusted regression model, it became non-significant. Previous experience of recommending sick leave to one employee and to several employees was associated with recommending sick leave, also when adjusting for gender, level of education, years of managerial experience, and management training on CMDs. **Conclusions:** The likelihood of a manager recommending sick leave after watching a CMD-labelled video vignette was higher if the manager had previous experience of this situation in real life. This study highlights the importance of including managerial behaviours and attitudes to better understand sick leave among employees with CMD.

**Hultqvist et al. 2023.**

**BMC Psychology, vol. 11.**

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**Keywords:** Depression; employee; managers; sick leave; video vignette study.

**Evidence Level:** 4B

**Link:** <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-023-01086-6>

## Occupational Exposure

*This month we explore issues associated with the occupational exposure to bioaerosols, lead, noise, silicosis and hexavalent and trivalent chromium. We also explore the occupational risk factors associated with the severity and progression of Chronic Obstructive Pulmonary Disease*

### **Public and occupational health risks related to lead exposure updated according to present-day blood lead levels**

**Background:** Lead is an environmental hazard that should be addressed worldwide. Over time, human lead exposure in the western world has decreased drastically to levels comparable to those among humans living in the preindustrial era, who were mainly exposed to natural sources of lead. **Methods:** To re-evaluate the potential health risks associated with present-day lead exposure, a two-pronged approach was applied. First, recently published population metrics describing the adverse health effects associated with lead exposure at the population level were critically assessed. Next, the key results of the Study for Promotion of Health in Recycling Lead (SPHERL; NCT02243904) were summarized and put in perspective with those of the published population metrics. To our knowledge, SPHERL is the first prospective study that accounted for interindividual variability between people with respect to their vulnerability to the toxic effects of lead exposure by assessing the participants' health status before and after occupational lead exposure. **Results and Conclusions:** The overall conclusion of this comprehensive review is that mainstream ideas about the public and occupational health risks related to lead exposure urgently need to be updated because a large portion of the available literature became obsolete given the sharp decrease in exposure levels over the past 40 years.

**Yu et al. 2023.**

**Hypertension Research, vol. 46, no. 2.**

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**Keywords:** Environmental medicine; hypertension; lead; mortality; occupational medicine.

**Evidence Level:** 4B

**Link:** <https://www.nature.com/articles/s41440-022-01069-x>

### **HBM4EU chromates study - The measurement of hexavalent and trivalent chromium in exhaled breath condensate samples from occupationally exposed workers across Europe**

**Background:** The aim of this study was to investigate the practicability of exhaled breath condensate (EBC) as a biological matrix to detect and measure hexavalent chromium (Cr(VI)) and trivalent chromium (Cr(III)) in workers occupationally exposed to Cr(VI). **Methods:** EBC samples were collected from workers in France, Finland, Italy, The Netherlands and the United Kingdom from three different target activities: chrome platers, stainless steel welders and surface treatment workers. Pre and post working week EBC samples were collected from 177 exposed workers and 98 unexposed workers (control group). Hyphenated chromatography systems with inductively coupled plasma - mass spectrometry (ICP-MS) were for the analysis. **Results:** The results showed that the occupationally exposed workers had significantly higher levels of Cr(VI) and Cr(III) than the control group. Chrome platers exhibited the highest Cr(VI) levels in their EBC samples, with a significant increase from their pre to post samples for both Cr(VI) and Cr(III). A significant difference was also found between pre and post EBC samples for Cr(III) in welders. **Conclusions:** This study has shown that EBC has the potential to be a valid, non-invasive biological matrix to assess occupational exposure to Cr(VI) and Cr(III) for biological monitoring assessment, with the ability to detect low level inhalation exposures.

**Leese et al. 2023.**

**Toxicology Letters, vol. 375.**

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**Keywords:** Chrome platers; chromium speciation; EBC; human biomonitoring; welders.

**Evidence Level:** 3B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0378427422018203?via%3Dihub>

### **Exposure to occupational risk factors is associated with the severity and progression of Chronic Obstructive Pulmonary Disease**

**Background:** Chronic obstructive pulmonary disease (COPD) results from a complex interaction between genes and the environment, and occupational exposures are an underappreciated risk factor. Until now, little research attention has been paid to the potential impact of occupational risk factor exposure on the COPD in China. The aim of this retrospective study was to analyze the role of occupational risk factor exposure on the severity and progression of COPD for exploring new prevention strategies for this disease. **Methods:** This study adopted a random cluster-sampling method. Five grade-A tertiary hospitals that met the inclusion criteria were selected as the survey sites, and patients with COPD hospitalized in these hospitals from January 1, 2019, to December 31, 2019, were selected as the research subjects. Data of the patients diagnosed with COPD met the Global Initiative for Chronic Obstructive Lung Disease (2019) criteria and were collected from the computerized medical record databases. Among 4082 investigated COPD patients, 1063 (26%) were found to have occupational risk factor exposure history. **Results:** The top 3 industries with a large COPD case number and a history of occupational risk factor exposure ranked in the order of agriculture (including farming, forestry, animal husbandry, and fishery), manufacturing, and mining. Further multivariate logistic regression analysis indicated that when setting a low exposure level as a reference, medium and high exposure levels were correlated with the severity of COPD (odds ratio values were 2.837 and 6.201, respectively,  $P < .05$ ). Linear regression analysis showed that cumulative exposure to occupational risk factors was negatively correlated with the forced expiratory volume in 1-second percentage of COPD patients, with a correlation coefficient of 0.68. Our results indicated that occupational risk factor exposure levels were related to the severity of COPD significantly. The incubation period of COPD in the exposure group was significantly shorter than that in the non-exposure group. **Conclusions:** To prevent worked-related COPD, special attention and control efforts should be taken to reduce the level of occupational risk factors such as organic dust, irritating chemicals, etc in the work environments, especially in the industries of agriculture, forestry, animal husbandry and fishery, manufacturing, and mining.

**Chen et al. 2023.**

**Medicine, vol. 102, no. 6.**

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**Keywords:** Occupational risk; chronic pulmonary disease; COPD; exposures; risk factors.

**Evidence Level:** 4B

**Link:** [https://journals.lww.com/md-journal/Fulltext/2023/02100/Exposure\\_to\\_occupational\\_risk\\_factors\\_is.47.aspx](https://journals.lww.com/md-journal/Fulltext/2023/02100/Exposure_to_occupational_risk_factors_is.47.aspx)

### **Prevention of the occupational silicosis epidemic in Australia: What do those who assess workplace health risk think should be done now?**

**Background:** An Australian National Dust Disease Taskforce was established to address the re-emergence of occupational lung disease, in particular silicosis. Exposure to respirable crystalline silica (RCS) occurs in various industries in Australia. We asked occupational hygienists about their practical experiences and perspectives on RCS exposure and regulatory action. **Methods:** A total of 105 members of the Australian Institute of Occupational Hygienists completed an anonymous questionnaire, which addressed individual characteristics, experience, perceived level of employer awareness, effectiveness of current regulation, and recommendations for improvement, across three main industrial sectors. **Results:** Based on professional experience, 71% were concerned about the potential for RCS over-exposure. Barriers to adequate exposure control included lack of management commitment and financial resources. The employment of specialist occupational hygiene inspectors was considered to be the most effective regulatory strategy. Given the large number of exposed workers in the construction industry, with only a moderate awareness, there is the potential for significant cost shifting of the burden of occupational lung disease from employers on to individuals and the public health system. **Conclusions:** A nationally consistent approach to RCS exposure control across all industrial sectors is now recommended, with an increased focus on measuring and controlling exposure.

**Cole et al. 2023.**

**Annals of Work Exposures and Health, vol. 67, no. 2.**

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**Keywords:** Control; exposure; hygienist; occupational hygiene; regulation; respirable; silica; survey.

**Evidence Level:** 5A

**Link:** <https://pubmed.ncbi.nlm.nih.gov/36111348/>

### **An assessment of occupational exposure to bioaerosols in automated versus manual waste sorting plants**

**Background:** Occupational exposure during waste sorting is associated with several health outcomes.

**Methods:** This study obtained knowledge about the impact of work in fully automated waste sorting plants (AWSP; n = 3) vs manual waste sorting plants (MWSP; n = 3) on personal exposure (n = 71) to bioaerosols and exposure-related health effects. Personal full-shift air samples were collected using various filter-based active sampling devices that were placed in the workers' breathing zone. Personal exposure to inhalable and thoracic dust, endotoxin and microorganisms varied considerably between and within types of waste sorting plants (WSP). **Results:** Workers at AWSP were on average exposed to 0.34 mg/m<sup>3</sup> inhalable dust, 0.15 mg/m<sup>3</sup> thoracic dust, and 51 EU/m<sup>3</sup> endotoxins (geometric mean (GM) levels), whereas GM exposure levels at MWSP were 0.66 mg/m<sup>3</sup> for inhalable dust, 0.44 mg/m<sup>3</sup> for thoracic dust, and 32 EU/m<sup>3</sup> for endotoxins. Exposure to submicronic fungal fragments did not differ between types of plants and ranged from levels below the detection limit (limit of detection, LOD) to levels in the order of 10<sup>6</sup> fragments/m<sup>3</sup>. Higher levels of fungal fragments and fungal spores were found at AWSP compared to MWSP with a GM of 2.1 × 10<sup>5</sup> spores/m<sup>3</sup> and with a GM of 1.2 × 10<sup>5</sup> spores/m<sup>3</sup>, respectively. Actinobacterial spores were found in samples from AWSP only, with exposure levels ranging from 1.9 × 10<sup>4</sup> to 1.1 × 10<sup>7</sup> spores/m<sup>3</sup>. Exposure to microbial DNA varied within and between WSP and was on average in the order of 10<sup>4</sup> copies/m<sup>3</sup> for fungi and 10<sup>5</sup> copies/m<sup>3</sup> for bacteria. **Conclusions:** Health symptoms, such as sneezing, congested nose and runny nose were significantly more common among exposed workers compared to the unexposed control group.

**Eriksen et al. 2023.**

**Environmental Research, vol. 218.**

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**Keywords:** Bioaerosols; endotoxin; fungal particles; health effects; microorganisms; total dust.

**Evidence Level:** 5A

**Link:** <https://www.sciencedirect.com/science/article/pii/S0013935122023672?via%3Dihub>

### **Association of occupational noise exposure with hypertension: A cross-sectional study**

**Background:** The effects of chronic occupational noise exposure on hypertension are debated. We aimed to investigate the association between occupational noise exposure and the prevalence of hypertension.

**Methods:** The cross-sectional data were collected from 2017 to 2018 using occupational physical examination data from a local aircraft manufacturing enterprise in Xi'an. We categorized occupational noise exposure as high (≥85 dBA) and low noise exposure (< 85 dBA). Logistic regression analysis was performed to evaluate the association between occupational noise exposure and hypertension, and associations were further evaluated using subgroup analyses for age, sex, and body mass index (BMI). **Results:** Of the 4746 participants (median age, 43 years; 73.4% men), 9.57% (454/4746) had hypertension and 32.4% (1540/4746) were exposed to high noise. Compared to the participants with low occupational exposure to noise, the adjusted odds ratio (OR) for hypertension prevalence was 1.30 (1.05-1.62) for those with high occupational noise exposure. Subgroup analyses revealed that the noise-hypertension association only existed in young participants (OR, 1.70; 95% CI, 1.21-2.40). This study revealed a harmful association between high occupational noise exposure and hypertension in young adults. **Conclusions:** The study suggests occupational noise exposure as a target for worksite interventions to prevent hypertension.

**Wang et al. 2023.**

**Journal of Clinical Hypertension, vol. 25, no. 2.**

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**Keywords:** Hypertension; noise exposure; occupational noise; risk factors; workers.

**Evidence Level:** 4B

**Link:** <https://onlinelibrary.wiley.com/doi/10.1111/jch.14619>

## Musculoskeletal Health

*This month we explore the relationship between work-related musculoskeletal health and risk factors among professional drivers, the effectiveness of workplace musculoskeletal injury risk factor screening tools and a framework for interventions for individual working practice to prevent work-related musculoskeletal disorder*

### **Causal relationship between the risk factors and work-related musculoskeletal disorders among professional drivers: A systematic review**

**Background:** This review evaluates the evidence on the strength of causal relationship between categories of risk factors (RFs) and work-related musculoskeletal disorders (WRMSDs) among professional drivers. A compilation of evidence on the causal relationship between RFs and WRMSDs among professional drivers is lacking. **Methods:** A systematic search of the literature was conducted in major electronic data bases that include Medline (1946 + via OvidSP), Embase (1974 + OvidSP), CINAHL (1982+), AMED, and Web of Science. The methodological quality of the studies was assessed and scored. A descriptive analysis on the categories of RFs associated with WRMSDs was conducted. The Bradford-Hill causation criteria and evidence interpretation tool were used to evaluate the causal relationship between RFs and WRMSDs in professional drivers. **Results:** Among the 54 studies reviewed, a strong evidence suggests a causal relationship between RFs such as whole-body vibration, awkward postures, lifting tasks, manual material handling, job stress, job demand, and previous pain episodes with WRMSDs. Moderate evidence was observed on RFs such as uncomfortable seat and low job satisfaction. The evidence on causal relationship between RFs such as years of professional driving, driving duration, and individual characteristics such as age and body mass index was inconclusive. **Conclusion:** There is strong to moderate evidence on the causal relationship between the physical and psychosocial RFs and WRMSDs among professional drivers. Potential application of this review highlights evidence to occupational health practitioners, policy makers, and stakeholders on the strength of causal relationship between RFs and WRMSDs among professional drivers.

**Joseph et al. 2023.**

**Human Factors, vol. 65, no. 1.**

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**Keywords:** Ergonomics; musculoskeletal disorders; professional drivers; risk assessment; risk factors.

**Evidence Level:** 1A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9846379/>

### **The effectiveness of workplace musculoskeletal injury risk factor screening tools for reducing injury: A systematic review**

**Background:** Musculoskeletal injury (MSI) contributes to global health burdens. Effective MSI prevention is necessary. MSI risk factor screening tools can be used by employers to identify and mitigate occupational hazards. Rigorous synthesis of the effectiveness of these tools has not taken place. We synthesized literature on effectiveness of MSI risk factor screening tools for reducing injury through informing prevention interventions. **Methods:** A literature search of Medline, Embase, Cochrane Library (Trials), CINAHL, Scopus and PsycINFO databases was performed. Included studies required an analytic design, used an MSI risk factor screening tool to inform an intervention in a working-age population and reported an outcome of MSI development, injury or compensation/work absence. Data extraction and study quality rating (Downs and Black criteria) were completed. Studies were sub-categorized as having used a single MSI screening tool (single-tool) to inform an injury prevention intervention or involving multiple simultaneous screening tools (multiple-tool). Study outcomes were synthesized when possible. **Results:** Eighteen articles representing fourteen studies met our inclusion criteria. No high-quality studies were identified (maximum Downs and Black score of 19). Studies did not employ previously validated tools but instead, typically, those purpose-built for a single use. The results were inconsistent both when using tools alone and in

combination with other tools. Outcome measure heterogeneity precluded meaningful meta-analysis.

**Conclusions:** There is limited evidence regarding use of MSI risk factor screening tools for preventing injury. Rigorous studies that utilize previously validated tools are needed.

**Roberts et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Compensation and redress; cumulative trauma disorders; disability; employment; ergonomics; insurance; musculoskeletal pain; occupational health; sick leave; workers' compensation.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/20/3/2762>

### **A first step towards a framework for interventions for individual working practice to prevent work-related musculoskeletal disorders: A scoping review**

**Background:** Work-related musculoskeletal disorders (WMSDs) are a key topic in occupational health. In the primary prevention of these disorders, interventions to minimize exposure to work-related physical risk factors are widely advocated. Besides interventions aimed at the work organisation and the workplace, interventions are also aimed at the behaviour of workers, the so-called individual working practice (IWP).

At the moment, no conceptual framework for interventions for IWP exists. This study is a first step towards such a framework.

**Methods:** A scoping review was carried out starting with a systematic search in Ovid Medline, Ovid Embase, Ovid APA PsycInfo, and Web of Science. Intervention studies aimed at reducing exposure to physical ergonomic risk factors involving the worker were included. The content of these interventions for IWP was extracted and coded in order to arrive at distinguishing and overarching categories of these interventions for IWP.

**Results:** More than 12.000 papers were found and 110 intervention studies were included, describing 810 topics for IWP. Eventually eight overarching categories of interventions for IWP were distinguished: (1) Workplace adjustment, (2) Variation, (3) Exercising, (4) Use of aids, (5) Professional skills, (6) Professional manners, (7) Task content & task organisation and (8) Motoric skills.

**Conclusion:** Eight categories of interventions for IWP are described in the literature. These categories are a starting point for developing and evaluating effective interventions performed by workers to prevent WMSDs. In order to reach consensus on these categories, an international expert consultation is a necessary next step.

**van de Wijdeven et al. 2023.**

**BMC Musculoskeletal Disorders, vol. 24, no. 1.**

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**Keywords:** Ergonomic interventions; musculoskeletal diseases; occupational training; prevention and control; work related risk factors.

**Evidence Level:** 6A

**Link:** <https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-023-06155-w>

## **Facilitating Mentally Healthy Workplaces**

### **Mental Health**

*This month we explore mental health interventions and the role of proactive screening and concierge services in the workplace, the effectiveness of interventions to reduce mental health related stigma and employees' preferences on psychotherapeutic consultation at work. We also explore the relationship between mental health and employment in the elderly and working conditions in public sector employees, and the relationship between burnout and personality traits and work regimes. In Covid-19 related research we explore the impact of COVID-19 on mental health and substance use, health, anxiety and depression levels and work stress factors such as working hours, compensatory leave and job satisfaction*



## **Evidence for the effectiveness of interventions to reduce mental health related stigma in the workplace:**

### **A systematic review**

**Background:** Increasing access to mental health support is a key factor for treating mental disorders, however, important barriers complicate help-seeking, among them, mental health related stigma being most prominent. We aimed to systematically review the current evidence for interventions focusing on reducing stigma related to mental health problems in small and medium enterprises (SMEs). **Methods:** Systematic review with a focus on interventions targeting mental health related stigma in the workplace in accordance with PRISMA guidelines. The methodological quality of included articles was assessed using the Quality Assessment Tool for Quantitative Studies Scale. PubMed, Ovid Medline, PsycINFO, Scopus, and Cochrane databases and Google Scholar were searched from January 2010 until November 2022. **Criteria for selecting studies:** We included experimental or quasi-experimental studies about workplace interventions aiming to reduce stigma, where the outcomes were measured in terms of stigmatisation against depression, anxiety and/or other mental health problems. Records were screened by two independent reviewers after inspecting titles and abstracts and a full-text read of the articles to assess whether they meet inclusion criteria. The results were synthesised narratively. **Results:** We identified 22 intervention studies, 3 with high quality, 13 with moderate quality and 6 with weak quality. Only 2 studies included SMEs, but no study focused on SMEs exclusively. The mode of delivery of the intervention was face to face in 15 studies, online in 4 studies and mixed in 3 studies. We found a significant reduction in stigmatising attitudes in almost all studies (20/22), using 10 different instruments/scales. Effects seemed to be independent of company size. Online interventions were found to be shorter, but seemed to be as effective as face-to-face interventions. **Conclusions:** Although we did not find interventions focusing exclusively on SMEs, it is likely that antistigma interventions also will work in smaller workplaces..

**Tóth et al. 2023.**

**BMJ Open, vol. 13, no. 2.**

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**Keywords:** Depression & mood disorders; mental health; occupational & industrial medicine.

**Evidence Level:** 1A

**Link:** <https://bmjopen.bmj.com/content/13/2/e067126.long>

## **The impact of COVID-19 on the mental health and substance use health (MHSUH) workforce in Canada: A mixed methods study**

**Background:** The increased need for mental health and substance use health (MHSUH) services during the COVID-19 pandemic underscores the need to better understand workforce capacity. This study aimed to examine the pandemic's impact on the capacity of MHSUH service providers and to understand reasons contributing to changes in availability or ability to provide services. **Methods:** We conducted a mixed method study including a pan-Canadian survey of 2177 providers of MHSUH services and semi-structured interviews with 13 key informants. Survey participants answered questions about how the pandemic had changed their capacity to provide services, reasons for changes in capacity, and how their practice had during the pandemic. Thematic analysis of key informant interviews was conducted to gain a deeper understanding of the impact of the pandemic on the MHSUH workforce. **Results:** Analyses of the survey data indicated that the pandemic has had diverse effects on the capacity of MHSUH workers to provide services: 43% indicated decreased, 24% indicated no change, and 33% indicated increased capacity. Logistic regression analyses showed that privately funded participants had 3.2 times greater odds of increased capacity ( $B = 1.17, p < 0.001$ ), and participants receiving funding from a mix of public and private sources had 2.4 times greater odds of increased capacity ( $B = 0.88, p < 0.001$ ) compared to publicly funded participants. Top reasons for decreases included lockdown measures and clients lacking access or comfort with virtual care. Top reasons for increases included using virtual care and more people having problems relevant to the participant's skills. Three themes were constructed from thematic analysis of key informant interviews: the differential impact of public health measures, long-term effects of pandemic work conditions, and critical gaps in MHSUH workforce data. **Conclusions:** The COVID-19 pandemic has had a substantial impact on the capacity of the MHSUH workforce to provide services. Findings indicate the importance of increasing and harmonizing funding for MHSUH services across the public and private

sectors, developing standardized datasets describing the MHSUH workforce, and prioritizing equity across the spectrum of MHSUH services.

**Tulk et al. 2023.**

**Human Resources for Health, vol. 21.**

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**Keywords:** COVID-19; mental health; substance use health; workforce capacity.

**Evidence Level:** 5B

**Link:** <https://human-resources-health.biomedcentral.com/articles/10.1186/s12960-023-00797-6>

### **Employees' preferences on organisational aspects of psychotherapeutic consultation at work by occupational area, company size, requirement levels and supervisor function - A cross-sectional study in Germany**

**Background:** Common mental disorders affect a significant proportion of the population worldwide at any given time. Psychotherapeutic consultation at work offers employees with mental distress short-term and low-threshold access to psychotherapeutic treatment. However, this offer is only accepted by one to two percent of the employees to whom it is offered. Taking into account employees' preferences regarding organisational aspects might increase the use of psychotherapeutic consultation at work. This study therefore aimed to identify preferences on organisational aspects of psychotherapeutic consultation at work among employees of diverse occupational areas, company sizes, supervisor functions and job requirement levels. **Methods:** A total of 755 employees were recruited via advertisements on social media (Instagram, Facebook and LinkedIn). Participants rated on a 5-point Likert scale their agreement to different implementation options of psychotherapeutic consultation at work: type (in-person/video/telephone), location (on/outside company premises), time (within/outside working hours), scope (diagnostic/diagnostic + treatment) and purpose (private/occupational). Additionally, the maximum accepted distance to the location of consultation was assessed. Various analyses of variances (ANOVA) were conducted to determine differences in agreement to implementation options within each organisational aspect and to analyse differences between occupational areas, company sizes, requirement levels and between employees with and without supervisor function. **Results:** Participants indicated a preference for in-person psychotherapeutic consultation that takes place outside company premises and outside working hours. Furthermore, they preferred offers including diagnostic and treatment sessions compared to offers including diagnostic sessions only. Even though participants agreed that consultation should be offered for all purposes, agreement for occupational issues was stronger than for private issues. For some implementation options, the level of agreement varied according to occupational field, company size, supervisor function and level of requirement. However, these differences did not affect the key findings mentioned above. **Conclusion:** Those findings give practical indications on the organisational design of psychotherapeutic consultation at work. The results suggest that in-person consultation outside company premises and working hours combining diagnostic and treatment sessions will be accepted by employees regardless of their occupational area, company size, supervisor function and requirement level.

**Kohl et al. 2023.**

**BMC Public Health, vol. 23.**

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**Keywords:** Mental health; occupational health; patient preference; psychotherapeutic care; psychotherapy; workplace.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-023-15255-0>

### **Relationship among work-treatment balance, job stress, and work engagement in Japan: A cross-sectional study**

**Background:** There is a drive to support workers in Japan undergoing medical treatment who wish to continue working, known as the work-treatment balance. This support for the work-treatment balance is expected to boost their mental health. This study examines the relationship among the work-treatment balance, job stress, and work engagement. **Methods:** This study was conducted in December 2020 in Japan, with 27,036 participants. We divided the participants into three groups by the receipt state of support for

work-treatment balance: control group (do not need support), unsupported group, and supported group. The scores on the parameters of the job content questionnaire and the Utrecht Work Engagement Scale (UWES-3) were compared among groups using a multilevel regression with age-sex or multivariate-adjusted models. **Results:** In the two models, the job control score of the unsupported group was significantly lower than that of the control group. The two social support scores of the supported group were significantly higher than those of the control group. The scores on the UWES-3 of the unsupported group were significantly lower than those of the control group. **Conclusions:** The support of work-treatment balance for workers could have a positive impact on their mental health.

**Ikegami et al. 2023.**

**Industrial Health, vol. 61, no. 1.**

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**Keywords:** Job stress; mental health; work engagement; worker; work-treatment balance.

**Evidence Level:** 4B

**Link:** [https://www.jstage.jst.go.jp/article/indhealth/61/1/61\\_2021-0250/article](https://www.jstage.jst.go.jp/article/indhealth/61/1/61_2021-0250/article)

### **Facilitating mental health treatment through proactive screening and concierge services in the workplace**

**Background:** The aim of this study is to determine if a proactive employer-sponsored mental health program closed gaps in detection and treatment of mental health conditions. **Methods:** Of n = 56,442 eligible, n = 8170 (14.5%) participated in the optional screening. Participants with mental health risk were offered care concierge services including support, care planning, and connection to care. Difference in behavioral health care utilization, diagnoses, and prescriptions were evaluated postintervention through claims analysis. **Results:** Compared with controls (n = 2433), those receiving concierge services (n = 369) were more likely to fill mental health prescriptions (adjusted hazards ratio [HR], 1.2; 1.0-1.5; P = 0.042), use professional mental health services (adjusted HR, 1.4; 1.1-1.8; P = 0.02), and use new mental health services (adjusted HR, 1.9; 1.2-2.8; P = 0.004) in the following 6 months. **Conclusions:** This proactive mental health program with care concierge services identified risk, connected individuals to mental health care, and facilitated mental health treatment, among program participants.

**Fragala et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 2.**

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**Keywords:** Mental health; proactive screening; mental health treatment; workplace; concierge.

**Evidence Level:** 4A

**Link:** [https://journals.lww.com/joem/Fulltext/2023/02000/Facilitating\\_Mental\\_Health\\_Treatment\\_Through.11.aspx](https://journals.lww.com/joem/Fulltext/2023/02000/Facilitating_Mental_Health_Treatment_Through.11.aspx)

### **Influencing factors of work stress of medical workers in clinical laboratory during COVID-19 pandemic: Working hours, compensatory leave, job satisfaction**

**Background:** The COVID-19 pandemic continues to pose unprecedented threats and challenges to global public health. Hospital Clinical Laboratory and public health institutions have been playing an important role in case detection, epidemic research and decision-making, and epidemic prevention and control.

**Objective:** To explore the current situation and influencing factors of work stress of medical workers in hospital clinical laboratory in fighting against COVID-19. **Methods:** A cluster random sampling method was used to select seven hospitals from 14 tertiary hospitals in Xiamen, and medical workers in the selected hospitals were investigated by self-administered questionnaire. A total of 150 medical workers in clinical laboratory participated in this survey, 138 valid questionnaires were collected, with a response rate of 92%.

**Results:** The work stress scores of the medical workers in the clinical laboratory of hospital in the COVID-19 epidemic were collected ( $55.22 \pm 11.48$ ); The top three dimensions of work stress score were work stress (work load), external environment and doctor-patient relationship. The results of multiple stepwise regression analysis showed that the working hours per day, whether overtime and night shift can get compensatory leave and Job satisfaction with the work of the clinical laboratory were the main factors affecting the work stress level of medical workers in the clinical laboratory of hospital during COVID-19

epidemic. **Conclusion:** The COVID-19 has caused great harm to the physical and mental health of the public. Medical staff are in the front line of prevention and control of the epidemic, so medical workers in hospital clinical laboratory exposed to a high level of stress at work. Laboratory leaders and hospital managers should take active and effective measures to reduce the working hours of the medical staff in clinical laboratory, optimize the arrangement of night shift and overtime working, strengthen the training of group and individual pressure management, reduce the work stress of the medical staff, improve the overall happiness of the medical staff in clinical laboratory, and stabilize the clinical laboratory team, improve the physical and mental health of medical workers in clinical laboratory.

**He et al. 2023.**

**Frontiers in Public Health, vol. 11.**

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**Keywords:** COVID-19; clinical laboratory; epidemic; medical workers; work stress.

**Evidence Level:** 4A

**Link:** <https://pubmed.ncbi.nlm.nih.gov/36817930/>

### **Working conditions and mental health functioning among young public sector employees**

**Background:** The associations between adverse working conditions and mental disorders are well established. However, associations between adverse working conditions and poor mental health functioning is a less explored area. This study examines these associations among younger public sector employees of the City of Helsinki, Finland. **Methods:** We use data from the Young Helsinki Health Study with a representative sample of the employees of the City of Helsinki, aged 19-39 years (n=4 217). Mental health functioning was measured with mental composite summary of the Short Form 36. Working conditions included factors related to both the psychosocial (job control and job demands) and the physical work environment (physical workload). To examine the associations, we used logistic regression models with adjustments for socio-demographics, other working conditions and health-related covariates. **Results:** After adjustment for sociodemographic characteristics, poor health, health behaviours and other occupational exposures, high job demands (OR=1.69; 95% CI=1.45-1.97) and low job control (OR=1.65; 95% CI=1.40-1.94) were associated with poor mental health functioning. High physical workload was not associated with the outcome (OR=0.87; 95% CI=0.72-1.05) after the adjustments. **Conclusions:** Adverse psychosocial working conditions were associated with mental health functioning, whereas physical working conditions were not. As impaired functioning is likely to cause health-related lost productivity and can lead to work disability, further research and interventions with a balanced approach focusing on both psychosocial working conditions and mental health functioning are recommended.

**Harkko et al. 2023.**

**Scandinavian Journal of Public Health, vol. 51, no. 1.**

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**Keywords:** Mental health functioning; SF-36; job control; job demand; mental component summary; mental disorders; municipal employees; physical workload; working conditions; younger employees.

**Evidence Level:** 4B

**Link:** <https://journals.sagepub.com/doi/full/10.1177/14034948211045458>

### **Beyond the hype: (how) are work regimes associated with job burnout?**

**Background:** Job burnout affects countless workers and constitutes a major issue in working life. Prevention strategies such as offering part-time options and shorter working weeks have been widely advocated to address this issue. However, the relationship between shorter work regimes and burnout risk has not yet been investigated across diverse working populations applying validated measures and frameworks for job burnout. Building on the most recent operationalisation of job burnout and the seminal job demands-resources theory, the purpose of the current study is to investigate whether shorter work regimes are associated with lower burnout risk and whether the job demands-resources explain this association. **Methods:** To this end, a heterogeneous sample of 1006 employees representative for age and gender completed the Burnout Assessment Tool (BAT) and Workplace Stressors Assessment Questionnaire (WSAQ). **Results:** Our mediation analyses yield a very small but significant indirect association between

work regimes and burnout risk through job demands, but no significant total or direct association between work regimes and burnout risk. **Conclusions:** Our result suggests that employees in shorter work regimes experience slightly fewer job demands, but are equally prone to developing burnout as their full-time counterparts. The latter finding raises concerns about the sustainability of burnout prevention that focuses on mere work regimes instead of the root causes of burnout.

**du Bois et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Burnout Assessment Tool; burnout; burnout prevention; job demands–resources theory; part-time work; work environment; work regime.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3331>

### **A study of psychometric instruments and constructs of work-related stress among seafarers: A qualitative approach**

**Background:** Due to unpredictable and demanding working circumstances and the significant potential for dangers and accidents, seafaring has been characterised as one of the world's riskiest and stressful vocations that lead to physical and mental health problems. However, very few instruments measure work-related stress, particularly in a seafaring context. None of the instruments are psychometrically sound. Therefore, a valid and reliable instrument to measure seafaring work-related stress is indispensable. This study aims to review work-related stress instruments and to explore the work-related stress construct among seafarers in Malaysia. **Methods:** This study uses a systematic review and semi-structured interviews across two phases. In Phase 1, we conducted a systematic review of several databases: Academic Search Ultimate, Emerald Journal Premier, Journal Storage (JSTOR), ScienceDirect, Springer Link, Taylor and Francis Online, and Wiley Online Library based on Preferred Reporting Items for Systematic Review and Meta-analyses (PRISMA). In 8975 articles, only 4 (four) studies used psychological instruments and 5 (five) studies used survey questionnaires to measure work-related stress. In Phase 2, we conducted a semi-structured interview with 25 (twenty-five) seafarers, online due to COVID-19 restrictions. **Results:** The semi-structured interview indicated 6 (six) themes, namely, physical stress, personal issues, social living onboard, technostress, work factors, and the effect of the COVID-19 pandemic. **Conclusion:** The present study has identified three psychometric instruments for measuring work-related stress among seafarers: The Psychological General Well-Being Index, Perceived Stress Scale, and Job Content Questionnaire. We also found psychometric elements in some of the instruments are questionable, such as theoretical basis, construct development, and inadequate internal consistency value. In addition, this study also found that work-related stress is a multidimensional construct that needs to be studied based on work contexts. The findings of this study can contribute to the body of knowledge of a work-related stress construct in a seafaring context and could help to inform policy makers in the maritime industry. This study suggests a psychological instrument to measure work-related stress among seafarers in future studies.

**Ali et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Seafarers; seafaring context; semi-structured interview; systematic review; work-related stress.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/4/2866>

### **Big five model personality traits and job burnout: A systematic literature review**

**Background:** Job burnout negatively contributes to individual well-being, enhancing public health costs due to turnover, absenteeism, and reduced job performance. Personality traits mainly explain why workers differ in experiencing burnout under the same stressful work conditions. The current systematic review was conducted with the PRISMA method and focused on the five-factor model to explain workers' burnout risk.

**Methods:** The databases used were Scopus, PubMed, ScienceDirect, and PsycINFO. Keywords used were: "Burnout," "Job burnout," "Work burnout," "Personality," and "Personality traits". **Results:** The initial search identified 3320 papers, from which double and non-focused studies were excluded. From the 207

full texts reviewed, the studies included in this review were 83 papers. The findings show that higher levels of neuroticism ( $r$  from 0.10 to 0.642;  $\beta$  from 0.16 to 0.587) and lower agreeableness ( $r$  from -0.12 to -0.353;  $\beta$  from -0.08 to -0.523), conscientiousness ( $r$  from -0.12 to -0.355;  $\beta$  from -0.09 to -0.300), extraversion ( $r$  from -0.034 to -0.33;  $\beta$  from -0.06 to -0.31), and openness ( $r$  from -0.18 to -0.237;  $\beta$  from -0.092 to -0.45) are associated with higher levels of burnout. **Conclusions:** The present review highlighted the relationship between personality traits and job burnout. Results showed that personality traits were closely related to workers' burnout risk. There is still much to explore and how future research on job burnout should account for the personality factors.

**Angelini 2023.**

**BMC Psychology, vol. 11.**

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**Keywords:** Big five; burnout; PRISMA; personality; personality traits; review; stress.

**Evidence Level:** 1A

**Link:** <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-023-01056-y>

### **Anxiety and depression levels and coping strategies among Polish healthcare workers during the COVID-19 pandemic**

**Background:** During the COVID-19 pandemic, medical staff were commonly exposed to stress, work under pressure, and long shifts, and may have experienced a fear of infecting loved ones or a fear for their own health. All of these factors may have increased the likelihood that healthcare workers will experience the symptoms of depression, anxiety, or other mental health disorders. **Methods:** In this cross-sectional study, a group of respondents was gathered from the employees of 78 hospitals in Poland. A questionnaire was completed electronically by 282 people, aged between 20 and 78 years. The study used the Hospital Anxiety and Depression Scale (HADS) and the MiniCOPE questionnaire to examine anxiety and depression symptoms, and coping strategies, respectively. **Results:** With age, the respondents declared fewer symptoms of anxiety and tended to have milder symptoms of depression. Participants with chronic illnesses, mood disorders, or anxiety disorders also reported higher levels of anxiety and depression symptoms. More than 20% of healthcare workers felt the need to consult with a psychologist. In the entire group of healthcare professionals surveyed, the most commonly used strategies for coping with stress were "denial", "psychoactive drug and alcohol use", and "cessation of activities", while the least used strategy was "acceptance". Given the most commonly used strategies in the surveyed group of healthcare professionals, they may be predictors for a deterioration in mental state in the long run. **Conclusions:** The obtained results also suggest that it is likely that pre-existing health problems had a greater impact on the mental health of medical staff during the COVID-19 pandemic than the profession itself. Therefore, taking care of the well-being and mental health of healthcare workers should be a priority for employers.

**Budzyńska et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** COVID-19; SARS-CoV-2; anxiety; coping strategies; depression symptoms; healthcare workers.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3319>

### **Employment and mental health of the Chinese elderly: Evidence from CHARLS 2018**

**Background:** Improving the mental health of the elderly has become an important strategic goal of healthy aging, among which employment is regarded as an essential factor for the mental health of the elderly.

**Methods:** This study adopted ordinary least squares, ordered logit, propensity score matching (PSM), and KHB mediation analysis to examine the influence and mechanism of employment on mental health in older Chinese adults using data from the China Health and Retirement Longitudinal Survey of 2018. **Results:** The study found that employment positively impacts older adults' mental health in China. This promotive effect of employment was significant for more senior people aged up to 80 years old with lower educational backgrounds and rural household registration. In addition, individual annual income, the financial support provided to children, and support received from children significantly mediate the realization of employment improving older people's mental health. **Conclusions:** Our findings are expected to provide

valuable insight into delayed retirement and active aging in China. Therefore, the government must play the role of support and advocacy to promote employment and safeguard the well-being of older adults. Cheng et al. 2023.

**International Journal of Environmental Research and Public Health**, vol. 20, no. 4.

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**Keywords:** Chinese older people; employment; financial support provided to children; individual annual income; mental health; support received from children.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/2791>

### **Understanding the mental health impacts of the COVID-19 pandemic on railway workers: Risks and protective factors**

**Background:** Railway workers have provided an essential service throughout the COVID-19 pandemic. This study explored the effects of COVID-19 on the mental well-being of railway workers (N = 906) in the United Kingdom during the third lockdown period. **Method:** The online survey included measures of COVID-19-related risk factors (perceived risk, stress, burnout, trauma) and protective factors (resilience coping, team resilience, general help seeking) associated with mental well-being. Responses were analyzed using multiple regression and content analysis. **Results:** COVID-19-related risk factors negatively predicted well-being. Higher scores on adaptive resilience, intentions to seek help, and team resilience significantly predicted higher mental well-being scores. Mental health decline throughout the COVID-19 pandemic and concerns for the future were reported. **Conclusions:** Building a resilient railway workforce requires attention to staff mental well-being and to ensuring that support systems are robust and accessible.

Cogan et al. 2023.

**Journal of Occupational and Environmental Medicine**, vol. 65, no. 2.

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**Keywords:** Mental health; COVID-19 pandemic; risks; railway workers.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/02000/Understanding\\_the\\_Mental\\_Health\\_Impacts\\_of\\_the\\_13.aspx](https://journals.lww.com/joem/Fulltext/2023/02000/Understanding_the_Mental_Health_Impacts_of_the_13.aspx)

### **Bullying, Harassment and Occupational violence**

*This month we explore the role of negative acts as a risk factor for work-related violence and the link between adverse social behaviour at work and health-related employment exit*

#### **Negative acts as risk factor for work-related violence and threats from clients towards employees: A follow-up study**

**Background:** Work-related violence and threats are major problems in many occupations, especially within the human service sector, with consequences at multiple levels, including reduced physical and mental health, increased absenteeism, and reduced organizational commitment. It is, therefore, crucial to identify risk factors for work-related violence and threats. However, only a few studies have examined whether negative acts at work increase the risk of work-related violence and threats from clients toward employees.

**Objective:** To examine the associations between exposure to negative acts towards employees from colleagues, clients, or a combination of both, and the risk of work-related violence and threats perpetrated by clients towards employees in a longitudinal study. **Methods:** Questionnaire data were collected in 2010, 2011, and 2015. In total, 5333 employees from special schools, psychiatric wards, eldercare, and the Prison and Probation Services participated in the first round of data collection in 2010. Negative acts were measured in 2010 using the Short Negative Acts Questionnaire, while work-related threats and violence were measured at all three-time points. The analyses were performed using multilevel logistic regression.

**Results:** Negative acts from clients and the combination of negative acts from both clients and colleagues were associated with later exposure to work-related violence and threats. The associations were observed

after one year, and work-related threats were still present after four years. **Conclusion and implications:** Negative acts are associated with an increased risk of work-related violence and threats perpetrated by clients toward employees. Organizations may reduce the risk of work-related violence and threats by preventing negative acts.

**Andersen et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Follow-up study; negative acts; work-related threat; work-related violence.

**Evidence Level:** 4A

**Link:** <https://www.mdpi.com/1660-4601/20/4/3358>

### **Adverse social behaviour at work and health-related employment exit: A prospective population-based four-wave survey**

**Background:** The level of evidence for various aspects of adverse social behaviour (ASB) at work as risk factors for exit from employment due to health problems or diseases is inconclusive. **Methods:** We obtained data from four consecutive surveys (2006/09/13/16) of the general population of Norway. Respondents who were interviewed in two consecutive surveys and employed at the first survey time point constituted the sample (n = 17 110 observations). We investigated associations of self-reported exposure to ASB (i.e. experiencing sexual harassment, bullying or violence/threats in the first survey) and health-related employment exit (i.e. individuals reporting exit from employment due to health problems or disease between two consecutive surveys) by means of mixed-effect logistic regression. **Results:** The prevalence of ASB and health-related employment exit was 10.8% (n = 1853) and 2.6% (n = 440), respectively. Adjusted for age, sex, level of education, occupation and weekly work hours, sexual harassment, bullying and violence/threats were associated with an increased risk of exit from employment. The odds ratios (ORs) for the association between exposure to any of the three aspects of ASB and employment exit was 1.78 [95% confidence interval (CI) 1.33-2.38]; the estimated corresponding population attributable risk was PAR% = 7.32 [95% CI 2.67-12.27]. Further adjustment of mental distress attenuated the observed association between exposure to any ASB and exit from employment (OR = 1.45 [95% CI 1.07-1.95], i.e. a reduction of 42% in the OR). **Conclusions:** ASB at work increases the risk of health-related exit from employment in the Norwegian workforce.

**Sterud et al. 2023.**

**European Journal of Public Health, vol. 33, no. 1.**

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**Keywords:** Social behaviour; employment exit; adverse social behaviour; health.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/eurpub/article/33/1/74/6881424?login=true>

### **Psychosocial Issues**

*This month we explore the relationship between job insecurity and psychological well-being, the role of interpersonal justice on resilience and job satisfaction in public servants and the factors related to employee turnover intentions. In Covid-19 related research we explore the relationship between telework experience and psychosocial working conditions*

### **The relationship between job insecurity and psychological well-being among Malaysian precarious workers: Work-life balance as a mediator**

**Background:** The emergence of coronavirus disease has impacted human lives, one of which is economic disruption. Many Malaysian organisations have devised various crisis-response techniques, such as downsizing, laying off, retrenching, and combining. As a result, the number of Malaysians working in precarious jobs, which are defined by unpredictable and uncertain situations, has indirectly increased, hence increasing job insecurity. Therefore, maintaining psychological health is essential to safeguarding the mental health of employees. In the current working landscape, job security and work-life balance have



commonly been deemed necessary in contributing to well-being among employees. As a result, the purpose of this study was to examine how work-life balance influences the relationship between job insecurity and psychological well-being among Malaysian precarious workers. It also fills a gap in the research by explaining the causal association between job insecurity and psychological well-being among precarious workers, as previous well-being studies have largely focused on employees with secure jobs.

**Methods:** There were 442 responders collected using purposive and snowball sampling methods, and they were requested to complete the Job Insecurity Scale (JIS), Work-Life Balance, and Well-Being Index Scale (WHO-5). **Results:** Job instability was negatively connected with work-life balance and psychological well-being. On the other hand, work-life balance was found to be positively related to psychological well-being. This supports the notion that work-life balance is a significant mediator in the relationship between job insecurity and psychological well-being. **Conclusions:** These findings emphasise that Malaysian precarious workers with job security could enhance their psychological well-being by achieving work-life balance.

**Abdul Jalil et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Job insecurity; precarious worker; psychological well-being; work-life balance.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/3/2758>

### **Resilience and job satisfaction: Effect of moderated mediation on the influence of interpersonal justice on the performance of public servants**

**Background:** The perception of interpersonal justice is one of the key resources for improving employees' performance intention. Elements such as employees' level of satisfaction or their self-perception of their ability to cope with problematic situations are key factors in this relationship according to the job demands-resources model. The objective of this study was to analyze how the perception of job satisfaction and the self-perception of resilience influence how interpersonal justice affects employee performance. **Methods:** A total of 315 public sector employees, who perform administrative and customer service tasks, have contributed to this study. **Results:** The results show that the relationship between interpersonal justice and intra-role performance is completely mediated by job satisfaction; however, when we include the moderating effect of resilience between interpersonal justice and job satisfaction, the influence of the former is reduced as the self-perception of resilience. **Conclusion:** This indicates that the positive effects of justice are reduced as workers' self-perception of resilience increases.

**Albalá-Genol et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Interpersonal justice; intra-role performance; job demands-resources model; job satisfaction; resilience.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/4/2957>

### **Meaningful work, happiness at work, and turnover intentions**

**Background:** It has been documented that there is a positive relationship between a worker's subjective well-being and productivity, and individuals who are happy in their work have a better attitude when performing activities: happier employees are more productive. Turnover intention, on the other hand, may arise from various factors rather than merely the need to increase a salary, as the traditional economic theory states. The fact that the work performed does not contribute to the worker's life purpose, that there might be a bad relationship with colleagues, or else might play a role in the search for a new job. This study aims to show the relevance of meaningful work in happiness at work and turnover intention. **Methods:** Data from 937 professionals, in 2019, in Mexico were analyzed. Regression analyses were used to assess the impact of meaningful work on happiness at work and turnover intention. **Results:** Results show that meaningful work, feeling appreciated by coworkers, and enjoyment of daily tasks significantly predict happiness at work. A logit model showed that having a job that contributes to people's life purpose, feeling appreciated, and enjoyment of daily tasks reduces turnover intention. The main contribution of the study is

to identify the importance of elements of purpose and meaning in the work context, contributing to economic theory. Limitations include the use of single items from a more extensive survey, which might diminish the validity and reliability of the constructs under scrutiny. **Conclusions:** Future directions point towards the need for more robust indicators of the variables of interest, but the findings emphasize the importance of research focused on the meaning workers attribute to their own work and the effects this attribution might have on their own wellbeing, organizational results, and productivity, including a return of investment (ROI) indicators.

**Charles-Leija et al. 2023.**

**International Journal of Environmental Research and Public Health**, vol. 20, no. 4.

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**Keywords:** Happiness at work; job satisfaction; meaningful work; purpose in life; turnover intention.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3565>

### **Factors impacting employee turnover intentions among professionals in Sri Lankan startups**

**Background:** Employee turnover is one of the topical issues worldwide. The impact of factors affecting employee turnover varies occasionally and new factors are considered. Many countries have examined various factors that affect employee turnover. The main objective of this research is to consider psychographics and socio-demographic factors in one study and analyse the impact on employee turnover.

**Methods:** A Probit regression model through the stepwise technique was used to analyse the collected data. Using ventures in Sri Lanka as a case study, this study demonstrates that employee turnover occurs in different stages and independent factors impact differently in each stage. The study population was professionals who have been a key part of Sri Lankan startups, which involved 230 respondents. Data analysis was performed through a forward stepwise technique through STATA. **Results:** The results verified that job satisfaction and co-worker support negatively impact employee turnover, whereas leader member exchange positively impacts employee turnover. This study also proved a significant positive relationship between male employees in their thirties and high employee turnover. **Conclusions:** This study's findings help to identify the areas management should focus on to minimise employee turnover to retain experienced and skilled employees.

**Kanchana et al. 2023.**

**PLoS One**, vol. 18, no. 2.

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**Keywords:** Employee turnover; Sri Lanka; startups.

**Evidence Level:** 5B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0281729>

### **Associations between telework experience and psychosocial working conditions during the COVID-19 pandemic: A cross-sectional analysis among white-collar workers in Sweden**

**Background:** The aim of the study are to determine to what extent pre-COVID-19 experience of telework was associated with perceived psychosocial working conditions (PWCs; job demands, social support, and influence at work) during the COVID-19 pandemic among white-collar workers in Sweden and to determine to what extent the association depends on demographic factors, organizational tenure, and amount of computer use. **Methods:** Cross-sectional questionnaire data from 603 white-collar workers were collected October to December 2020 in an industrial company. **Results:** In general, telework experience was not significantly associated with PWCs. Women who began teleworking because of COVID-19 reported more job demands than women not teleworking. For those who began teleworking because of COVID-19, managerial support increased with age. **Conclusions:** In general, telework experience was not associated with PWCs, but telework due to COVID-19 may have influenced PWCs differently depending on gender and age.

**Svensson et al. 2023.**

**Journal of Occupational and Environmental Medicine**, vol. 65, no. 2.

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**Keywords:** Telework; psychosocial working conditions; COVID-19; pandemic.

**Evidence Level:** 4B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/02000/Associations\\_Between\\_Telework\\_Experience\\_and.22.aspx](https://journals.lww.com/joem/Fulltext/2023/02000/Associations_Between_Telework_Experience_and.22.aspx)

## Fostering Work Participation

### Return to Work

*This month we explore a digital mental health intervention for workers' compensation claimants and the return-to-work experiences after stroke. In Covid-19 related research we explore a return to work program for disabled workers during the pandemic*

### Evaluating a digital mental health intervention (Wysa) for workers' compensation claimants: Pilot feasibility study

**Background:** This study examines the feasibility and acceptability of an AI-led digital mental health intervention in a Workers' Compensation (WC) program, Wysa for Return to Work. **Methods:** Self-reported demographic data and responses to psychosocial screening questions were analyzed alongside participants' app usage through which four key outcomes were measured: recruitment rate, onboarding rate, retention, and engagement. **Results:** The data demonstrated a high need for psychosocial interventions among injured workers, especially women, young adults, and those with high severity injuries. Those with more psychosocial risk factors had a higher rate of onboarding, retention, and engagement, and those with severe injuries had higher retention. **Conclusions:** Our study concluded that Wysa for Return to Work, the AI-led digital mental health intervention that delivers a recovery program using a digital conversational agent, is feasible and acceptable for a return-to-work population.

Iglesias et al. 2023.

**Journal of Occupation and Environmental Medicine, vol. 65, no. 2.**

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**Keywords:** Mental health; mental health intervention; Workers' Compensation; return to work.

**Evidence Level:** 5B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/02000/Evaluating\\_a\\_Digital\\_Mental\\_Health\\_Intervention.25.aspx](https://journals.lww.com/joem/Fulltext/2023/02000/Evaluating_a_Digital_Mental_Health_Intervention.25.aspx)

### Early opportunities to explore occupational identity change: Qualitative study of return-to-work experiences after stroke

**Background:** Rates of return-to-work after stroke are low, yet work is known to positively impact people's wellbeing and overall health outcomes. **Objective:** To understand return-to-work trajectories, barriers encountered, and resources that may be used to better support participants during early recovery and rehabilitation. **Participants:** The experiences of 31 participants (aged 25-76 years) who had or had not returned to work after stroke were explored. **Methods:** Interview data were analysed using reflexive thematic analysis methods within a broader realist research approach. **Results:** Participants identified an early need to explore a changed and changing occupational identity within a range of affirming environments, thereby ascertaining their return-to-work options early after stroke. The results articulate resources participants identified as most important for their occupational explorations. Theme 1 provides an overview of opportunities participants found helpful when exploring work options, while theme 2 explores fundamental principles for ensuring the provided opportunities were perceived as beneficial. Finally, theme 3 provides an overview of prioritized return-to-work service characteristics. **Conclusion:** The range and severity of impairments experienced by people following stroke are broad, and therefore their return-to-work needs are diverse. However, all participants, irrespective of impairment, highlighted the need for early opportunities to explore their changed and changing occupational identity.

**Martin et al. 2023.**

**Journal of Rehabilitation Medicine, vol. 55.**

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**Keywords:** Return-to-work; occupation; stroke; wellbeing; health outcomes.

**Evidence Level:** 5B

**Link:** <https://medicaljournalssweden.se/jrm/article/view/4825>

### **Analysis of the return to work program for disabled workers during the pandemic COVID-19 using the quality of life and work ability index: Cross-sectional study**

**Background:** Occupational accidents are rising, but there is little evidence on the outcomes of patients who received case management during Return to work (RTW) programs. This study examined the case management-based on RTW program features that improve the work ability index (WAI) and quality of life (QoL). **Methods:** This cross-sectional research involved 230 disabled workers due to an occupational injury in Indonesia, 154 participated in RTW, and 75 did not participate in RTW (non-RTW) during the COVID-19 pandemic. Sociodemographic and occupational factors were used to examine the RTW results. We used the Finnish Institute of Occupational Health's WAI questionnaires to measure the work ability index and World Health Organization Quality of Life Brief Version (WHOQOL-BREF) for quality of life. **Results:** The study found a statistically significant difference in working duration and preferred treatment for RTW between the groups ( $p$ -value = 0.039). Furthermore, the quality of life in the domain of environmental health and work ability index score also demonstrated a significant difference between the groups ( $p$ -value = 0.023 and 0.000, respectively). **Conclusions:** During the COVID-19 pandemic, this study found that the RTW program improved the quality of life and work abilities of disabled workers.

**Kurnianto et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Case management; disabled workers; quality of life; return to work; work ability index.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3094>

### **Presenteeism and Absenteeism**

*This month we explore the relationship between work-life interference and physician-certified sick leave and the predictive validity of the Danish psychosocial work environment questionnaire*

### **Work-life interference and physician-certified sick leave: A prospective study of a general working population**

**Background:** Work-life interference has been associated with adverse health outcomes. Here, we quantify the association between work-life interference and subsequent sick leave. **Methods:** Respondents from a randomly drawn cohort of the general working Norwegian population were interviewed in 2009, 2013 and/or 2016. Mixed-effects logistic regression models were used to assess prospective associations of self-reported work-life interference and risk of subsequent physician-certified sick leave of 1-16 days (low-level) and >16 days (high-level) in strata of men and women. To quantify the importance of work-life interference as risk factors for sick leave, we estimated the population attributable risk (PAR). **Results:** Both low- and high-level sick leave were most prevalent among women while the prevalence of work-life interference was similar between sexes. Risk of sick leave was higher among women reporting work-life interference sometimes or often in comparison with seldom or never {low- and high-level sick leave odds ratio (OR) = 1.21 [95% confidence interval (CI) = 1.07-1.37] and 1.30 (95% CI = 1.14-1.49), respectively}. The associations for high-level sick leave progressively increased with the level of work-life interference [highest OR = 1.44 (95% CI = 1.19-1.75)]. In men, there was no consistent higher risk of sick leave according to more frequent work-life interference [low- and high-level sick leave OR = 1.00 (95% CI = 0.87-1.14) and 0.98 (95% CI = 0.84-1.16), respectively], but the risk of high-level sick leave tended to be higher among men reporting work-life interference often (OR = 1.21, 95% CI = 0.98-1.50). Estimating PAR, 6.69% (95% CI = 1.52-11.74) of

low-level and 9.94% (95% CI = 4.22-15.45) of high-level sick leave could be attributed to work-life interference among women. **Conclusions:** Self-reported work-life interference was associated with a higher risk of sick leave, with the most consistent results among women.

**Marti et al. 2023.**

**European Journal of Public Health, vol. 33, no. 1.**

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**Keywords:** Sick leave; work-life interference; health.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/eurpub/article/33/1/69/6760676?login=true>

### **The predictive validity of the danish psychosocial work environment questionnaire with regard to onset of depressive disorders and long-term sickness absence**

**Background:** To investigate the predictive validity of 32 measures of the Danish Psychosocial Work Environment Questionnaire (DPQ) against two criteria variables: onset of depressive disorders and long-term sickness absence (LTSA). **Methods:** The DPQ was sent to 8958 employed individuals in 14 job groups of which 4340 responded (response rate: 48.4%). Depressive disorders were measured by self-report with a 6-month follow-up. LTSA was measured with a 1-year follow-up in a national register. We analyzed onset of depressive disorders at follow-up using logistic regression models, adjusted for age, sex, and job group, while excluding respondents with depressive disorders at baseline. We analyzed onset of LTSA with Cox regression models, adjusted for age, sex, and job group, while excluding respondents with previous LTSA. **Results:** The general pattern of the results followed our hypotheses as high job demands, poorly organized working conditions, poor relations to colleagues and superiors, and negative reactions to the work situation predicted onset of depressive disorders at follow-up and onset of LTSA during follow-up. Analyzing onset of depressive disorders and onset of LTSA, we found risk estimates that deviated from unity in most of the investigated associations. Overall, we found higher risk estimates when analyzing onset of depressive disorders compared with onset of LTSA. **Conclusions:** The analyses provide support for the predictive validity of most DPQ-measures. Results suggest that the DPQ constitutes a useful tool for identifying risk factors for depression and LTSA in the psychosocial work environment.

**Clausen et al. 2023.**

**Annals of Work Exposures and Health, vol. 67, no. 2.**

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**Keywords:** Job characteristics; occupational health; psychosocial work environment; questionnaire; stress; survey; validity; work characteristics; working conditions.

**Evidence Level:** 4B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9923041/>

## **Wellness Programs**

*This month we explore the embedding of workplace health promotion in medical surveillance, the use of machine learning analysis to develop action plans for employees' health promotion, and nudging strategies to improve food choices of healthcare workers*

### **Developing action plans based on machine learning analysis to prevent sick leave in a manufacturing plant**

**Background:** We aimed to develop action plans for employees' health promotion based on a machine learning model to predict sick leave at a Japanese manufacturing plant. **Methods:** A random forest model was developed to predict sick leave. We developed plans for workers' health promotion based on variable importance and partial dependence plots. **Results:** The model showed an area under the receiving operating characteristic curve of 0.882. The higher scores on the Brief Job Stress Questionnaire stress response, younger age, and certain departments were important predictors for sick leave due to mental disorders. We proposed plans to effectively use the Brief Job Stress Questionnaire and provide more

support for younger workers and managers of high-risk departments. **Conclusions:** We described a process of action plan development using a machine learning model, which may be beneficial for occupational health practitioners.

**Kurusu et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 2.**

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**Keywords:** Sick leave; health promotion; machine learning model; prevention.

**Evidence Level:** 5B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/02000/Developing\\_Action\\_Plans\\_Based\\_on\\_Machine\\_Learning.8.aspx](https://journals.lww.com/joem/Fulltext/2023/02000/Developing_Action_Plans_Based_on_Machine_Learning.8.aspx)

### **Workplace health promotion embedded in medical surveillance: The Italian way to total worker health program**

**Background:** In 2011, NIOSH launched the Total Worker Health (TWH) strategy based on integrating prevention and health promotion in the workplace. For several years now, in Italy, this integration has led to the creation of workplace health promotion embedded in medical surveillance (WHPEMS). WHPEMS projects, which are also implemented in small companies, focus each year on a new topic that emerges from the needs of workers. **Methods:** During their regular medical check-up in the workplace, workers are invited to fill in a questionnaire regarding the project topic, its outcome, and some related factors. Workers receive advice on how to improve their lifestyles and are referred to the National Health Service for any necessary tests or treatments. **Results:** Results collected over the past 12 years from more than 20,000 participants demonstrate that WHPEMS projects are economical, sustainable, and effective.

**Conclusions:** The creation of a network of occupational physicians who are involved in WHPEMS projects could help to improve the work culture, health, and safety of workers.

**Magnavita 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Effectiveness; occupational health; participatory approach; policy; practice; salutogenesis; sustainability; well-being.

**Evidence Level:** 4B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9968016/>

### **Nudging strategies to improve food choices of healthcare workers in the workplace cafeteria: A pragmatic field study**

**Background:** Dutch healthcare workers experience the highest workload and absenteeism rates compared to all other professions. This has been associated with a more unhealthy diet. Nudging strategies in the workplace have been shown to improve food choices. We studied the potential of a combination of evidence and practice-based nudging strategies; determined their feasibility in a real-life setting; and explored their effectiveness on healthier purchases over a two-month period in a hospital workplace cafeteria. **Methods:** We conducted an explorative, prospective field study. Based on information gathered through a literature search and a qualitative field study, we selected the potentially most effective and feasible nudges. These were subsequently implemented in a commercial workplace cafeteria of a Dutch academic medical centre. The selected nudging strategies included product placement, increasing the ratio of healthy to unhealthy product options, and providing nutritional information and motivational statements. Data on the products purchased was collected using photographs of the lunch trays of healthcare workers, with the products then labelled and their nutritional value calculated. Effects were evaluated after one and two months. Chi-square analyses were used to analyse differences over time.

**Results:** A total of 905 photographs of lunches were analysed (approximately 300 at each time point). The nudging strategies implemented resulted in a 41% increase in the purchase of whole-wheat products at the expense of non-whole-wheat products, between baseline and final measurement ( $p = 0.012$ ). The purchases of healthy and unhealthy bread fillings and beverages did not significantly change during the

study period. **Conclusion:** This explorative study showed that a combination of three nudging strategies partly improved healthy food choices for lunch in a Dutch healthcare setting. These results may help guide other professionals to implement nudging strategies to improve employee food choices. Future research should evaluate the effect over a longer period of time, thereby identifying the most effective combination of nudging strategies and investigate how these effect the health of hospital employees.

**Meeusen et al. 2023.**

**Clinical Nutrition ESPEN, vol. 53.**

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**Keywords:** Employee; hospital; nudging; nutrition; purchasing behaviour; workplace cafeteria.

**Evidence Level:** 5B

**Link:** [https://clinicalnutritionespen.com/article/S2405-4577\(22\)01409-7/fulltext](https://clinicalnutritionespen.com/article/S2405-4577(22)01409-7/fulltext)

## Shift Work

*This month we explore the association between shift work and reflux oesophagitis, risk of cardiovascular disease, alterations in pregnenolone and testosterone levels, and 24-h rhythms in urinary metabolome. We also explore the relationship between sleep and fatigue and psychiatric disorders in shift workers. In Covid-19 related research we explore the representations of night-shift work and mental health of public hospital healthcare workers*

### **The association between shift work and the incidence of reflux esophagitis in Korea: A cohort study**

**Background:** Shift work has adverse health effects such as diabetes, cardiovascular disease, sleep disturbance, depression, and breast cancer. Gastro-esophageal reflux disease (GERD) results in lesions such as reflux esophagitis (RE) and Barrett's esophagus. This study investigated the association between shift work and RE. **Methods:** A cohort study was conducted with 140,553 participants who were followed up at least once from 2012 to 2018. Type of working and shift types were collected using standardized questionnaires. Esophagogastroduodenoscopy (EGD) was performed by experienced endoscopists who were blinded to the aims of this study. **Results:** According to the Los Angeles classification, RE was categorized based on the extent of esophageal mucosal breaks. During the 469,217.2 person-years of follow-up, 35,185 participants developed incident cases of RE. The multivariable adjusted hazard ratio (95% confidence intervals) for incident cases comparing shift work to fixed day work was 1.09 (1.04-1.13). This association was more strongly observed in the younger age group (18-39 years old) and the female group. **Conclusions:** In conclusion, shift work was significantly associated with the incidence of RE. Particularly, the results were more significant in the younger and female groups.

**Nam et al. 2023.**

**Scientific Reports, vol. 13.**

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**Keywords:** Reflux esophagitis; Korea; shift work; GERD; lesions.

**Evidence Level:** 4B

**Link:** <https://www.nature.com/articles/s41598-023-29567-z>

### **Association between shift rotation and 30-year Framingham risk of cardiovascular disease among male workers in a medium-sized manufacturing factory**

**Background:** Rotating shift work is associated with an increased risk of cardiovascular disease (CVD).

**Methods:** This study compared the CVD risk score in 129 male line workers aged 22-49 years on different shifts in a medium-sized metal production factory from 2017 to 2020. We classified workers into four groups: permanent day shift, weekly rotation involving five consecutive nights, weekly rotation involving 3-4 consecutive nights, and monthly rotation involving two consecutive nights. We used the Framingham Risk Score to estimate the 30-yr risks of general and hard CVD (CVD risk estimates). We investigated the differences in CVD risk estimates between different groups using linear mixed models. **Results:** The average 30-yr Framingham CVD risk estimates of each group ranged from 17.5% to 31.2% for general CVD and from 10.5% to 20.5% for hard CVD. Workers on weekly rotations involving 3-5 consecutive nights had 5%-10% significantly higher CVD risk estimates than workers on the permanent day shift. Workers on weekly

rotations also had 6%-8% higher BMI-based CVD risk estimates than those on the monthly rotation involving two consecutive nights. **Conclusions:** While 24-h shift rotations are unavoidable, our findings underscored the potential CVD risk among workers on weekly rotations involving more consecutive nights.

**Hung et al. 2023.**

**Industrial Health, vol. 61, no. 1.**

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**Keywords:** Cardiovascular disease; Framingham Risk Score; medium-sized enterprise; night shift; shift rotation; shift work.

**Evidence Level:** 5A

**Link:** [https://www.istage.jst.go.jp/article/indhealth/61/1/61\\_2021-0278/article](https://www.istage.jst.go.jp/article/indhealth/61/1/61_2021-0278/article)

### **The effect of night shifts on 24-h rhythms in the urinary metabolome of police officers on a rotating work schedule**

**Background:** Shift workers face an increased risk of metabolic health problems, but the direct metabolic response to working nights is not fully understood. The aim of this study was to investigate the effect of night shifts on the 24-h urinary metabolome of shift workers. **Methods:** Eleven police officers working rotating shifts completed two 24-h laboratory visits that took place before and after they worked 7 consecutive nights. Sleep and meals were scheduled on a day schedule in the first visit and then on a night schedule (i.e., sleep and meals shifted by approximately 12 h) in the second visit. Targeted metabolomic analysis was performed on urine samples collected throughout these laboratory visits. Differential rhythmicity analysis was used to compare 24-h rhythms in urinary metabolites in both conditions. **Results:** Our results show that on the day schedule, 24-h rhythms are present in the urinary levels of the majority of metabolites, but that this is significantly reduced on the night schedule, partly due to loss of organic acid rhythmicity. Furthermore, misalignment of 24-h metabolite rhythms with the shifted behavioral cycles in the night schedule was observed in more than half of the metabolites that were rhythmic in both conditions (all acylcarnitines). These results show that working nights alters the daily rhythms of the urinary metabolome in rotating shift workers, with the most notable impact observed for acylcarnitines and organic acids, 2 metabolite classes involved in mitochondrial function. **Conclusions:** Further research is warranted to study how these changes relate to the increased metabolic risks associated with shift work.

**Kervezee et al. 2023.**

**Journal of Biological Rhythms, vol. 38, no. 1.**

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**Keywords:** Circadian rhythm; metabolomics; night shift work; occupational health; urine.

**Evidence Level:** 5B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9902972/>

### **Fatigue and sleep in airline cabin crew: A scoping review**

**Background:** Airline cabin crew operate in dynamic work environments that are continuously changing, from unpredictable shift work hours to travelling through multiple time zones. These likely impact cabin crews' overall health and may affect their performance on safety-related tasks. Research on this population has been limited; therefore, the aim was to summarise the relevant literature regarding fatigue, sleepiness and mental health of cabin crew. **Methods:** This review followed the PRISMA-ScR guidelines and conducted a systematic search utilising five databases. **Results:** The initial search identified 1223 studies, and through vigorous screening processes, 27 studies were selected for this review. Over half of the selected studies focused on international or long-haul flights, and a large proportion of the sample participants were women. Findings suggested a high prevalence of fatigue and sleepiness as well as unsatisfactory sleep quality with elevated susceptibility to sleep disorders. Factors identified with health outcomes were associated with flight operations (e.g., rosters) and individual differences (e.g., age and coping strategies). Regarding mental health, cabin crews are potentially at a greater risk for depression and anxiety compared to the general public. **Conclusions:** This review draws attention to the importance of using a standardised approach, such as validated measures for fair and consistent inferences.



**Wen et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Airline; fatigue; flight attendant; mental health; safety; shift work; sleepiness.

**Evidence Level:** 6A

**Link:** <https://www.mdpi.com/1660-4601/20/3/2652>

#### **Alterations in pregnenolone and testosterone levels in male shift workers**

**Background:** Steroid hormone levels are closely related to the endogenous circadian rhythm induced by sleep-wake and dark-light cycles. Shift work that disrupts the circadian rhythm may influence the levels of steroid hormones. The association between shift work and alterations in female sex steroid hormone levels has been studied, but little is known about testosterone and its precursor pregnenolone levels in male shift workers. **Methods:** The present study investigated serum pregnenolone and testosterone levels in a group of shift and daytime male workers. All participants were sampled at the beginning of the morning shift.

**Results:** Lower levels of serum pregnenolone and total testosterone were found in the shift workers compared to the daytime workers. Variations in pregnenolone levels may have consequences for well-being, and they might produce consequences for the levels of hormones downstream of the steroid hormone cascade, such as testosterone.

**Conclusions:** The low levels of testosterone found in shift workers demonstrate the perturbative effect of shift work on testosterone serum levels, which may be independent and/or related to pregnenolone synthesis.

**Bracci et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Biological clocks; chronobiology disorders; circadian rhythm; night shift work; night work; pregnenolone; shift work schedule; shift worker; testosterone; workplace.

**Evidence Level:** 5A

**Link:** <https://www.mdpi.com/1660-4601/20/4/3195>

#### **Evaluation of correlation between sleep and psychiatric disorders in a population of night shift workers: A pilot study**

**Background:** Insomnia is the perception of inadequate, insufficient or non-restorative sleep. Of all sleep-related disorders, insomnia is the most common. It is important to remember that the sleep-wake cycle also plays a central role in the genesis of anxiety and depression. The aim of our study is to evaluate the association between sleep disturbances and anxiety and depression in a group of workers of both sexes who perform night shift work. **Methods:** Information on sleep disorders was collected by administering the Insomnia Severity Index (ISI) questionnaire. Statistical analysis was conducted using the Chi-square test to assess whether there were any differences between sex for those who were healthy or who were diagnosed with psychiatric disorders. **Results:** The results showed that there was a good percentage of subjects with insomnia problems, impairing normal daily activities and promoting the onset of fatigue, daytime sleepiness, cognitive performance deficits and mood disorders. **Conclusion:** We highlighted how anxious and depressive anxiety disorders are more pronounced in people who suffer from altered sleep-wake rhythms. Further research in this direction could prove to be fundamental for understanding the genesis of the onset of other disorders as well.

**Cirrincione et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** GABA; anxiety; depression shift work; insomnia; night work; prevention; psychiatric disorders; stress; work.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3756>

### **Negative representations of night-shift work and mental health of public hospital healthcare workers in the COVID-19 era (Aladdin survey)**

**Background:** Many risk factors impact the health of hospital night workers, which can lead to physical and mental health disorders. During the recent period, night hospital workers have been particularly stressed. This study therefore aims to: (i) To document the prevalence of depression, anxiety, sleep disorders, and symptoms suggestive of post-traumatic stress disorder in night shift workers (NSHW) working in Parisian public hospitals after France's first COVID-19 wave ended; (ii) To estimate the effect of negative representations and perceptions of night shift work on these mental health outcomes. **Methods:** An observational cross-sectional online survey of NSHW (June to September 2020) in 39 public hospitals in Paris, France. Standard scales were used to measure mental health outcomes. Weighted multinomial logistic regression models supported the identification of predictors of depression (score > 10 on the Hospital Anxiety and Depression Scale, HADS, for depression), anxiety (score > 10 on the HADS for anxiety), severe insomnia (score > 21 on the Insomnia Severity Index, ISI) and symptoms suggestive of post-traumatic stress disorder (score > 36 on the Impact of Event Scale-Revised, IES-R). **Results:** The weighted prevalence rates [95% confidence interval] of depression, anxiety, severe insomnia, and symptoms of post-traumatic stress disorder were, respectively, 18.9% [16.5-21.2], 7.6% [6.0-9.1], 8.6% [6.9-10.2] and 11.7% [9.7-13.6]. After multiple adjustment, organizational changes in NSHW professional lives due to the COVID-19 pandemic (such as moving to another hospital department and modified schedules) and NSHW-perceived negative representations of night work were significantly associated with all studied mental health outcomes. **Conclusion:** Our findings confirm the importance of monitoring mental health and sleep quality among NSHW in Parisian public hospitals, even more during health crises. Multilevel interventions aiming at reducing negative representations and improving work organization are urgently needed to improve overall health of this frontline healthcare providers group.

**Cousin Cabrollet et al. 2023.**

**BMC Health Services Research, vol. 23.**

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**Keywords:** Health workers; mental health; occupational health; shift work.

**Evidence Level:** 4B

**Link:** <https://bmchealthservres.biomedcentral.com/articles/10.1186/s12913-023-09101-7>

### **Management and Leadership**

#### **Linking superior developmental feedback with employee job satisfaction? A conservation of resources perspective**

**Background:** Previous studies have shown that superior developmental feedback (SDF) has a mixed impact on employees' long-term development, but its effect on job satisfaction (JS) has been generally ignored. Therefore, this study proposes and tests a model based on the conservation of resources theory to shed light on how feedback from a leader or superior may increase employees' JS. **Methods:** In this study, researchers analyzed responses from a two-stage questionnaire distributed to 296 employees to test the proposed hypotheses using MPlus 7.4 software. **Results:** The results show that employee resilience (ER) partially mediates the link between SDF and JS. The results also indicate that the relationship between SDF and ER is strengthened by job complexity (JC). **Conclusions:** The results provide novel avenues for further study and practice in the areas of SDF and JS.

**Li et al. 2023.**

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**Keywords:** Employee resilience; job complexity; job satisfaction; superior developmental feedback.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3211>

## Work Ability

*This month we explore sickness absence among injured working-aged pedestrians and the factors affecting disability disclosure in employment settings for individuals with intellectual disability*

### **Diagnosis-specific sickness absence among injured working-aged pedestrians: A sequence analysis**

**Background:** The knowledge about the long-term consequences in terms of sickness absence (SA) among pedestrians injured in a traffic-related accident, including falls, is scarce. Therefore, the aim was to explore diagnosis-specific patterns of SA during a four-year period and their association with different sociodemographic and occupational factors among all individuals of working ages who were injured as a pedestrian. **Methods:** A nationwide register-based study, including all individuals aged 20-59 and living in Sweden, who in 2014-2016 had in- or specialized outpatient healthcare after a new traffic-related accident as a pedestrian. Diagnosis-specific SA (> 14 days) was assessed weekly from one year before the accident up until three years after the accident. Sequence analysis was used to identify patterns (sequences) of SA, and cluster analysis to form clusters of individuals with similar sequences. Odds ratios (ORs) with 95% confidence intervals (CIs) for association of the different factors and cluster memberships were estimated by multinomial logistic regression. **Results:** In total, 11,432 pedestrians received healthcare due to a traffic-related accident. Eight clusters of SA patterns were identified. The largest cluster was characterized by no SA, three clusters had different SA patterns due to injury diagnoses (immediate, episodic, and later). One cluster had SA both due to injury and other diagnoses. Two clusters had SA due to other diagnoses (short-term and long-term) and one cluster mainly consisted of individuals with disability pension (DP). Compared to the cluster "No SA", all other clusters were associated with older age, no university education, having been hospitalized, and working in health and social care. The clusters "Immediate SA", "Episodic SA" and "Both SA due to injury and other diagnoses" were also associated with higher odds of pedestrians who sustained a fracture. **Conclusions:** This nationwide study of the working-aged pedestrians observed diverging patterns of SA after their accident. The largest cluster of pedestrians had no SA, and the other seven clusters had different patterns of SA in terms of diagnosis (injury and other diagnoses) and timing of SA. Differences were found between all clusters regarding sociodemographic and occupational factors. This information can contribute to the understanding of long-term consequences of road traffic accidents.

**Kjeldgård et al. 2023.**

**BMC Public Health, vol. 23.**

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**Keywords:** Disability pension; fall accidents; pedestrians; population-based; sick leave; traffic injury.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-023-15259-w>

### **Factors affecting disability disclosure in employment setting for individuals with intellectual disability**

**Background:** This study aimed to increase the understanding of this disability disclosure of people with intellectual disability by examining the determinants of their disclosure at work. **Methods:** For this aim, six individuals with intellectual disability were interviewed, and consensual qualitative research (CQR) was used to identify factors related to their disability disclosure. **Results:** As results, the factors that affect the disability disclosure were largely divided into personal variables and environmental variables, and various factors including confidence, disability severity, employment type, employers, co-workers, and organizational culture were mentioned. **Conclusions:** The results of this study can help people have better understanding about disability disclosure in employment settings. We also discuss how vocational education for individuals with intellectual disability should be offered.

**Ra 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Consensual qualitative research; disability disclosure; intellectual disability; vocational education.

**Evidence Level:** 5B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9959408/>

## Working hours

### Do changes in working hours increase stress in Japanese white-collar workers?

**Background:** High stress at work is associated with negative health outcomes for workers, making stress prevention a critical challenge. Overtime work is an influential stress factor. This study, therefore, aimed to longitudinally evaluate how stress increased depending on changes in working hours among Japanese white-collar workers. **Methods:** We targeted 3,874 participants who were full-time workers and were recognized as having low stress in a web-based cohort in 2018 (T1) and 2019 (T2). We performed univariate and multivariate logistic regression with the following variables: years of experience, years of education, medical background, income, and roommates. **Results:** We observed a greater increase in stress among female who worked 41-50 h per week at T1 and more than 50 hours per week at T2, and those who worked more than 50 h per week at T1 and 35-40/41-50 h per week at T2, compared to those who worked 41-50 h per week both at T1 and T2, with odds ratios (ORs) and 95% confidence intervals (95% CI) of OR = 2.09, 95% CI (1.18, 3.70); OR =1.86, 95% CI (1.14, 3.03), respectively. However, no association between change in working hours and stress was found among male. **Discussion:** These results show that reducing stress requires decreasing working hours as well as identifying factors that lead to high stress.

**Ozawa et al. 2023.**

**Frontiers in Public Health, vol. 11.**

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**Keywords:** Stress; working hours; white-collar workers; overtime.

**Evidence Level:** 4B

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1076024/full>

## Adapting to the Future of Work

### Aging Workforce

*This month we explore the role of informal sector employment and health outcomes in older workers and the role of older worker-orientated human resource practices on wellbeing and leave intentions*

### Informal sector employment and the health outcomes of older workers in India

**Background:** A large proportion of the older population in India constitutes an undeniable share of workforce after the retirement age. This stresses the need to understand the implications of working at older ages on health outcomes. **Methods:** The main objective of this study is to examine the variations in health outcomes by formal/informal sector of employment of older workers using the first wave of the Longitudinal Ageing Study in India. **Results:** Using binary logistic regression models, the results of this study affirm that type of work does play a significant role in determining health outcomes even after controlling socio-economic, demographic, life-style behaviour, childhood health and work characteristics. The risk of Poor Cognitive Functioning (PCF) is high among informal workers, while formal workers suffer greatly from Chronic Health Conditions (CHC) and Functional Limitations (FL). Moreover, the risk of PCF and/or FL among formal workers increases with the increase in risk of CHC. **Conclusions:** Therefore, the present research study underscores the relevance of policies focusing on providing health and healthcare benefits by respective economic activity and socio-economic position of older workers.

**Chowdhury et al. 2023.**

**PLoS One, vol. 18, no. 2.**

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**Keywords:** Health outcomes; workforce; older workers; India.

**Evidence Level:** 4B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0266576>

### **Older worker-orientated human resource practices, wellbeing and leave intentions: A conservation of resources approach for ageing workforces**

**Background:** At a time where there are ageing populations, global shortages of skilled labour, and migration pathways impacted by the COVID-19 pandemic, retaining older workers presents as a vital strategic initiative for organizations globally. This study examines the role of Human Resource Practices (HRPs), which are oriented towards accommodating the needs of an ageing workforce in mitigating psychological distress and turnover intentions. **Methods:** The study collected self-reported survey data from 300 Australian employees over the age of 45, over two time points. Using structural equation modelling, the study analyzed the extent to which Older Worker-oriented Human Resources Practices (OW-HRPs) translate into employee psychological health and retention within organizations, through the mediation of ageism and work-life conflict. **Results:** The results support our hypothesis that OW-HRPs are associated with lower ageism, better work-life balance; and in combination these reduce psychological distress and help retain older workers in the workforce. **Conclusions:** We conclude that OW-HRPs can foster work environments conducive to older worker wellbeing, supporting the retention of talent and maintaining effectiveness, in the face of substantial labour supply challenges brought on by the COVID-19 pandemic and an ageing population.

**Farr-Wharton et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 3.**

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**Keywords:** Age-discrimination; ageism; mature-age human resource practices; mental health; older workers; turnover intentions; work-family conflict.

**Evidence Level:** 5A

**Link:** <https://www.mdpi.com/1660-4601/20/3/2725>

### **Work Environment**

*This month we explore issues associated with working from home, including the associated psychological and physical strain, work-life balance, depression/anxiety and emotional wellbeing and, the role of leadership factors on work-related stress and musculoskeletal pain. We also explored the role of job insecurity on quality of work life*

### **Job insecurity and company behavior: Influence of fear of job loss on individual and work environment factors**

**Background:** The purpose of this research is to analyze to what extent job insecurity is related to different factors related with quality of work life. Specifically, it refers to the individual (work-family balance, job satisfaction, labor and professional development, motivation at work, and well-being at work) and work environment (conditions and environment and safety and health at work) dimensions of the construct.

**Methods:** The sample group consisted of 842 workers (375 men and 467 women), aged between 18 and 68 years, from Bahía de Banderas, Mexico. Pearson correlation coefficients between the different variables were carried out, as well as MANOVA and ANOVA analyses and a linear regression analysis. **Results:** The results showed that workers with low job insecurity obtained higher scores in work-family balance, job satisfaction, labor and professional development, motivation at work, well-being at work, conditions and environment, and safety and health at work, in relation to workers with moderate and high insecurity. The regression analysis confirmed that individual factors explain 24% and environmental factors 15% of job insecurity. **Conclusions:** This article makes an approximation to the phenomenon of job insecurity in the Mexican context, where the relationship of this variable with quality of work life is verified.

**Castro-Castañeda et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Company behavior; job insecurity; mental health; precarious work; work environment; work-life balance.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3586>

### **TElewoRk-RelAted Stress (TERRA), psychological and physical strain of working from home during the COVID-19 Pandemic: A systematic review**

**Background:** Many workers shifted to working from home due to the COVID-19 pandemic. This review aims to investigate if this sudden change caused an increase in TElewoRk-RelAted stress (TERRA) which is defined as physical and mental stress caused by telework. **Methods:** A systematic review using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines was performed of three scientific databases (PubMed, ISI Web of Knowledge, and Scopus), which also included a quality assessment. Articles measuring stress, psychological or physical, in remote workers, published from December 2019 through August 2021 were included in the review. Results were extracted by reporting: authors, country, study design, type of workers, sample, questionnaires and measurements, and outcomes. Data were synthesized quantitatively for country, type of workers, and outcomes. **Results:** Out of the 518 articles found in the three databases, 19 articles were included in the systematic review (10,012 participants overall), and 78.9% of these highlighted an increase in TERRA levels in remote workers. Among 85.7% of the studies considering gender as a variable, TERRA levels were higher in female workers. Twelve (63.2%) of the studies investigated psychological well-being, two (10.5%) focused on the physical well-being of remote workers, three (15.8%) investigated both, and two studies had other outcomes (10.5%). **Conclusions:** Considering the redefinition of workplaces dictated by the COVID-19 pandemic, this review highlights the emerging issue of remote work and the use of technology in working from home, emphasizing a rapidly growing occupational health problem. Remote workers need to be provided with emotional and technical support to prevent TERRA in remote workers.

**Gualano et al. 2023.**

**Workplace Health and Safety, vol. 71, no. 2.**

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**Keywords:** COVID-19; job stress; occupational health; remote work; technostress; telework; working from home.

**Evidence Level:** 1A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9672980/>

### **Working from home, work-life balance, and depression/anxiety among korean workers in the COVID-19 pandemic period: A mediation analysis**

**Background:** We aimed to investigate the association between working from home (WFH), depression/anxiety, and work-family conflict (WFC) among Korean workers during the COVID-19 pandemic. **Methods:** We surveyed a total of 1074 workers online. Depression and anxiety were measured using the Centre for Epidemiologic Studies Depression Scale (CES-D) and Beck Anxiety Inventory (BAI). Mediating effects of WFC on the relationship between WFH and depression/anxiety were examined. **Results:** The WFH group had higher depression and anxiety scores than the daily commuting group. As WFC increased, the CES-D and BAI scores also increased. A possible mediating effect of WFC on the relationship between WFH and high CES-D and BAI scores was found. **Conclusion:** We observed a significant difference in depression/anxiety between WFH and daily commute workers, which was mediated by WFC, especially for young, child-growing, and precarious workers.

**Kim et al. 2023.**

**Journal of Occupational and Environmental Medicine, vol. 65, no. 2.**

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**Keywords:** Working from home; work-life balance; depression; anxiety; Korea; workers; COVID-19.

**Evidence Level:** 5B

**Link:**

[https://journals.lww.com/joem/Fulltext/2023/02000/Working\\_From\\_Home\\_Work\\_Life\\_Balance\\_and.2.aspx](https://journals.lww.com/joem/Fulltext/2023/02000/Working_From_Home_Work_Life_Balance_and.2.aspx)

### **Employees working from home: Do leadership factors influence work-related stress and musculoskeletal pain?**

**Background:** In March 2020, the COVID-19 pandemic necessitated a rapid public health response, which included mandatory working from home (WFH) for many employees. However, given the rapid change from traditional ways of working, evidence is limited on the role of leaders, managers, and supervisors in supporting their employees' physical and mental health whilst WFH. The study aimed to examine the impact of leaders through their management of psychosocial working conditions on employees' stress and musculoskeletal pain (MSP) levels whilst WFH. **Methods:** Data from 965 participants (230 males, 729 females, 6 other) involved in the Employees Working from Home (EWFH) study, collected in October 2020, and April and November 2021, were analysed. Generalised mixed-effect models were used to test relationships between psychosocial leadership factors and employees' stress and MSP levels. **Results:** Higher quantitative demands are associated with increased stress (B: 0.289, 95%CI 0.245, 0.333), presence of MSP (OR: 2.397, 95%CI 1.809, 3.177), and increased MSP levels (RR: 1.09, 95%CI 1.04, 1.14). Higher levels of vertical trust decreased stress (B: -0.094, 95%CI -0.135, -0.052) and presence of MSP (OR: 0.729, 95%CI 0.557, 0.954). Role clarity decreased stress (B: -0.055, 95%CI -0.104, -0.007) and levels of MSP (RR: 0.93, 95%CI 0.89, 0.96). Working with interruptions was associated with increased stress (B: 0.199, 95%CI 0.119, 0.280) and MSP (OR: 1.834, 95%CI 1.094, 3.072). **Conclusion:** Leaders will need to take a broad view of job design, taking into account physical and psychosocial aspects of work, to effectively support employees WFH and manage stress and MSP.

**Oakman et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** Leadership; musculoskeletal pain; psychosocial; risk factors; stress; working from home.

**Evidence Level:** 4A

**Link:** <https://www.mdpi.com/1660-4601/20/4/3046>

### **Working from home and emotional well-being during major daily activities**

**Background:** The effect of WFH (working from home) on the quality of life of U.S. workers is not well understood. We analyze the association between WFH and overall emotional well-being during major daily activities. **Methods:** Using data from the 2021 Well-Being Module of the American Time Use Survey, we conduct a principal component analysis to construct a measure of overall emotional well-being and jointly estimate the association between WFH and overall emotional well-being scores in a seemingly unrelated regression framework. **Results:** Our results show that compared to workers who worked outside the home, those who WFH had higher emotional well-being scores while working and eating away from home. However, no statistically significant differences were found for home-based daily activities such as relaxing, leisure, food preparation, and eating at home. **Conclusions:** These findings inform how WFH may shape the quality of a life day.

**Restrepo et al. 2023.**

**International Journal of Environmental Research and Public Health, vol. 20, no. 4.**

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**Keywords:** American Time Use Survey; Well-Being Module; well-being; work away from home; work from home.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/20/4/3616>