



This Workplace Research Monthly includes the latest peer-reviewed articles, reports and evidence on a range of workplace health and safety, prevention, recovery at work and return to work topics that were published in April 2024 only.

## Contents

- Description of Evidence Levels Definitions Used in this Review.....2
- Enabling Healthy and Safe Workplaces.....3
  - Health and Wellbeing.....3
  - Work Health and Safety .....8
  - Chronic Health Issues..... 11
  - Occupational Exposure..... 13
  - Sedentary Practices ..... 17
  - Physical Activity ..... 19
  - Musculoskeletal Health..... 21
- Guiding and Supporting Mental Health and Wellbeing..... 22
  - Mental Health..... 22
  - Bullying, Harassment and Occupational Violence ..... 26
  - Psychosocial Issues ..... 27
- Fostering Work Participation..... 31
  - Return to Work ..... 31
  - Presenteeism and Absenteeism ..... 32
  - Wellness Programs ..... 35
  - Organisational Issues ..... 36
  - Job Design ..... 37
  - Shift Work..... 37
  - Management and Leadership..... 40
  - Work Ability..... 41
- Adapting to the Future of Work ..... 43
  - Aging Workforce..... 43
  - Technology ..... 44
  - Work Environment..... 46

## 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

## Know anyone who would like to subscribe?

Share this with colleagues and professional networks who are interested in receiving the latest WHS research from around the world delivered to their inbox monthly.

[Subscribe now >](#)

## Enabling Healthy and Safe Workplaces

### Health and Wellbeing

*This month we explore health and wellbeing issues associated with self-employment, the help-seeking intentions of construction workers, the correlation among job-induced stress, overall well-being, and cardiovascular risk and the waistline to thigh circumference ratio as a predictor of metabolic-associated fatty liver disease. We also examine issues associated with premenstrual syndrome, adult glioma, precarious employment and alcohol-related morbidity, work-related physical strain and development of joint inflammation, coronary heart disease and workplace wellbeing facilities for people of reproductive age.*

### **Flourish, fight or flight: Health in self-employment over time-associations with individual and business resources**

**Background:** Using COR theory to study developments of health and other key resources in self-employed workers in Sweden over 6 years, this study: (1) explored whether the heterogeneous group of self-employed workers contained subgroups with different health trajectories, (2) investigated whether these were more typical for certain individuals (with respect to age, gender, sector, education, employment status), and (3) compared the different health trajectories regarding resource development in mental well-being, business resources, employment status, work ability. **Method:** The study used data from the Swedish longitudinal occupational survey of health (SLOSH) and included participants working as self-employed or combiner (N = 2642). **Result:** Five trajectories were identified with latent class growth curve model analysis (LCGM). Two health trajectories with (1) very good, respective (2) good stable health (together comprising 78.5% of the participants), (3) one with moderate stable health (14.8%), (4) one with a U-shaped form (1.9%), and (5) one with low, slightly increasing health (4.7%). The first two trajectories flourish: they maintained or increased in all key resources and were more likely to remain self-employed. Trajectories three and five consist of those who fight to maintain or increase their resources. Workers in the U-shaped health trajectory show signs of fight and flight after loss in health and other key resources. **Conclusions:** Studying subgroups with different resource developments over time was suitable to understand heterogeneity in self-employed workers. It also helped to identify vulnerable groups that may benefit from interventions to preserve their resources.

**Bernhard-Oettel et al. 2024**

**International Archives of Occupational and Environmental Health, vol. 97, no. 3.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Business success; longitudinal study; self-employment; self-rated health; Sweden.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00420-023-02041-z>

### **Help-seeking intentions of UK construction workers: A cross-sectional study**

**Background:** In response to the high rates of poor mental health in the construction industry, numerous workplace interventions have been designed to address the known and suspected risk factors to employee mental health and well-being. A key challenge of these strategies is low engagement in support services. The goals of this research were to investigate the help-seeking intentions of employees in the construction industry, explore levels of mental well-being in this population and provide insight into employee engagement with mental health support strategies. **Methods:** Employees from two UK construction companies completed an online cross-sectional questionnaire (n = 119), designed to measure help-seeking intentions, levels of mental well-being and worker attitudes towards workplace mental health support strategies. **Results:** One-third of the sample reported experiencing an episode of mental health difficulties in the past 6 months. Employees reported a greater preference for seeking support from informal versus formal help sources. Participants were most likely to seek help from a partner and least likely to seek help from a Mental Health First Aider/ Champion. The study also showed some association between help-seeking intention and age of employees. **Conclusions:** Given the poor levels of mental well-being in this population, it is essential that adequate workplace support is provided. Whilst formal help sources are important for this population, our study highlights the potential benefits of informal help sources to

support employees. Future interventions may therefore wish to consider developing tailored, informal workplace support networks and programmes.

**Duncan et al. 2024.**

**Occupational Medicine, vol. 74, no. 2.**

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

**Keywords:** Mental health; construction industry.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/occmed/article/74/2/172/7601797?login=false>

### **Correlation among job-induced stress, overall well-being, and cardiovascular risk in Italian workers of logistics and distribution**

**Background:** Work-related stress is an occupational risk that has been linked to the development of cardiovascular disease (CVD). While previous studies have explored this association in various work contexts, none have focused specifically on logistics and distribution personnel. These workers may be exposed to significant job stress, which potentially increases the risk of CVD. **Methods:** In this study, we aimed to examine the relationship between work-related stress and cardiovascular risk in a sample of 413 healthy workers of a logistics and distribution company. To assess work-related stress and cardiovascular risk, we used the organisational well-being questionnaire proposed by the Italian National Anti-Corruption Authority, the Framingham Heart Study General Cardiovascular Disease (CVD) Risk Prediction Score and the WHO General Wellbeing Index (WHO-5). **Results:** Our results revealed that individuals with low job support had a significantly higher CVD risk score and lower well-being index than those reporting high job support. Furthermore, workers with high-stress tasks showed higher well-being index scores than those with passive tasks. Approximately 58% of the subjects were classified as low CVD risk (CVD risk <10%), approximately 31% were classified as moderate risk (CVD risk between 10 and 20%) and 11% were considered high risk (CVD risk >20%). The overall median CVD risk for the population was moderate (6.9%), with individual scores ranging from 1 to 58%. **Discussion:** Further analyses confirmed the protective effect of work support, also identifying physical inactivity, regular alcohol consumption and low educational level as factors contributing to an increased risk of CVD. Interestingly, factors such as job control and work support demonstrated a positive impact on psychological well-being. These results emphasise the importance of intervention strategies aimed at promoting health in the workplace. By addressing these combined factors, organisations can effectively reduce the risk of CVD and improve the general well-being of their workforce.

**Fruscione et al. 2024.**

**Frontiers in Public Health, vol. 9.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiovascular prevention; job; occupational health; occupational medicine and hygiene; prevention; risk.

**Evidence Level:** 5B

**Link:** <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2024.1358212/full>

### **Waistline to thigh circumference ratio as a predictor of MAFLD: A health care worker study with 2-year follow-up**

**Background:** This study aimed to determine whether the waist-to-thigh ratio (WTTR) is associated with the incidence of metabolic-associated fatty liver disease (MAFLD) in health care workers. **Methods:** There were 4517 health care workers with baseline data and results from 2 follow-up examinations. We divided the subjects into 3 groups according to baseline WTTR and used the Cox hazard regression model to estimate MAFLD risk. **Results:** The WTTRs were categorized by tertiles at baseline using the values 1.58 and 1.66. Patients with higher WTTR tended to have significantly greater values for the following factors, body mass index (BMI), fasting blood glucose (FPG), systolic blood pressure, diastolic blood pressure, total cholesterol (TC), triglycerides (TG), low-density lipoprotein-cholesterol (LDL-C) and neck circumference. The incidence of MAFLD significantly increased with increasing WTTR tertiles (5.74%, 12.75% and 22.25% for the first, second and third tertiles, respectively,  $P < 0.05$  for trend). Kaplan-Meier(K-M) survival analysis revealed a significant tendency towards increased MAFLD risk with increasing WTTR tertile. In the fully adjusted

model, the hazard ratios (95% CIs) for MAFLD in the second, third WTR tertiles compared with the first quartile were 2.17(1.58,2.98), 3.63(2.70,4.89), respectively, third neck circumference tertiles compared with the first quartile were 2.84(1.89,4.25), 8.95(6.00,13.35), respectively. Compared with those of individuals with a BMI > 23 kg/m<sup>2</sup>, the associations between WTR and MAFLD incidence were more pronounced in subjects with a BMI < 23 kg/m<sup>2</sup>. Similarly, the difference in neck circumference was more pronounced in these patients with a BMI < 23 kg/m<sup>2</sup>. **Conclusions:** Our results revealed that the WTR is an independent risk factor for MAFLD, and there was a dose–response relationship between the WTR and MAFLD risk. The neck circumference was significantly different in subjects with a BMI < 23 kg/m<sup>2</sup>. This approach provides a new way to predict the incidence rate of MAFLD.

**Hao et al. 2024.**

**BMC Gastroenterology, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Body composition analysis; clinical characteristics; cox proportional hazard regression; functional community; health check; incident; occupational groups; risk; subgroup analysis; ultrasonography; uneven fat distribution.

**Evidence Level:** 4B

**Link:** <https://bmcgastroenterol.biomedcentral.com/articles/10.1186/s12876-024-03229-4>

### **Changes in menstrual symptoms and work productivity after checklist-based education for premenstrual syndrome: An 8-month follow-up of a single-arm study in Japan**

**Background:** Premenstrual syndrome (PMS) is prevalent among women of reproductive age, but most do not seek medical advice. We hypothesized that building PMS awareness could promote medical help-seeking for PMS and thus reduce menstrual symptoms and improve work productivity. **Methods:** In January 2020, women aged between 25 and 44 years, having paid work, and not currently consulting with an obstetrics and gynecology doctor (n = 3090) responded to the Menstrual Distress Questionnaire (MDQ), the Premenstrual Symptoms screening tool, and the World Health Organisation Health and Work Performance Questionnaire. In addition, they received checklist-based online education for PMS. Of 3090 participants, 2487 (80.5%) participated in a follow-up survey in September 2020. We conducted multiple logistic regression analyses and text analyses to explore factors that encouraged and discouraged medical help-seeking. We also evaluated changes in menstrual symptoms and work productivity, using generalized estimating equations with interactions between the severity of PMS, help-seeking, and time. **Results:** During the follow-up period, 4.9% of the participants (121/2487) sought medical help. Those having high annual income (adjusted odds ratio [aOR] = 2.07, 95% confidence interval [CI]: 1.21-3.53) and moderate-to-severe PMS (aOR = 2.27, 95% CI: 1.49-3.46) were more likely to have sought medical help. Those who did not seek medical help despite their moderate-to-severe PMS reported normalization of their symptoms (36%), time constraints (33%), and other reasons for not seeking medical help. Participants with moderate-to-severe PMS who had sought medical help showed a significant improvement of - 8.44 points (95% CI: - 14.73 to - 2.15 points) in intermenstrual MDQ scores during the follow-up period. However, there were no significant improvements in premenstrual and menstrual MDQ scores or absolute presenteeism.

**Conclusion:** Medical help-seeking alleviated intermenstrual symptoms in women with moderate-to-severe PMS, but only a small proportion of them sought medical help after PMS education. Further research should be conducted to benefit the majority of women who are reluctant to seek medical help, including the provision of self-care information.

**Trial registration:** UMIN Clinical Trials Registry number: UMIN000038917.

**Ozeki et al. 2024.**

**BMC Womens Health, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Educational intervention; medical help-seeking; premenstrual syndrome; work productivity.

**Evidence Level:** 3B

**Link:** <https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-024-03067-2>



### **Incidence trends of adult glioma in Norway and its association with occupation and education: A registry-based cohort study**

**Background:** Gliomas constitute 75 % of all malignant primary adult brain tumors. Being the most frequent histologic subtype, glioblastomas (GBMs) cause substantial morbidity and mortality worldwide and the Nordic countries have some of the highest incidence rates in the world. Therefore, we investigated the incidence of gliomas in Norway including time trends and associations with education and occupation.

**Methods:** We retrieved individual-level data from databases at Statistics Norway containing information on education and occupation and linked them to data on adult glioma patients diagnosed during 2004-21 from the Cancer Registry of Norway. Age-standardized incidence rates (ASIRs) (World Standard Population) were calculated and analyzed with regards to sex and morphology. Poisson regression was used to test for time-trends, and to analyze the associations between education, occupation and glioma incidence, adjusted for age, sex, and calendar year. Estimates were reported as incidence rate ratios (IRRs) with 95 % confidence intervals (CIs). **Results:** The overall ASIR of gliomas (per 100,000 person-years) was 7.1 (95 % CI 6.9-7.3), with no specific time trend during the study period. The incidence increased with age. Compared to the other subtypes, GBMs were diagnosed at older ages. The risks of developing glioma overall and GBM were associated with occupation but not with educational level. The relative risk of glioma and GBM were respectively 1.17 (95 % CI 1.05-1.31) and 1.17 (95 % CI 1.02-1.35) among high-skilled white-collar workers compared to blue-collar workers. **Conclusions:** The overall and sex-specific ASIRs of gliomas and GBMs did not show any noticeable time trends. The higher risk of developing glioma overall and GBM in high-skilled white-collar workers compared to blue-collar workers calls for further investigations.

**Sharifian et al. 2024.**

**Cancer Epidemiology, vol. 89.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Education; glioblastoma; glioma; incidence rate; occupation.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S1877782124000031?via%3Dihub>

### **Precarious employment in young adulthood and later alcohol-related morbidity: A register-based cohort study**

**Background:** The prevalence of precarious employment is increasing, particularly among young adults where less is known about the long-term health consequences. The present study aims to test if being precariously employed in young adulthood is associated with an increased risk of alcohol-related morbidity later in life. **Methods:** A register-based cohort study was conducted in Sweden. The Swedish Work, Illness, and Labor-market Participation (SWIP) cohort was used to identify individuals who were aged 27 years between 2000 and 2003 ( $n=339\ 403$ ). Information on labour market position (precarious employment, long-term unemployment, substandard employment and standard employment relations) was collected for young people 3 years after graduation from school using nationwide registers. Details about alcohol-related morbidity during a 28-year follow-up period were collected from the National Hospital Discharge Register. Data on sex, age, country of birth, education and previous poor health were also obtained from the registers. **Results:** Young adults in precarious employment had an increased risk of alcohol-related morbidity compared with individuals of the same age in standard employment (HR 1.43, 95% CI 1.32 to 1.55), after adjusting for several important covariates. A stronger association was found among young men who were precariously employed compared with young women. **Conclusion:** This nationwide register-based study conducted in Sweden with a long-term follow-up suggests that being precariously employed in young adulthood is associated with an increased risk of alcohol-related morbidity later in life.

**Thern et al. 2024.**

**Occupational and Environmental Medicine, vol. 81, no. 4.**

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

**Keywords:** Alcohol; cohort; precarious employment; register-based; young adults.

**Evidence Level:** 4B

**Link:** <https://oem.bmj.com/content/81/4/201.long>

### **Work-related physical strain and development of joint inflammation in the trajectory of emerging inflammatory and rheumatoid arthritis: A prospective cohort study**

**Background:** Rheumatoid arthritis (RA) mainly affects small joints. Despite the mechanical function of joints, the role of mechanical stress in the development of arthritis is insufficiently understood. We hypothesised that mechanical stress/physical strain is a risk factor for joint inflammation in RA. Therefore, we studied work-related physical strain in subjects with clinically suspected arthralgia (CSA) as a risk factor for the presence of imaging-detected subclinical joint inflammation and the development of clinical arthritis/RA. **Methods:** In 501 CSA patients and 155 symptom-free persons' occupation-related physical strain was quantified using the International Standard Classification of Occupations. Contrast-enhanced hand-MRIs were made and evaluated for joint inflammation (sum of synovitis/tenosynovitis/osteitis). CSA patients were followed on RA development. Age relationship was studied using an interaction term of physical strain with age. **Results:** The degree of physical strain in CSA is associated with the severity of joint inflammation, independent of educational-level/BMI/smoking (interaction physical strain-age  $p=0.007$ ; indicating a stronger association with increasing age). Physical strain is associated with higher tenosynovitis scores, in particular. In symptom-free persons, physical strain was not associated with imaging-detected joint inflammation. Higher degrees of physical strain also associated with higher risks for RA development in an age-dependent manner (HR=1.20 (1.06-1.37)/10-year increase in age), independent of educational-level/BMI/smoking. This association was partly mediated by an effect via subclinical joint inflammation. **Conclusions:** Work-related physical strain increases the risk of subclinical joint inflammation and of developing RA. The age relationship suggests an effect of long-term stress or that tenosynovium is more sensitive to stress at older age. Together, the data indicate that mechanical stress contributes to the development of arthritis in RA.

van Dijk et al. 2024.

RMD Open, vol. 10, no. 2.

User License: Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)

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

**Keywords:** Arthritis; rheumatoid arthritis; risk Factors.

**Evidence Level:** 4B

**Link:** <https://rmdopen.bmj.com/content/10/2/e003895.long>

### **Incidence of coronary heart disease among remote workers: A nationwide web-based cohort study**

**Background:** Coronary heart disease (CHD) risk is influenced by socioeconomic status-related parameters, particularly occupation. **Methods:** We investigated occupational gaps in CHD risk and how the introduction of remote work moderated the observed occupational differences in CHD risk during the coronavirus disease 2019 pandemic in Japan. Data from a web-based, nationwide cohort study, comprising 17,640 workers (aged 20-65 years) with baseline data from December 2020, were analyzed. Participants were grouped by occupation as upper-level nonmanual workers (managers/professionals) and others (reference group). The primary outcome was CHD (angina pectoris/myocardial infarction) onset retrospectively confirmed at the 1-year follow-up survey. **Results:** Upper-level nonmanual workers exhibited a higher CHD incidence than others (2.3% vs. 1.7%). This association was pronounced in the younger (20-49 years) population, with a significant CHD risk (adjusted risk ratio = 1.88). Upper-level nonmanual workers exhibited nearly 15% higher remote work prevalence, with a significant remote work-related CHD risk (adjusted risk ratio = 1.92). The mediating effects of remote work explained an overall disparity of 32% among the younger population. Occupational gaps in CHD incidence in Japan differ from those in Western countries, where upper-level nonmanual workers have lower cardiovascular risk. **Conclusions:** In Japan, remote work can mediate CHD risk in the younger population of upper-level nonmanual workers.

Zaitso et al. 2024.

Scientific Reports, vol. 14, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Coronary heart disease; remote workers; risk.

**Evidence Level:** 4B

**Link:** <https://www.nature.com/articles/s41598-024-59000-y>

## **Environmental assessments in the workplace: An analysis of workplace wellbeing facilities for people of reproductive age**

**Background:** To investigate the availability of resources at an Australian university workplace to support the health, wellbeing, and transition to parenthood of female employees working during the preconception, pregnancy, and postpartum periods. Type of program or service: Workplace health promotion for female employees of reproductive age. **Methods:** A survey of female employees aged 18-45 years evaluated participant health practices, availability of work and parenting supports, and access to health and wellbeing resources in the workplace. Additionally, an environmental assessment was completed by employees with a knowledge of local healthy lifestyle supports and a minimum of 2 years' employment. The assessment documented site characteristics and availability of wellbeing facilities across 10 campuses. **Results:** There were 241 valid survey responses. Of 221 respondents to a question about workplace support, 76% (n = 168) indicated that the workplace should play a role in supporting the transition to parenthood and in health promotion, with 64.1% of 223 participants disagreeing with the statement "my health is not the responsibility of the university". Both the survey and environmental assessment revealed that access to parenting resources to support employee health and wellbeing were suboptimal. **Conclusions:** There is a misalignment between the needs of female employees working during these health-defining life stages, and the availability of resources to support those needs. Regulatory guidance may be required to navigate resource gaps within the work environment and address factors impacting the health and wellbeing of employees of reproductive age.

**Madden et al. 2024.**

**Public Health Research and Practice, vol. 34, no. 1.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)*

[\(https://creativecommons.org/licenses/by-nc/4.0/\)](https://creativecommons.org/licenses/by-nc/4.0/)

**Keywords:** Workplace; environmental assessments; wellbeing facilities; reproductive age.

**Evidence Level:** 5A

**Link:** <https://www.phrp.com.au/issues/april-2024-volume-34-issue-1/analysing-workplace-wellbeing-facilities/>

## **Work Health and Safety**

*This month we explore work health and safety issues associated with a back support exoskeleton, smoke-free policies at work and household environments, physically strenuous and hazardous work conditions, Vital D and SARS-CoV-2.*

## **Equivalent weight: Application of the assessment method on real task conducted by railway workers wearing a back support exoskeleton**

**Background:** Commonly used risk indexes, such as the NIOSH Lifting Index, do not capture the effect of exoskeletons. This makes it difficult for Health and Safety professionals to rigorously assess the benefit of such devices. The community requires a simple method to assess the effectiveness of back-support exoskeleton's (BSE) in possibly reducing ergonomic risk. **Methods:** The method introduced in this work is termed "Equivalent Weight" (EqW) and it proposes an interpretation of the effect built on the benefit delivered through reduced activation of the erector spinae (ES). This manifests itself as an apparent reduction of the lifted load perceived by the wearer. This work presents a pilot study where a practical application of the EqW method is used to assess the ergonomic risk in manual material handling (MMH) when using a back support exoskeleton (StreamEXO). **Results:** The results are assessed by combining observational measurements from on-site testing with five different workers and quantitative measures of the muscle activity reduction achieved during laboratory evaluation with ten workers. **Conclusions:** These results will show that when lifting, lowering, and carrying a 19 kg load the StreamEXO can reduce risk by up to two levels (from "high" to "low") in the target sub-tasks. The Lifting index (LI) was reduced up to 64% when examining specific sub-tasks and the worker's movement conduction.

**Di Natali et al. 2024.**

**Applied Ergonomics, vol. 118.**



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

**Keywords:** Equivalent weight; ergonomic assessment; exoskeletons.

**Evidence Level:** 5B

**Link:** [https://linkinghub.elsevier.com/retrieve/pii/S0003-6870\(24\)00055-3](https://linkinghub.elsevier.com/retrieve/pii/S0003-6870(24)00055-3)

### **The crossroads of work and home: Linkages between smoke-free policies at work and household environments**

**Background:** Tobacco use causes over eight million global deaths annually, with seven million directly attributed to tobacco use and 1.2 million to second hand smoke (SHS). Smoke-free environments are crucial to counter SHS. Although India banned smoking in public places in 2008, SHS exposure remains high. Studies have noted that limiting smoking in workplaces, restaurants, etc., helps to reduce overall smoking and reduce SHS exposure. Under this background, the study explores the linkages between smoke-free workplaces and living in smoke-free homes in India. **Methods:** The two rounds of the GATS India (2009-10 and 2016-17) have been used for the study. The study focuses on male tobacco smokers working indoors or outdoors or both indoors and outdoors. The sample for the study was 2,969 for GATS 1 and 2,801 for GATS 2. Dependent variables include living in a smoke-free home, while the independent variables were adherence to a smoke-free office policy and socio-demographic variables. The two rounds of the GATS data were pooled for analysis. Statistical analysis involves bivariate and multivariate analysis. **Results:** Findings reveal that 41% of respondents worked in smoke-free workplaces in GATS 2. Nationally, smoke-free homes increased from 35% in 2009-2010 to 44% in 2016-17. Individuals with smoke-free workplaces were more likely to have smoke-free homes. The Southern region consistently exhibited the highest proportion of smoke-free homes. Urban areas and higher education correlated with increased smoke-free homes. Logistic regression analysis confirmed that workplace smoke-free status is a significant predictor of smoke-free homes. In GATS 2, respondents aged 30 years and above were less likely to have smoke-free homes, while education and Southern region residence positively influenced smoke-free homes. **Conclusions:** The correlation between smoke-free workplaces and smoke-free homes is linked to stringent workplace no-smoking policies, potentially deterring individuals from smoking at home. Opportunities exist for the expansion and stringent implementation of the smoke-free policies among Indian working adults, leveraging the workplace as a key setting for evidence-based tobacco control. The study highlights positive trends in India's smoke-free homes, crediting workplace policies. Effective policies, education, and regional strategies can advance smoke-free homes, stressing the pivotal role of workplace policies and advocating broader implementation.

**Gupta et al. 2024.**

**BMC Public Health, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** India; second hand smoke; smoke-free home; smoke-free policies; smoke-free workplace.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-18658-9>

### **Perceived benefits, barriers, perceptions, and readiness to use exoskeletons in the construction industry: Differences by demographic characteristics**

**Background:** Exoskeletons (EXOs) are a promising wearable intervention to reduce work-related musculoskeletal disorder risks among construction workers. However, the adoption of EXOs may differ with demographic characteristics. **Methods:** Survey data (n = 361) were collected from construction industry stakeholders and a summation score method was used to summarize respondent's benefits and barriers to EXO use, along with perceptions and readiness to use. Responses were stratified by race (White vs. non-White), sex (male vs. female), and age (<47 years vs. ≥47 years). **Results:** Both a higher Benefits score and a higher Perceptions score were significantly and positively associated with a higher Readiness to Use score. There were also significant differences in perceived barriers to EXO use by race and sex. **Conclusions:** These results demonstrate substantial interest in EXO use but also emphasize the need to ensure proportionate access to the potential benefits of EXO technology.

**Gutierrez et al. 2024.**

**Applied Ergonomics, vol. 116.**

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

**Keywords:** EXO; technology adoption; work-related musculoskeletal disorders.

**Evidence Level:** 5B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0003687023002375?via%3Dihub>

### **Racial, ethnic, and immigrant generational disparities in physically strenuous and hazardous work conditions**

**Background:** Despite the importance of work in adult life, research on the social determinants of health often ignores its effects. **Methods:** We examine race/ethnic, immigrant generational, and gender differentials in exposure to work conditions associated with poor health outcomes, using a nationally-representative sample of adults **Results:** On average, Latino 1st generation workers are more exposed to strenuous and hazardous work conditions than other workers, even after adjusting for sociodemographic differences. Exposure is lower for 2nd and 3rd generation Latinos. In contrast, Asian 1st generation men often have the lowest exposure levels of all groups and Asian 2nd and 3rd generation men have higher levels of exposure than the first generation, primarily due to intergenerational differences in education. Asian 1st generation women have higher exposures than those in the 2nd or 3rd generation. **Conclusions:** These results illustrate the importance of considering work conditions in research and policy related to the social determinants of health.

**Abarca Nava et al. 2024.**

**Journal of Immigrant and Minority Health, vol. 26, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Employment; gender; immigrant generation; race and ethnicity; social determinants; strenuous work; work conditions; work hazards.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s10903-023-01552-8>

### **Vital D: A modifiable occupational risk factor of UK healthcare workers**

**Background:** The role of Vitamin D in immune function is well reported with a growing evidence base linking low levels to poorer outcomes from infectious disease. Vitamin D deficiency and insufficiency are prevalent worldwide with healthcare workers identified as a known at-risk group. Here we aim to investigate serum Vitamin D levels in a UK population of front line healthcare workers and to promote the occupational risk. **Methods:** A cross-sectional study of 639 volunteers was conducted to identify the prevalence of Vitamin D deficiency and insufficiency amongst a population of front-line health care workers in the UK. Participant demographics and co-morbid factors were collected at the time of serum sampling for multivariate analysis. **Results:** Only 18.8% of the population had a normal vitamin D level greater than or equal to 75nmol/L. This is compared to Public Health England's (PHE) stipulated normal levels of 60% during winter. 81.2% had a level less than 75nmol/L, with 51.2% less than 50nmol/L and 6.6% less than 25nmol/L. For serum levels less than 25nmol/L, Asian ethnicity was more likely to have a vitamin D deficiency than non-asian (OR (95%CI): 3.81 (1.73-8.39),  $p = 0.001$ ), whereas white ethnicity was less likely to have a vitamin D deficiency compared to non-white (OR (95%CI): 0.43 (0.20-0.83),  $p = 0.03$ ). Other factors that contributed to a higher likelihood of lower-than-normal levels within this population included male sex, decreased age and not taking supplementation. **Conclusion:** It is concluded that our population of healthcare workers have higher rates of abnormal vitamin D levels in comparison with the general UK population reported prevalence. Furthermore, Asian ethnicity and age 30 years and below are more at risk of vitamin D insufficiency and deficiency. This highlights an occupational risk factor for the healthcare community to consider.

**Phelan et al. 2024.**

**PLoS One, vol. 19, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Vitamin D; immune function; infectious disease; deficiency; occupational risk.

**Evidence Level:** 4B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0296247>

### **A SARS-CoV-2 outbreak investigation at a storage and distribution centre in England: An assessment of worker- and workplace-related risk factors**

**Background:** An outbreak of SARS-CoV-2 (1 March to 10 May 2021) with an attack rate of 26.5% among approximately 1150 workers at a storage and distribution centre in England prompted a multidisciplinary outbreak investigation (5 May to 6 August 2021), with the aim of better understanding worker- and workplace-related risk factors for viral transmission in the warehousing sector. **Methods:** Overall, environmental factors (e.g., ventilation, humidity and temperature) were assessed to be appropriate at the facility. Nevertheless, 39 (51.3%) surface samples from across the site tested positive for low/ very low levels of SARS-CoV-2 RNA (Ct value  $\geq$  32.0 for all). **Results:** Among the study participants, of whom 35.6% were confirmed or suspected cases, 95.5% reported having received COVID-19 prevention training, 100.0% reported handwashing, and 80.0% reported use of face coverings at work. Notably, 43.9% and 19.0% reported working with a symptomatic and a positive contact respectively. Furthermore, 80.5% and 46.3% had concerns regarding reduction in their income and future unemployment, respectively, due to self-isolation. **Conclusions:** The findings of this study suggest that, in addition to targeted workplace infection control measures and tailored work area specific risk assessments, an enhanced and equitable sick leave policy may help limit presenteeism and viral transmission in large workplaces.

**Raja et al. 2024.**

**Scientific Reports, vol. 14, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** SARS-CoV-2; COVID; storage and distribution centre; workplace-related risk factors.

**Evidence Level:** 4B

Link: <https://www.nature.com/articles/s41598-024-60194-4>

### **Chronic Health Issues**

*This month we explore chronic health issues associated with latent tuberculosis infection, chronic obstructive pulmonary disease and epilepsy*

### **Latent tuberculosis infection and infection-associated risk factors for miner workers with silicosis in eastern China**

**Background:** Silicosis people are at high risk of developing pulmonary tuberculosis. Whether silica exposure increases the likelihood of latent tuberculosis infection (LTBI) was not well understood, and potential factors involved in LTBI risk among silicosis people were not evaluated before. Thus, LTBI among silicosis people and potential risk factors for LTBI among silicosis people were evaluated in this study.

**Methods:** A cross-sectional study was undertaken for 130 miner workers with silicosis. The QFT-GIT was performed for LTBI detection. **Results:** The LTBI was high to 31.6% (36/114) for silicosis participants, and 13.1% (13/99) had a history of tuberculosis. Drinking was associated with LTBI risk (OR = 6.92, 95%CI, 1.47-32.66, P = 0.015). Meanwhile, tunneling work was associated with an increased risk of LTBI compared with other mining occupations (OR = 3.91, 95%CI, 1.20-12.70, P = 0.024). **Conclusions:** The LTBI rate of silicosis participants was high and more than 10% had a history of tuberculosis. Drinking alcohol and tunneling were independent risk factors for LTBI in silicosis participants.

**Hu et al. 2024.**

**BMC Pulmonary Medicine, vol. 24, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Latent tuberculosis infection; risk factors; silicosis; tuberculosis.

**Evidence Level:** 4B

Link: <https://bmcpulmed.biomedcentral.com/articles/10.1186/s12890-024-02985-z>

### **Risk of chronic obstructive pulmonary disease in a large cohort of Ontario, Canada workers**

**Background:** Although several occupational exposures have been linked to the risk of COPD; limited data exists on sex-specific differences. This study aimed to identify at-risk occupations and sex differences for

COPD risk. **Methods:**Cases were identified in a large surveillance system established through the linkage of former compensation claimants' data (non-COPD claims) to physician visits, ambulatory care data, and hospital inpatient data (1983-2020). Cox proportional hazard models were used to estimate hazard ratios (HRs) and corresponding 95% confidence intervals (CI) for occupation groups (occupation at time of claim), stratified by sex. HRs were indirectly adjusted for cigarette smoking using another population dataset. **Results:** A total of 29,445 male and 14,693 female incident cases of COPD were identified. Increased risks were observed in both sexes for construction (HRmale 1.15, 95% CI 1.12-1.19; HRfemale 1.54, 95% CI 1.29-1.83) transport/equipment operating (HRmale 1.32, 95% CI 1.28-1.37; HRfemale 1.53, 95% CI 1.40-1.68) farming (HRmale 1.23, 95% CI 1.15-1.32; HRfemale 1.19, 95% CI 1.04-1.37) and janitors/cleaners (HRmale 1.31, 95% CI 1.24-1.37; HRfemale 1.40, 95% CI 1.31-1.49). Increased risks were observed for females employed as chefs and cooks (HR 1.44, 95% CI 1.31-1.58), bartenders (HR 1.38, 95% CI 1.05-1.81), and those working in food/beverage preparation (HR 1.34, 95% CI 1.24-1.45) among other occupations. **Conclusions:**This study demonstrates elevated risk of COPD among both male and female workers potentially exposed to vapours, gases, dusts, and fumes, highlighting the need for occupational surveillance of COPD.

**Sritharan et al. 2024.**

**Scientific Reports, vol. 14, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** COPD; occupation; respiratory conditions; sex differences; surveillance.

**Evidence Level:** 4B

**Link:** <https://www.nature.com/articles/s41598-024-59429-1>

### **Work productivity, quality of life, and care needs: An unfolding epilepsy burden revealed in the Australian Epilepsy Project pilot study**

**Background:** Epilepsy is a common and serious neurological disorder. This cross-sectional analysis addresses the burden of epilepsy at different stages of the disease. **Methods:** This pilot study is embedded within the Australian Epilepsy Project (AEP), aiming to provide epilepsy support through a national network of dedicated sites. For this analysis, adults aged 18-65 years with first unprovoked seizure (FUS), newly diagnosed epilepsy (NDE), or drug-resistant epilepsy (DRE) were recruited between February-August 2022. Baseline clinicodemographic data were collected from the participants who completed questionnaires to assess their quality of life (QOLIE-31, EQ-5D-5L), work productivity (Work Productivity and Activity Impairment [WPAI]), and care needs. Univariate analysis and multivariate regression was performed.

**Results:** 172 participants formed the study cohort (median age 34, interquartile range [IQR]: 26-45), comprising FUS (n = 44), NDE (n = 53), and DRE (n = 75). Mean QOLIE-31 score was 56 (standard deviation [SD] ± 18) and median EQ-5D-5L score was 0.77 (IQR: 0.56-0.92). QOLIE-31 but not EQ-5D-5L scores were significantly lower in the DRE group compared to FUS and NDE groups (p < 0.001). Overall, 64.5% of participants participated in paid work, with fewer DRE (52.0%) compared with FUS (76.7%) and NDE (72.5%) (p < 0.001). Compared to those not in paid employment, those in paid employment had significantly higher quality of life scores (p < 0.001). Almost 5.8% of participants required formal care (median 20 h/week, IQR: 12-55) and 17.7% required informal care (median 16 h/week, IQR: 7-101).

**Conclusions:** Epilepsy is associated with a large burden in terms of quality of life, productivity and care needs. This is a pilot study from the Australian Epilepsy Project (AEP). It reports health economic data for adults of working age who live with epilepsy. It found that people with focal drug-resistant epilepsy had lower quality of life scores and were less likely to participate in paid employment compared to people with new diagnosis epilepsy. This study provides important local data regarding the burden of epilepsy and will help researchers in the future to measure the impact of the AEP on important personal and societal health economic outcomes.

**Marquina et al. 2024.**

**Epilepsia Open, vol. 9, no. 2.**

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

**Keywords:** Australian Epilepsy Project; HRQoL; epilepsy; productivity.

**Evidence Level:** 4A

Link: <https://onlinelibrary.wiley.com/doi/10.1002/epi4.12919>

## Occupational Exposure

*This month we explore occupational exposure issues associated with benzodiazepine, cerebral small vessel disease and vascular dementia, asbestos, diesel exhaust, occupational whole-body vibration polychlorinated biphenyl congeners, lead, cadmium and mercury, and aromatic amine antioxidants and p-phenylenediamines-quinones. We also explore occupational toxicant exposures in patients with metabolic dysfunction-associated steatotic liver disease.*

### Impact of benzodiazepine use on the risk of occupational accidents

**Background:** Benzodiazepines (BZDs) are drugs commonly used for treating insomnia and anxiety. Although they are known to induce cognitive and psychomotor impairments, their effect on the risk of causing accidents at work remains understudied. **Methods:** The objective of this study is to estimate this risk by differentiating between the recommended use and overuse of these drugs (i.e., uninterrupted use for four months). The data come from the French National Health Data System, which provide a population composed of French people who had at least one work accident (WA) from 2017 to 2019 (approximately 2.5 million people). A linear probability model with two-way fixed effects is used to deal with time-constant heterogeneity and the time effect independent of individuals. **Results:** The results show a reduction in the risk of WA after a short period of BZD use (one month) compared with no use at all, but the risk of WA increases when treatment exceeds the recommended duration. The intensity of use results in a greater risk of WAs: a 1% increase in BZD use (expressed as the amount reimbursed) leads to a 4.4% ( $p < 0.001$ ) increase in the monthly risk of WAs. Moreover, we see an increase in risk in the month following the treatment discontinuation (+3.6%,  $p < 0.001$ ), which could be due to rebounding and catch-up effects. Health professionals and BZD users should be made aware of the WA risk induced by the use of BZDs, particularly after prolonged use and after discontinuation of treatment. **Conclusions:** This study provides more evidence for the need to limit the duration of BZD treatment.

**Baudot 2024.**

**PLoS One, vol. 19, no. 4.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Benzodiazepines; benzodiazepine use; occupational accidents.

**Evidence Level:** 4B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0302205>

### Occupational and domestic exposure associations with cerebral small vessel disease and vascular dementia: A systematic review and meta-analysis

**Background:** The prevalence of cerebral small vessel disease (SVD) and vascular dementia according to workplace or domestic exposure to hazardous substances is unclear. **Methods:** We included studies assessing occupational and domestic hazards/at-risk occupations and SVD features. We pooled prevalence estimates using random-effects models where possible, or presented a narrative synthesis. **Results:** We included 85 studies ( $n = 47,743$ , mean age = 44.5 years). 52/85 reported poolable estimates. SVD prevalence in populations exposed to carbon monoxide was 81% (95% CI = 60-93%;  $n = 1373$ ; results unchanged in meta-regression), carbon disulfide 73% (95% CI = 54-87%;  $n = 131$ ), 1,2-dichloroethane 88% (95% CI = 4-100%,  $n = 40$ ), toluene 82% (95% CI = 3-100%,  $n = 64$ ), high altitude 49% (95% CI = 38-60%;  $n = 164$ ), and diving 24% (95% CI = 5-67%,  $n = 172$ ). We narratively reviewed vascular dementia studies and contact sport, lead, military, pesticide, and solvent exposures as estimates were too few/varied to pool. **Discussion:** SVD and vascular dementia may be associated with occupational/domestic exposure to hazardous substances. CRD42021297800.

**Clancy et al. 2024.**

**Alzheimers and Dementia, vol. 20, no. 4.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cerebral small vessel disease; dementia; occupations; public health; stroke; white matter hyperintensities; workplace.



**Evidence Level:** 1A

**Link:** <https://alz-journals.onlinelibrary.wiley.com/doi/10.1002/alz.13647>

### **Cholangiocarcinoma and occupational exposure to asbestos: Insights from the Italian pooled cohort study**

**Background:** Recent studies supported the association between occupational exposure to asbestos and risk of cholangiocarcinoma (CC). Aim of the present study is to investigate this association using an update of mortality data from the Italian pooled asbestos cohort study and to test record linkage to Cancer Registries to distinguish between hepatocellular carcinoma (HCC) and intrahepatic/extrahepatic forms of CC.

**Methods:** The update of a large cohort study pooling 52 Italian industrial cohorts of workers formerly exposed to asbestos was carried out. Causes of death were coded according to ICD. Linkage was carried out for those subjects who died for liver or bile duct cancer with data on histological subtype provided by Cancer Registries. **Results:** 47 cohorts took part in the study (57,227 subjects). We identified 639 causes of death for liver and bile duct cancer in the 44 cohorts covered by Cancer Registry. Of these 639, 240 cases were linked to Cancer Registry, namely 14 CC, 83 HCC, 117 cases with unspecified histology, 25 other carcinomas, and one case of cirrhosis (likely precancerous condition). Of the 14 CC, 12 occurred in 2010-2019, two in 2000-2009, and none before 2000. **Conclusion:** Further studies are needed to explore the association between occupational exposure to asbestos and CC. Record linkage was hampered due to incomplete coverage of the study areas and periods by Cancer Registries. The identification of CC among unspecific histology cases is fundamental to establish more effective and targeted liver cancer screening strategies.

**Curti et al. 2024.**

**La Medicina del Lavoro, vol. 115, no. 2.**

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

**Keywords:** Cholangiocarcinoma; occupational exposure; asbestos.

**Evidence Level:** 4B

**Link:** <https://mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/14649>

### **Risk of skin cancer in workers exposed to diesel exhaust: A systematic review and meta-analysis of cohort studies**

**Background:** Our objective was to study the association between occupational exposure to diesel exhaust (DE) and skin cancer. **Methods:** A systematic review following STROBE guidelines and PECOS criteria was conducted to identify cohort studies describing the association between occupational DE exposure and the risk of skin cancer. We extracted 12 independent risk estimates for melanoma skin cancer (MSC), 8 for non-melanoma skin cancer (NMSC), and 3 for skin cancer not otherwise specified (SC-NOS). Random effects meta-analyses were performed, site-specific and stratified by geographic region and quality score. 95% confidence intervals (CI) were reported. Between-study heterogeneity and potential publication bias were investigated. **Results:** There was no overall evidence of an increased risk of MSC [RR=0.90, 95% CI: 0.73-1.11; I<sup>2</sup>=92.86%, 95% CI: 82.83-97.03%], NMSC [RR=1.04, 95% CI: 0.88-1.23; I<sup>2</sup>=60.79%, 95% CI: 0-87.34%] or SC-NOS [RR=0.72, 95% CI: 0.54-0.97; I<sup>2</sup>=26.60%, 95% CI: 0-94.87%] in workers exposed to DE. No difference between low-quality and high-quality studies was found. A stratified analysis by geographical region did not reveal any significant differences. There was no evidence of publication bias.

**Conclusions:** No evidence of an association between skin cancer and occupational DE exposure was found. Residual confounding and other sources of bias cannot be ruled out.

**D'Agostini et al. 2024.**

**La Medicina del Lavoro, vol. 115, no. 2.**

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

**Keywords:** Skin cancer; diesel exhaust; exposure.

**Evidence Level:** 1A

**Link:** <https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/15569>

## **The after-effects of occupational whole-body vibration on human cognitive, visual, and motor function: A systematic review**

**Background:** Whole-body vibration (WBV) is prevalent in labour-related activities and can have adverse effects on the health and performance of the individuals exposed. However, evidence regarding the extent to which human functionality is affected following occupational WBV exposure has not been collated.

**Methods:** The current systematic review sought to synthesize existing literature and assess the strength and direction of evidence regarding the acute after-effects of occupational WBV exposure on cognition, visual function, postural stability, and motor control. We conducted a comprehensive search of AMED, CINAHL, MEDLINE, PubMed, Psychology and Behavioural Sciences Collection, SPORTDiscus, APA PsychInfo, Cochrane Library, EMBASE, HMIC, Global Health, ProQuest Central, Scopus, Web of Science, and the US National Technical Information Service on April 26, 2023. **Results:** Studies that quantified vibration exposure and measured acute changes in cognition, visual function, postural stability, and motor control from baseline to post-vibration were considered without date restriction. Out of the 2663 studies identified, 32 were eligible for inclusion. Based on the Risk of Bias in Non-Randomized Studies of Exposure (ROBINS-E) tool, the studies demonstrated low (66%), moderate (25%) and high risk of bias (9%). The findings indicate that after exposure to WBV, postural stability either deteriorates or remains unchanged. Inconsistent effects of WBV on cognition were reported, while visual function and motor control showed no pronounced changes following WBV. This might be attributed to assessment limitations such as learning effects in neuropsychological and motor tasks, and non-functional measures of vision employed.

**Conclusions:** There was a lack of consistency in the characterization of vibration exposure and the assessment of associated effects on functional performance. Current evidence is therefore insufficient to provide definitive guidance for updating occupational health and safety regulations regarding WBV. However, this review highlights the potential for WBV to jeopardize post-exposure human performance and, consequently, safety. The completion of the review was supported by a UKRI EPSRC training grant. The review has been registered on PROSPERO (ref CRD42023391075).

**Halmi et al. 2024.**

**Applied Ergonomics, vol. 118.**

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

**Keywords:** Human response; occupational; safety; vibration exposure.

**Evidence Level:** 1A

**Link:** <https://www.sciencedirect.com/science/article/pii/S0003687024000413?via%3Dihub>

## **Quantifying 209 polychlorinated biphenyl congeners in silicone wristbands to evaluate differences in exposure among demolition workers**

**Background:** A social housing estate in Denmark was designated for demolition due to exceedance of guidance values for polychlorinated biphenyls (PCBs) in indoor air. **Methods:** Here, we deployed pre-cleaned silicone wristbands (n = 46) among demolition workers of these contaminated buildings during single workdays while conducting various work tasks. We established a method to analyze all 209 PCBs in wristbands to identify prominent congeners of exposure and evaluate differences between tasks. Wristbands were extracted using microwave-assisted extraction and then concentrated for gas chromatography-tandem mass spectrometry (GC-MS/MS) analysis. **Results:** Twenty-nine chromatographic peaks representing 37 congeners were detected in every wristband, and tetra-CBs were the dominant homologue group. PCB-66, -44, and -70 were the most abundant congeners measured in worker wristbands, none of which are included within the typical seven indicator or WHO 12 PCBs. Workers who cut PCB-containing sealants had wristbands with the highest PCB concentrations (geometric mean  $\Sigma$  209PCBs = 1963 ng/g wristband), which were followed by those handling concrete elements on the building roof. Additionally, wristbands captured a broader range of PCBs than has been previously measured in air and serum samples. **Conclusions:** Taken together, our results highlight the importance of total congener analysis in assessing current PCB exposure in demolition work and the utility of wristbands for assessing these exposures.

**Hammel et al. 2024.**

**Environmental Science and Technology, vol. 58, no. 15.**

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

**Keywords:** PCB; occupational exposure; persistent organic pollutants; personal passive samplers.

**Evidence Level:** 5B

**Link:** <https://pubs.acs.org/doi/10.1021/acs.est.3c10304>

### **Blood lead, cadmium and hair mercury concentrations and association with soil, dust and occupational factors in e-waste recycling workers in Bangladesh**

**Background:** Electronic waste (e-waste) recycling activities release toxic metals, which pose substantial hazard to the environment and human health. We evaluated metal concentrations in biological and environmental samples, and examined the associations between biological lead (Pb), cadmium (Cd), and mercury (Hg) with soil and dust metals, and other possible determinants, among populations exposed and non-exposed to e-waste in Bangladesh. **Methods:** A total of 199 e-waste workers and 104 non-exposed individuals were recruited. We measured blood Pb (BPb) and Cd (BCd) concentrations and total Hg (THg) from hair samples. Data were collected on occupational, and behavioral factors. We fitted an elastic net regression (ENET) to model the relationship between a set of influencing factors and metals as outcome variables while controlling for potential covariates. **Results:** The median concentrations of BPb (11.89 µg/dL) and BCd (1.04 µg/L) among exposed workers were higher than those of non-exposed workers (BPb: 3.63 µg/dL and BCd: 0.83 µg/L respectively). A 100 ppm increment in soil Pb level was associated with an increase in ln-Pb (transformed) in blood ( $\beta = 0.002$ ; 95% CI = 0.00, 0.02). Similarly, ln-BCd level increased ( $\beta = 0.02$ ; 95% CI = 0.001, 0.07) with every ppm increase in dust Cd level. The number of years worked in e-waste activities was associated with elevated ln-BPb ( $\beta = 0.01$ ; 95% CI = 0.01, 0.02) and ln-BCd levels ( $\beta = 0.003$ ; 95% CI = 0.00, 0.05). Smoking significantly contributed to elevated levels of ln-BCd ( $\beta = 0.46$ ; 95% CI = 0.43, 0.73). An increment of 100 kg of e-waste handling per week led to an increase in ln-BPb levels ( $\beta = 0.002$ ; 95% CI = 0.00, 0.01), while respondents knowledge about adverse impact on e-waste reduced the ln-BPb level ( $\beta = -0.14$ ; 95% CI = -0.31, -0.03). Fish consumption frequency had a positive association with THg in hair. **Conclusions:** Our data show the need for workplace controls to reduce exposure to Pb and Cd with a broader view of exposure source taken.

**Parvez et al. 2024.**

**International Journal of Hygiene and Environmental Health, vol. 257.**

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

**Keywords:** Bangladesh; cadmium; e-waste; exposure; lead; mercury.

**Evidence Level:** 5B

**Link:** <https://www.sciencedirect.com/science/article/pii/S143846392400021X?via%3Dihub>

### **Exploring occupational toxicant exposures in patients with metabolic dysfunction-associated steatotic liver disease: A prospective pilot study**

**Background:** Metabolic dysfunction-associated steatotic liver disease (MASLD) has been traditionally associated with insulin resistance and obesity. Recently, pollutants have been shown to contribute to the development of MASLD. Given the global burden of MASLD, understanding whether pollutants are merely associated with steatosis or contribute to its progression to advanced chronic liver disease (ACL D) and hepatocellular carcinoma (HCC) is critical. Workers exposed to occupational toxicants represent an ideal population for assessing the potentially hazardous consequences of professional exposure. Confirming a link between occupational exposure and ACL D/HCC may not only provide further elements in understanding MASLD, but also contribute to preventive strategies for exposed workers. This study aimed to assess the prevalence of self-reported occupational exposure to toxicants in patients with MASLD.

**Methods:** This hospital-based prospective pilot study included 201 patients with MASLD. Data on workplace toxicant exposure were collected systematically using a structured questionnaire. Subsequently, patients with ACL D and/or HCC (n = 55) were compared to controls (n = 146). Logistic regression analysis and propensity score models were used to investigate the associations between self-reported occupational exposure and ACL D and/or HCC. **Results:** Patients with ACL D/HCC reported exposure to metals, halogenated refrigerants, pain/resins, and fuel emissions more often than the controls. After controlling for

confounders, durations of 21-30 years and >30 years of occupational exposure to toxicants showed odds ratios (ORs) of 2.31 (95 % confidence interval [CI]: 1.09-4.88,  $p = 0.029$ ) and 4.47 (95 % CI: 2.57-7.78,  $p < 0.001$ ), respectively. **Conclusions:** In this pilot study, patients with MASLD complications were more likely to report workplace toxicant exposure. Our results warrant future multicentre confirmatory studies, as implementing prevention policies may reduce the risk of life-threatening diseases among exposed populations.

**Tovoli et al. 2024.**

**Digestive and Liver Disease**, vol. 56, no. 4.

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Hepatocellular carcinoma; liver cirrhosis; pollution; steatohepatitis.

**Evidence Level:** 3B

**Link:** [https://www.dldjournalonline.com/article/S1590-8658\(23\)01097-6/fulltext](https://www.dldjournalonline.com/article/S1590-8658(23)01097-6/fulltext)

### **Aromatic amine antioxidants (AAs) and p-phenylenediamines-quinones (PPD-Qs) in e-waste recycling industry park: Occupational exposure and liver X receptors (LXRs) disruption potential**

**Background:** Recently, evidence of aromatic amine antioxidants (AAs) existence in the dust of the electronic waste (e-waste) dismantling area has been exposed. However, there are limited studies investigating occupational exposure and toxicity associated with AAs and their transformation products (p-phenylenediamines-quinones, i.e., PPD-Qs). **Methods:** In this study, 115 dust and 42 hand wipe samples collected from an e-waste recycling industrial park in central China were analyzed for 19 AAs and 6 PPD-Qs. Notably, the median concentration of  $\Sigma$  6PPD-Qs (1,110 ng/g and 1,970 ng/m<sup>2</sup>) was significantly higher ( $p < 0.05$ , Mann-Whitney U test) than that of  $\Sigma$  6PPDs (147 ng/g and 34.0 ng/m<sup>2</sup>) in dust and hand wipes.

#### **Results:**

Among the detected analytes, 4-phenylaminodiphenylamine quinone (DPPD-Q) (median: 781 ng/g) and 1,4-Bis(2-naphthylamino) benzene quinone (DNPD-Q) (median: 156 ng/g), were particularly prominent, which were first detected in the e-waste dismantling area. Occupational exposure assessments and nuclear receptor interference ability, conducted through estimated daily intake (EDI) and molecular docking analysis, respectively, indicated significant occupational exposure to PPD-Qs and suggested prioritized Liver X receptors (LXRs) disruption potential of PPDs and PPD-Qs. **Conclusions:** The study provides the first evidence of considerable levels of AAs and PPD-Qs in the e-waste-related hand wipe samples and underscores the importance of assessing occupational exposure and associated toxicity effects.

**Zhang et al. 2024.**

**Environment International**, vol. 186.

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Aromatic amine antioxidants (AAs); dust and hand wipes; Liver X receptors (LXRs) disruption potential; occupational exposure; P-phenylenediamines-quinones (PPD-Qs).

**Evidence Level:** 5B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0160412024001958?via%3Dihub>

## **Sedentary Practices**

*This month we explore sedentary practice issues associated with the effect of active workstations on neurocognitive performance and typing skills, effectiveness of workplace interventions with digital elements to reduce sedentary behaviours in office employees and sedentary time at school and work.*

### **Effect of active workstations on neurocognitive performance and typing skills: A randomized clinical trial**

**Background:** Extended sedentary behavior is a risk factor for chronic disease and mortality, even among those who exercise regularly. Given the time constraints of incorporating physical activity into daily schedules, and the high likelihood of sitting during office work, this environment may serve as a potentially feasible setting for interventions to reduce sedentary behavior. **Methods:** A randomized cross-over clinical trial was conducted at an employee wellness center. Four office settings were evaluated on 4 consecutive days: stationary or sitting station on day 1 (referent), and 3 subsequent active workstations (standing,

walking, or stepper) in randomized order. Neurocognitive function (Selective Attention, Grammatical Reasoning, Odd One Out, Object Reasoning, Visuospatial Intelligence, Limited-Hold Memory, Paired Associates Learning, and Digit Span) and fine motor skills (typing speed and accuracy) were tested using validated tools. Average scores were compared among stations using linear regression with generalized estimating equations to adjust standard errors. Bonferroni method adjusted for multiple comparisons. **Results:** Healthy subjects were enrolled (n=44), 28 (64%) women, mean±SD age 35±11 years, weight 75.5±17.1 kg, height 168.5±10.0 cm, and body mass index 26.5±5.2 kg/m<sup>2</sup>. When comparing active stations to sitting, neurocognitive test either improved or remained unchanged, while typing speed decreased without affecting typing errors. Overall results improved after day 1, suggesting habituation. We observed no major differences across active stations, except decrease in average typing speed 42.5 versus 39.7 words per minute with standing versus stepping (*P*=0.003). **Conclusions:** Active workstations improved cognitive performance, suggesting that these workstations can help decrease sedentary time without work performance impairment.

**Registration:** URL: <https://www.clinicaltrials.gov>; Unique identifier: [NCT06240286](https://www.clinicaltrials.gov/ct2/show/study/NCT06240286).

**Medina-Inojosa et al. 2024.**

**Journal of American Heart Association, vol. 13, no. 8.**

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

**Keywords:** Cardiovascular diseases; neurocognitive test; office; physical activity; sedentary time; typing.

**Evidence Level:** 2B

**Link:**

<https://pubmed.ncbi.nlm.nih.gov/38572691/#:~:text=When%20comparing%20active%20stations%20to,after%20day%201%2C%20suggesting%20habituation.>

### **Effectiveness of workplace interventions with digital elements to reduce sedentary behaviours in office employees: A systematic review and meta-analysis**

**Background:** Digital interventions are potential tools for reducing and limiting occupational sedentary behaviour (SB) in sedentary desk-based jobs. Given the harmful effects of sitting too much and sitting for too long while working, the aim of this systematic review and meta-analysis was to examine the effectiveness of workplace interventions, that incorporated digital elements, to reduce the time spent in SB in office workers. **Methods:** Randomised control trials that evaluated the implementation of workplace interventions that incorporated digital elements for breaking and limiting SB among desk-based jobs were identified by literature searches in six electronic databases (PubMed, Web of Science, Scopus, CINAHL, PsycINFO and PEDro) published up to 2023. Studies were included if total and/or occupational SB were assessed. Only studies that reported pre- and postintervention mean differences and standard deviations or standard errors for both intervention arms were used for the meta-analysis. The meta-analysis was conducted using Review Manager 5 (RevMan 5; Cochrane Collaboration, Oxford, UK). Risk of bias was assessed using the Standard Quality Assessment Criteria for Evaluating Primary Research Papers from a Variety of Fields QUALSYST tool. **Results:** Nineteen studies were included in the systematic review. The most employed digital elements were information delivery and mediated organisational support and social influences. Multicomponent, information, and counselling interventions measuring total and/or occupational/nonoccupational SB time by self-report or via device-based measures were reported. Multicomponent interventions were the most represented. Eleven studies were included in the meta-analysis, which presented a reduction of 29.9 (95% CI: -45.2, -14.5) min/8 h workday in SB (overall effect: *Z* = 3.81). **Conclusions:** Multicomponent interventions, using a wide range of digital features, have demonstrated effectiveness in reducing time spent in SB at the workplace among desk-based employees. However, due to hybrid work (i.e., work in the office and home) being a customary mode of work for many employees, it is important for future studies to assess the feasibility and effectiveness of these interventions in the evolving work landscape.

**Parés-Salomón et al. 2024.**

**International Journal of Behavioral Nutrition and Physical Activity, vol. 21, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Home-office; office work; sedentary behaviour; technology; teleworking; workplace.



**Evidence Level:** 1A

**Link:** <https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-024-01595-6>

### **Sedentary time at school and work in Canada**

**Background:** High levels of sedentary time (ST) are associated with poor physical and mental health. Given that Canadians spend a large portion of their days at school and work, they may be important targets for reducing ST. Our objectives are to estimate the daily amount of school and work ST among Canadians, examine differences by subgroups, and determine associations with health. **Methods:** Using the 2020 Canadian Community Health Survey Healthy Living Rapid Response module (N = 5242), the amount of time spent sitting while at school and work was estimated among youth (12-17 years) and adults (18-34 and 35-64 years). Differences by sociodemographics and 24-Hour Movement Guideline adherence were assessed with independent t-tests. Associations between school and work ST and health indicators were assessed using adjusted logistic regression. **Results:** Canadian youth aged 12-17 years and adults aged 18-34 years reported an average of 4.5 and 5.2 h/day of school ST, respectively. Adults 18-34 years and 35-64 years reported an average of 3.9 and 4.0 h/day of work ST, respectively. School and work ST differed within several subgroups. Among adults 18-34 years, higher school ST was associated with a reduced odds of 'excellent/very good' mental health, whereas higher work ST was associated with a greater likelihood of reporting 'excellent/very good' general health. **Conclusion:** Canadian youth and working-age adults report an average of 4-5 h/day sedentary at school or work. This is the first study estimating school and work ST in a representative sample of Canadians and will aid in increasing awareness of setting-specific behaviours to better inform targeted interventions including addressing inequalities in ST.

**Prince et al. 2024.**

**Canadian Journal of Public Health, vol. 115, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Adults; school; sedentary behaviour; surveillance; work; youth.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.17269/s41997-023-00835-9>

### **Physical Activity**

*This month we explore physical activity issues associated with risk of cardiovascular disease incidence, tiredness after work associates with less leisure-time physical activity and the effects of portable pedal machines at work.*

### **Leisure-time and occupational physical activity and risk of cardiovascular disease incidence: A systematic-review and dose-response meta-analysis of prospective cohort studies**

**Background:** Physical activity has benefits for the cardiovascular system, however, what levels and types of activity provide optimal cardiovascular health is unclear. We aimed to determine the level of physical activity that has the most benefits against cardiovascular diseases (CVD). **Methods:** PubMed, Scopus, and Web of Science were searched for prospective cohort studies on leisure-time (LTPA) or occupational physical activity (OPA) as the exposure and major types of CVD (total CVD, coronary heart disease [CHD], stroke, and atrial fibrillation [AF]) incidence as the outcome. Risk of bias of studies was evaluated using the ROBINS-I tool. Summary hazard ratios (HR) were calculated using random-effects pairwise model. **Results:** A total of 103 studies were included in the analysis. The highest versus the lowest LTPA was associated with a lower risk of overall CVD (HR = 0.81; 95% CI: 0.77-0.86), CHD (HR = 0.83; 0.79-0.88), and stroke (HR = 0.83; 0.79-0.88), but not AF (HR = 0.98; 0.92-1.05). Linear dose-response analyses showed a 10%, 12%, 9%, and 8% risk reduction in CVD, CHD, stroke, and AF incidence, respectively, for every 20 MET-hours/week increase in LTPA. In nonlinear dose-response analyses, there were inverse associations up to 20 MET-hours/week with 19% and 20% reduction in CVD and CHD risk, and up to 25 MET-hours/week with 22% reduction in stroke, with no further risk reduction at higher LTPA levels. For AF, there was a U-shaped nonlinear association with the maximum 8% risk reduction at 10 MET-hours/week of LTPA. Higher levels of OPA were not associated with risk of CVD, CHD, stroke, or AF. **Conclusions:** Overall, results showed an inverse dose-response relationship between LTPA and risk of CVD, CHD, stroke, and AF. Running was the

most beneficial LTPA but the risk was similar among various LTPA intensities. OPA showed no benefits in total or any type of CVD.

**Kazemi et al. 2024.**

**International Journal of Behavioral Nutrition and Physical Activity, vol. 21, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiovascular disease; leisure-time physical activity; occupational physical activity; work physical activity.

**Evidence Level:** 1A

**Link:** <https://ijbnpa.biomedcentral.com/articles/10.1186/s12966-024-01593-8>

### **Tiredness after work associates with less leisure-time physical activity**

**Background:** Physical activities and sedentary behaviors take place in different contexts. **Methods:** This study aimed to determine if the context, total score, and leisure-time MET-index assessed by the Baecke questionnaire associate with each other or with sedentary behavior and physical activity outcomes from a 4-week accelerometer measurement in physically inactive adults with overweight. **Results:** The item "After working I am tired" correlated negatively with items related to leisure-time physical activity and sports participation. The total Baecke Score showed weak but significant correlations with accelerometer-measured sedentary behavior, physical activity, daily steps, and mean activity intensity of the day ( $r = -0.33, 0.41, 0.35, \text{ and } 0.41$ , respectively). The associations strengthened when the Sport Index was omitted from the Score. The leisure-time MET-Index did not correlate with accelerometer-measured sedentary behavior or physical activity. Tiredness after working associated with less self-reported physical activity during leisure time. **Conclusions:** This suggests that better recovery from work-related stress could increase leisure-time physical activity, or increasing leisure-time physical activity could reduce tiredness after working. Moreover, among self-reportedly inactive adults with overweight, focusing the questionnaire on work and non-sport leisure time instead of total time might give more accurate estimates of sedentary behavior and physical activity when compared to accelerometry. The study is registered at ClinicalTrials.gov (NCT03101228, 05/04/2017).

**Sjöros et al. 2024.**

**Scientific Reports, vol. 14, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Tiredness; leisure; physical activity.

**Evidence Level:** 3B

**Link:** <https://www.nature.com/articles/s41598-024-58775-4>

### **Effects of portable pedal machines at work on lipoprotein subfraction profile in sedentary workers - The REMOVE study**

**Background:** Sedentary behaviour at work is a major cause of atherosclerosis, particularly in tertiary workers. However, no studies have ever assessed the effect of active workstation on lipoprotein subfraction profile. This study aimed to evaluate the effect of 12-week portable pedal machines (PPMs) on lipoprotein subfraction profile among healthy sedentary workers. **Methods:** Healthy administrative workers were randomized into an intervention group using PPMs for 12 weeks or a control group using normal-desk. Lipoprotein subfractions were assessed using Lipoprint® electrophoresis. Main outcomes were explored using mixed models with sensitivity analyses (four models). **Results:** We included 40 participants ( $43.7 \pm 8.6$  years old, 100% women, BMI  $23.8 \pm 3.4$  kg/m<sup>2</sup>; sedentary time at work  $7.7 \pm 1.8$  h/day). Groups did not differ at baseline in any outcomes. 32 participants finished the trial. Changes in lipoprotein subfractions were especially marked for LDL profile. There was an interaction time x group for all parameters related to LDL and their subfractions: total LDL-cholesterol ( $p = 0.012$ ), LDL particle size ( $p = 0.027$ ), large LDL subfractions 1 and 2 ( $p = 0.001$ ), and small dense LDL subfractions 3 to 7 ( $p = 0.046$ ), using the crude model. The interaction reflects difference in the direction of changes between groups. The LDL particle size significantly increased in the intervention group (from  $271.9 \pm 2.5$  at t0 to  $272.8 \pm 1.9$  Ångström at t1,  $p = 0.037$ ) while it did not change in the control group ( $272.5 \pm 1.7$  at t0 to  $271.8 \pm 1.5$  Å at t1,  $p = 0.52$ ). All interactions were constantly significant whatever the models. Influencing variables were mainly stress at work that was associated with an increase in total LDL-cholesterol (coefficient 3.15, 95CI

0.20 to 6.11 mg/dl,  $p = 0.038$ ), and BMI that was associated with Large-LDL, Large-HDL, IDL-C and triglycerides. **Conclusions:** Lipoprotein profile was improved after a 12-week PPMs intervention at work in healthy administrative workers. Changes were mainly showed for LDL and LDL subfractions. Lipoprotein profile was worsened by stress at work, BMI and age. **Trial registration:** [NCT04153214](https://clinicaltrials.gov/ct2/show/study/NCT04153214).

**Nasir et al. 2024.**

**Lipids in Health and Disease, vol. 23, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiovascular risk; lipoproteins; occupation; physical activity; sitting.

**Evidence Level:** 3A

**Link:** <https://lipidworld.biomedcentral.com/articles/10.1186/s12944-024-02098-w>

## Musculoskeletal Health

*This month we explore musculoskeletal health issues associated with the mediating role of sleep, working life expectancy without musculoskeletal diseases and physical and psychosocial work-related exposures and the occurrence of disorders of the shoulder.*

### Hidden risk factors and the mediating role of sleep in work-related musculoskeletal discomforts

**Background:** Musculoskeletal discomforts (MSDs) are prevalent occupational health issues that are associated with a wide range of risk factors. This study aimed to investigate some of the occupational hidden risk factors and the mediating role of sleep in work-related musculoskeletal discomforts. **Methods:** In a cross-sectional study, the role of job stress and shift work as two hidden risk factors and sleep problems as the mediator in work-related musculoskeletal discomforts was investigated in 302 healthcare workers using the path analysis models. For this aim, healthcare workers' Occupational Stress and musculoskeletal discomforts were evaluated using the Health and Safety Executive questionnaire and Cornell questionnaire, respectively. Moreover, the Pittsburgh Sleep Quality Index (PSQI) and the Insomnia Severity Index (ISI) were used to examine the sleep characteristics of participants. Shift work and job stress as predictor variables and sleep characteristics as mediating variables were analyzed. **Results:** The results showed that the path coefficients of job stress on indexes of quality sleep and insomnia severity were significant. Also, the path coefficient of shift work on quality sleep index was significant. In return, the path coefficients of shift work on the insomnia severity index were not significant. Additionally, there was a mutually significant association between indexes of quality sleep and the severity of insomnia and musculoskeletal discomforts. The direct effect coefficient of job stress on MSDs was significant, whereas the direct effect coefficient of shift work on MSDs was insignificant. This means that shift work alone does not significantly impact these disorders. **Conclusion:** It would seem that shift work and job stress as two occupational hidden risk factors can mediate sleep indexes and indirectly play a critical role in the incidence of musculoskeletal discomforts. Moreover, sleep disorders and musculoskeletal discomforts are mutually related and have a bidirectional relationship.

**Darvishi et al. 2024.**

**BMC Musculoskeletal Disorders, vol. 25, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Hidden risk factor; musculoskeletal discomforts; occupational stress; shift work; sleep.

**Evidence Level:** 4B

**Link:** <https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-024-07387-0>

### The development of working life expectancy without musculoskeletal diseases against the backdrop of extended working lives

**Background:** Musculoskeletal diseases (MSDs) are a major predictor of early retirement. Against the backdrop of the extension of working life, we investigated time trends and educational inequalities in years spent in the labour market free of MSD. **Methods:** Based on German statutory health insurance data ( $N = 3,405,673$ ), total life years free of MSD (Healthy Life Expectancy, HLE) and years spent in the labour force free of MSD (Healthy Working Life Expectancy, HWLE) were estimated for three periods (2006-2008, 2011-2013, 2016-2018) using multistate analyses. Educational inequalities (8 to 11 vs. 12 or more years of

schooling) are reported for 2011-2013. **Results:** HLE decreased slightly over time in all genders. HWLE in women increased, while it remained rather constant in men. Over time, the share of years in the labour force spent free of MSD declined continuously. People with lower education had lower HLE and HWLE than individuals with higher education. With respect to musculoskeletal diseases, the increase in disease-free working life years cannot keep pace with the extension of working life, resulting in an increasing proportion of years spent in impaired musculoskeletal health in the labour market. **Conclusions:** Effective prevention strategies are needed, focusing especially on individuals with lower educational attainment.

**Tetzlaff et al. 2024.**

**Scientific Reports, vol. 14, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Musculoskeletal diseases; life expectancy.

**Evidence Level:** 4B

**Link:** <https://www.nature.com/articles/s41598-024-58650-2>

### **Physical and psychosocial work-related exposures and the occurrence of disorders of the shoulder: A systematic review update**

**Background:** This review is an update of a previous systematic review and assesses the evidence for the association of work-related physical and psychosocial risk factors and specific disorders of the shoulders.

**Methods:** Medline, Embase, Web of Science Core Collection, Cochrane Central and PsycINFO were searched and study eligibility and risk of bias assessment was performed by two independent reviewers.

**Results:** A total of 14 new articles were added with the majority focusing on rotator cuff syndrome (RCS) with seven studies. Nine articles reported psychosocial exposures in addition to physical exposures. The strongest evidence was found for the association between elevation, repetition, force and vibration and the occurrence of SIS and tendinosis/tendonitis. **Conclusions:** Evidence also suggests that psychosocial exposures are associated with the occurrence of RCS and tendinosis/tendonitis. Other findings were inconsistent which prevents drawing strong conclusions.

**Versloot et al. 2024.**

**Applied Ergonomics, vol. 118.**

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

**Keywords:** Psychosocial risk-factors; shoulder disorders; work-related risk factors.

**Evidence Level:** 1A

**Link:** [https://linkinghub.elsevier.com/retrieve/pii/S0003-6870\(24\)00054-1](https://linkinghub.elsevier.com/retrieve/pii/S0003-6870(24)00054-1)

## **Guiding and Supporting Mental Health and Wellbeing**

### **Mental Health**

*This month we explore mental health issues associated with group-level workplace interventions to improve mental health, preventing workplace mistreatment and improving workers' mental health, and the effects of an interdisciplinary employment program on paid employment and mental health among persons with severe mental disorders. We also explore the diagnoses of common mental disorders among social workers, cardiorespiratory fitness in midlife and subsequent incidence of depression, and change in employment status and its causal effect on suicidal ideation and depressive symptoms.*

### **Group-level workplace interventions to improve mental health in low control, high-demand office-based jobs. A scoping review**

**Background:** Workplace psychosocial risk factors, including low autonomy and high demands, have negative consequences for employee mental health and wellbeing. There is a need to support employees experiencing mental health and well-being problems in these jobs. This scoping review aims to describe group-level workplace interventions and their approaches to improving the mental health and well-being of employees in office-based, low autonomy, and high demands jobs. **Methods:** Following PRISMA-ScR

guidelines, a search was conducted across 4 databases (Medline, PsycINFO, CINAHL, ASSIA). We explored studies presenting group-level interventions, mode of implementation, facilitators and barriers, and intervention effectiveness. The search was restricted to include office-based, low autonomy, and high-demands jobs. Primary outcome of interest was mental health and secondary outcomes were work-related and other well-being outcomes. **Results:** Group-level workplace interventions include an array of organizational, relational, and individual components. Almost all included a training session or workshop for intervention delivery. Several had manuals but theories of change were rare. Most workplace interventions did not use participatory approaches to involve employees in intervention development, implementation and evaluation, and challenges and facilitators were not commonly reported. Key facilitators were shorter intervention duration, flexible delivery modes, and formalized processes (e.g. manuals). A key barrier was the changeable nature of workplace environments. All studies employing behavioural interventions reported significant improvements in mental health outcomes, while no clear pattern of effectiveness was observed for other outcomes or types of interventions employed.

**Conclusions:** Group-based interventions in low-autonomy office settings can be effective but few studies used participatory approaches or conducted process evaluations limiting our knowledge of the determinants for successful group-based workplace interventions. Involving stakeholders in intervention development, implementation, and evaluation is recommended and can be beneficial for better articulation of the acceptability and barriers and facilitators for delivery and engagement.

**Demou et al. 2024.**

**Annals of Work Exposures and Health, vol. 68, no. 4.**

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

**Keywords:** Group-level; intervention; low autonomy; mental health; occupational health; office based; workplace intervention; workplaces.

**Evidence Level:** 6A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC11033569/>

### **Preventing workplace mistreatment and improving workers' mental health: A scoping review of the impact of psychosocial safety climate**

**Background:** Work environment is rapidly evolving, unfortunately, it is also becoming increasingly hostile for workers due mostly to common psychosocial hazards. This situation is posing significant challenges for organisations to protect the psychological well-being of their workers. Hence, this review aims to map studies to understand the influence of psychosocial safety climate (PSC) on workplace mistreatment and mental health of workers. **Methods:** The guidelines outlined by Arksey and O'Malley were adopted for this review. PubMed, Scopus, Web of Science, JSTOR, Google and Google Scholar were searched for relevant papers. Only peer-reviewed studies that measured PSC using PSC-12, PSC-8 or PSC-4 were included in this review. **Results:** Thirty-eight studies met the inclusion criteria. This review found that PSC has a negative association with workplace mistreatment such as bullying, harassment, violence, discrimination and abuse. Further, PSC has a positive association with psychological well-being, personal resilience and hope. Low level organisational PSC also promotes psychological distress, stress, depression, cognitive weariness and emotional exhaustion. The buffering effect of PSC is well-established. Moreover, PSC mediates the association between health-centric leadership and workers' psychological health problems. The inverse relationship between PSC and depressive symptoms was stronger for females than males. **Conclusion:** Organisations should prioritise training and development of supervisors to enhance their supportive skills, encourage respectful behaviour, encourage the use of resources promote open and bottom-up communication and provide guidance on conflict resolution. By promoting a high PSC context, organisations can create a culture that discourages mistreatment, leading to increased employee well-being, job satisfaction, and productivity.

**Amodu et al. 2024.**

**BMC Psychology, vol. 12, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Workplace mistreatment; prevention; mental health; psychosocial.

**Evidence Level:** 6A



Link: <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-024-01675-z>

### **The effects of an interdisciplinary employment program on paid employment and mental health among persons with severe mental disorders**

**Background:** This study evaluates the effects of the interdisciplinary employment program 'Work As Best Care (WABC)' on employment participation and mental health of persons with severe mental disorders.

**Methods:** WABC is a 'work first' employment program for unemployed persons with severe mental disorders in which employment professionals work closely together with mental health professionals. In a longitudinal non-randomized controlled study, participants of WABC (n = 35) are compared with participants of the control group (n = 37), who received regular employment support. Participants were followed for 1 year and filled out questionnaires on individual characteristics and health at baseline, after 6 and 12 months. This information was enriched with monthly register data on employment status from 2015 until 2020. Difference-in-differences analyses were performed to investigate changes in employment participation among participants of WABC and the control group. A generalized linear mixed-effects model was used to compare changes in mental health (measured on 0-100 scale) between the two groups.

**Results:** Before WABC, employment participation was 22.0%points lower among participants of WABC compared to the control group. After starting WABC, employment participation increased with 15.3%points per year among participants of WABC, compared to 5.6%points in the control group. Among all participants of WABC, no change in mental health was found ( $\beta$  1.0, 95% CI - 3.4; 5.5). Only female participants of WABC showed a significant change in mental health ( $\beta$  8.0, 95% CI 2.6; 13.4). **Conclusion:** To enhance employment participation of persons with severe mental disorders, an interdisciplinary 'work-first' approach in which professionals of employment services and mental health services work in close collaboration, is of paramount importance.

**Hijdra et al. 2024.**

**International Archives of Occupational and Environmental Health, vol. 97, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Employment; mental health; severe mental disorder; unemployment.

**Evidence Level:** 3B

Link: <https://link.springer.com/article/10.1007/s00420-023-02039-7>

### **Diagnoses of common mental disorders among social workers in Sweden: A register-based cohort study**

**Background:** Little is known about common mental disorders (CMD) diagnoses among social workers, i.e., depression, anxiety, or stress-related disorders. This study aims to examine the risk of CMD among social workers in comparison to other workers and to further investigate differences between men and women and specific occupational titles. **Methods:** This register-based cohort study consists of 3,034,304 persons, of which 26,610 were social workers (0.9 % of all workers), aged 30-64 years, living in Sweden in 2015. The risk of diagnosed CMDs was followed up until 2020. Cox regression models were used to calculate hazard ratios (HR) and 95 % confidence intervals (CI), adjusting for sex, birth country, education, and birth year.

**Results:** The participants were followed up by a total of 16,833,742.9 person-years, with an average follow-up of 5.5 years. Social workers, compared to other workers, were at a higher risk of CMD (HR 1.3, 95 % CI 1.2-1.4) after adjustment. The HR was equal, 1.3, for depression (95 % CI 1.2-1.5) and anxiety or stress-related disorder (95 % CI 1.2-1.4). The association between social work and CMD was stronger among men (HR 1.7, 95 % CI 1.6-1.9) compared to women (HR 1.2, 95 % CI 1.1-1.3). Further, men working as assistance analysts had the highest risk among the occupational categories (HR 2.2, 95 % CI 1.2-3.9). Limitations: CMD diagnoses only included cases treated in secondary care. **Conclusions:** Social workers, especially male social workers, had a higher risk of CMD. This deserves attention for future research and interventions aimed at improving the mental health of social workers.

**Knihs de Camargo et al. 2024.**

**Journal of Affective Disorders, vol. 355.**

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

**Keywords:** Anxiety disorders; cohort; depressive disorders; occupational health; social workers; trauma and stress-related disorders.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0165032724005950?via%3Dihub>

### **Cardiorespiratory fitness in midlife and subsequent incident depression, long-term sickness absence, and disability pension due to depression in 330,247 men and women**

**Background:** Specific information for whom and when cardiorespiratory fitness (CRF) is associated with depression risk is lacking. We aimed to study the association between adulthood CRF and incident depression, long-term sickness absence, and disability pension due to depression, as well as examine moderation of sex, age, education, and occupation on associations. **Methods:** A large prospective cohort study follows participants over time with Swedish occupational health screenings data. The study includes 330,247 individuals (aged 16–79 years, 46% women) without a depression diagnosis at baseline. CRF was estimated from a submaximal cycle test. **Results:** CRF was associated beneficially from low to higher levels with incident depression and long-term sickness absence due to depression. Further, CRF at high levels ( $\geq 46$  ml/min/kg) was associated with a decreased risk of receiving disability pension due to depression. The associations remained after adjustment for age and sex, but not lifestyle-related factors and co-morbidity. Participants with moderate and high CRF had 16% and 21%, respectively, lower risk for incident depression, and participants with high CRF had 11% lower risk for long-term sickness absence due to depression. Associations between higher CRF and the outcomes were mainly evident in men, younger participants, and individuals with low education. **Conclusion:** In a large sample of adults without a depression diagnosis at baseline, higher CRF was shown to be beneficially related to the risk of incident depression and, to some extent, long-term sickness absence due to depression. If causal, targeted interventions focusing on increasing CRF in these sub-groups should be prioritized.

**Wiklund et al. 2024.**

**Preventative Medicine, vol. 181.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cardiorespiratory fitness; depression; disability pension; long-term sick leave; physical activity.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0091743524000719?via%3Dihub>

### **Change in employment status and its causal effect on suicidal ideation and depressive symptoms: A marginal structural model with machine learning algorithms**

**Background:** This study aimed to assess the causal effect of a change in employment status on suicidal ideation and depressive symptoms by applying marginal structural models (MSM) with machine-learning (ML) algorithms. **Methods:** We analyzed data from the 8–15<sup>th</sup> waves (2013–2020) of the Korean Welfare Panel Study, a nationally representative longitudinal dataset. Our analysis included 13 294 observations from 3621 participants who had standard employment at baseline (2013–2019). Based on employment status at follow-up year (2014–2020), respondents were classified into two groups: (i) maintained standard employment (reference group), (ii) changed to non-standard employment. Suicidal ideation during the past year and depressive symptoms during the past week were assessed through self-report questionnaire. To apply the ML algorithms to the MSM, we conducted eight ML algorithms to build the propensity score indicating a change in employment status. Then, we applied the MSM to examine the causal effect by using inverse probability weights calculated based on the propensity score from ML algorithms.

**Results:** The random forest algorithm performed best among all algorithms, showing the highest area under the curve 0.702, 95% confidence interval (CI) 0.686–0.718. In the MSM with the random forest algorithm, workers who changed from standard to non-standard employment were 2.07 times more likely to report suicidal ideation compared to those who maintained standard employment (95% CI 1.16–3.70). A similar trend was observed in the analysis of depressive symptoms. **Conclusions:** This study found that a change in employment status could lead to a higher risk of suicidal ideation and depressive symptoms.

**Yoon et al. 2024.**

**Scandinavian Journal of Work, Environment and Health, vol. 50, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Employment status; suicidal ideation; depression; depressive symptoms.

**Evidence Level:** 4B

Link: <https://www.sjweh.fi/article/4150>

## **Bullying, Harassment and Occupational Violence**

*This month we explore bullying, harassment and occupational violence issues associated with a participatory and comprehensive intervention to improve violence prevention and impacts of workplace verbal aggression classified via text mining on workers' mental health*

### **A participatory and comprehensive intervention to improve violence prevention in two high-risk occupations: Effect and process evaluation of a stepped wedge cluster randomised trial**

**Background:** Work-related violence committed by clients, patients, and customers represents a major occupational health risk for employees that needs to be reduced. **Methods:** We tested a comprehensive violence prevention intervention involving active participation of both employees and managers in the Prison and Probation Service (PPS) and on psychiatric wards in Denmark. We used a stepped wedge cluster randomised controlled trial design. We measured the degree of implementation of the intervention by registration of fidelity, reach, and dose and used a mixed-effects regression analysis to estimate the effects of the intervention. **Results:** We recruited 16 work units for the intervention, but three work units dropped out. The average implementation rate was 73%. In the psychiatric wards, the intervention led to statistically significant improvements in the primary outcome (an increase in the degree to which managers and employees continuously work on violence prevention practices based on their registration and experiences), but none statistically significant improvements in any of the secondary outcomes. In the PPS units, the intervention did not lead to a statistically significant improvement in the primary outcome, but to statistically significant improvements in three secondary outcomes. **Conclusion:** Most work units were able to carry out the intervention as planned. The intervention showed mixed results regarding the primary outcome. Nevertheless, the results indicate improvements also in the sector where a change in the primary outcome was not achieved. The results point at that a participatory and comprehensive approach could be a viable way of working with violence prevention in high-risk workplaces.

**Andersen et al. 2024.**

**BMC Public Health, vol. 24, no. 1.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Comprehensive violence prevention; employee participation; implementation; work-related violence and threats.

**Evidence Level:** 2B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-18527-5>

### **Impacts of workplace verbal aggression classified via text mining on workers' mental health**

**Background:** Exposure to workplace aggression adversely affects workers' health; however, little is known regarding the impact of specific types of verbal content. **Aims:** We aimed to examine the relationship between exposure to several types of aggressive words at work and the victim's depressive symptoms and sleep disturbance using text mining. **Methods:** We conducted a longitudinal survey with 800 workers in wholesale and retail companies; of which, 500 responded to the follow-up survey. The Centre for Epidemiologic Studies-Depression Scale and Pittsburgh Sleep Quality Index were filled out by the participants, and their responses were analysed by logistic regression to evaluate the risk of depression or sleep problems. We collected exact aggressive words encountered at work over the past year as a dependent variable and classified it into four types using text mining, such as words criticizing one's performance. **Results:** The follow-up rate was 63%. Exposure to words threatening one's life showed a significant relationship with the risk of depression (odds ratio [OR] = 13.94, 95% confidence interval [CI] = 1.76-110.56). The exposure to words criticizing one's job performance is significantly related to the risk of sleep disturbance (OR = 5.56, 95% CI = 2.08-14.88). **Conclusions:** These findings suggest that different contents of verbal aggression can have different impacts on workers' health. This indicates that not only overtly threatening and abusive language but also words related to one's performance can be a risk factor for workers, depending on how they are delivered. To mitigate the adverse effects, promoting effective communication and cultivating psychological detachment from work may be beneficial.

**Nishimura et al. 2024.**

**Occupational Medicine, vol. 74, no. 2.**

**User License:** *Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)*

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

**Keywords:** Mental health; workplace aggression; text; mining.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/occmed/article/74/2/186/7606766?login=false>

## Psychosocial Issues

*This month we explore psychosocial issues associated with the design of office space, effectiveness of an online recovery training for employees exposed to blurred boundaries between work and non-work, life satisfaction and job and personal resources among workers with non-standard work schedules, and the relationship between resilience at work, work engagement and job satisfaction. We also explore boredom and engagement at work, balancing life domains, the interaction between voice disorders and stress and changes in family situation and concurrent changes in working life.*

## Office design's impact on psychosocial work environment and emotional health

**Background:** This study explores the association between office design and (a) the psychosocial work environment and (b) the emotional health among 4352 employees in seven different office designs. A multivariate linear regression analysis was performed with adjustments for age and educational level for men and women separately. **Results:** Results show that psychosocial factors and emotional exhaustion differ between both office designs and between genders, with best outcomes in cell offices, except for psychological demands that are rated the most favourable in shared-room offices. Cell offices and small open-plan offices show a strong beneficial association with emotional exhaustion in women. **Conclusions:** Among men, hot-desking is most problematic regarding psychosocial work environment and emotional exhaustion. Women rate the psychosocial environment low in combi-office and report emotional exhaustion in small open offices.

**Bodin Danielsson et al. 2024.**

**International Journal of Environmental Research and Public Health, vol. 21, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Job Demand–Control–Support model; emotional exhaustion; emotional health; gender; office design; office work environment; psychosocial work environment; social health.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/21/4/438>

## Effectiveness of an online recovery training for employees exposed to blurred boundaries between work and non-work: Bayesian analysis of a randomised controlled trial

**Background:** Blurred work-non-work boundaries can have negative effects on mental health, including sleep. Objectives: In a randomised control trial, we aimed to assess the effectiveness of an online recovery training programme designed to improve symptoms of insomnia in a working population exposed to blurred boundaries. **Methods:** 128 participants with severe insomnia symptoms (Insomnia Severity Index  $\geq 15$ ) and working under blurred work and non-work conditions (segmentation supplies  $< 2.25$ ) were randomly assigned to either the recovery intervention or a waitlist control group (WLC). The primary outcome was insomnia severity, assessed at baseline, after 2 months (T2) and 6 months (T3). **Results:** A greater reduction in insomnia was observed in the intervention compared with the WLC group at both T2 ( $d=1.51$ ; 95% CI=1.12 to 1.91) and T3 ( $d=1.63$ ; 95% CI=1.23 to 2.03]. This was shown by Bayesian analysis of covariance (ANCOVA), whereby the ANCOVA model yielded the highest Bayes factor ( $BF_{10}=3.23 \times e^{60}$ ) and a 99.99% probability. Likewise, frequentist analysis revealed significantly reduced insomnia at both T2 and T3. Beneficial effects were found for secondary outcomes including depression, work-related rumination, and mental detachment from work. Study attrition was 16% at T2 and 44% at T3. **Conclusions:** The recovery training was effective in reducing insomnia symptoms, work related and general indicators of

mental health in employees exposed to blurred boundaries, both at T2 and T3. Clinical implications: In addition to demonstrating the intervention's effectiveness, this study exemplifies the utilisation of the Bayesian approach in a clinical context and shows its potential to empower recipients of interventional research by offering insights into result probabilities, enabling them to draw informed conclusions.

**Brückner et al. 2024.**

**BMJ Mental Health, vol. 27, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Data Interpretation, statistical; depression & mood disorders; sleep.

**Evidence Level:** 2A

**Link:** <https://mentalhealth.bmj.com/content/27/1/e301016.long>

### **Life satisfaction and job and personal resources among public workers with non-standard work schedules**

**Background:** While the link between non-standard work schedules and poor health outcomes is established, few studies have examined how resources both in and outside of work can support the well-being of workers with non-standard work schedules. **Methods:** Using a cross-sectional survey, we assessed the association between one facet of well-being, life satisfaction, and job and personal resources. In 2019, an electronic survey was administered to two unionized, public service populations who work non-standard work schedules: transportation maintainers and correctional supervisors. We assessed life satisfaction with a 10-item scale; a broad set of job resources (reward satisfaction, supervisor support, co-worker support, schedule satisfaction, and working hours fit); and a broad set of personal resources (health status, sleep, physical activity, and finances). We used log-binomial regression models to estimate prevalence ratios and 95% confidence intervals among statistically significant univariate predictors. **Results:** Of the 316 workers surveyed, the majority were male (86%), White (68%), and reported positive life satisfaction (56%). In multivariate models, the prevalence of positive life satisfaction was higher in workers reporting reward satisfaction (PR:1.35, 95% CI: 1.11, 1.65;  $p = 0.003$ ), good work schedule fit (PR:1.43, 95% CI: 1.12, 1.83;  $p = 0.004$ ), good health (PR:2.92, 95% CI: 1.70, 4.99;  $p < 0.0001$ ), and good finances (PR:1.32, 95% CI: 1.01, 1.72;  $p = 0.04$ ). **Conclusion:** Employers should consider increasing work recognition, as well as improving schedule fit, financial well-being, and overall good health in support of worker life satisfaction and ultimately well-being.

**Cavallari et al. 2024.**

**BMC Public Health, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Job resources; life satisfaction; personal resources; well-being; worker.

**Evidence Level:** 4B

**Link:** <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-024-18575-x>

### **Relationship between resilience at work, work engagement and job satisfaction among engineers: A cross-sectional study**

**Background:** Workplace challenges can negatively affect employees and the organization. Resilience improves work-related outcomes like engagement, satisfaction, and performance. Gaps exist in studying resilience at work, particularly in relation to engagement and satisfaction. Therefore, this study aims to investigate relationship between Resilience at Work, Work Engagement and Job Satisfaction among engineers in an Egyptian Oil and Gas Company. **Methods:** It was a cross-sectional study. The target population was the engineers who are working in Egyptian Oil and Gas Company. The study was performed on 100 engineers. Participants were enrolled by simple random sampling technique via an online questionnaire. The study was conducted from May 2023 to the end of September 2023. The data were collected in the duration of June to August 2023. Data was obtained through a structured and personally accomplished questionnaire, which was disseminated electronically via email. The questionnaire comprises of personal information, work experience, a Resilience at Work scale consisting of 20 items, the Utrecht Work Engagement Scale with nine items to evaluate work engagement, and the 20-item Short-Form Minnesota Satisfaction Questionnaire was utilized to determine employee satisfaction. The bivariate analysis employed independent samples t-test and Mann-Whitney U test. The associations between scores were measured by Spearman rho correlation. Simple linear and multiple linear regressions were used to



predict work engagement and job satisfaction. **Results:** A statistically strong positive correlation was observed among all the aspects of work engagement, including vigor, absorption, and dedication. This study demonstrated a significant correlation between resilience and work engagement ( $r = 0.356$ ,  $p < 0.05$ ). There was a strong correlation between resilience and job satisfaction ( $r = 0.608$ ,  $p < 0.05$ ). A significant moderate correlation was determined between job satisfaction and work engagement ( $r = 0.396$ ,  $p < 0.05$ ). Both gender with a female coefficient of  $-15.517$ , and resilience with a coefficient of  $0.235$  significantly predicted work engagement. Whereas, the significant predictors of job satisfaction were resilience ( $\beta = 0.294$ ), and work engagement ( $\beta = 0.283$ ). **Conclusions:** Resilience greatly affects work engagement and job satisfaction. Thus, organizations need to promote resilience in employees to create a positive work environment and increase productivity.

**Ibrahim et al. 2024.**

**BMC Public Health, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Absorption; dedication; engineers; job satisfaction; resilience; vigor; work engagement.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-18507-9>

### **Boredom and engagement at work: Do they have different antecedents and consequences?**

**Background:** This study aimed to demonstrate the empirical distinctiveness of boredom at work and work engagement in relation to their potential antecedents (job demands and job resources) and consequences (psychological distress and turnover intention) based on the Job Demands-Resources model. **Methods:** A three-wave longitudinal survey was conducted among registered monitors of an Internet survey company in Japan. The questionnaire included scales for boredom at work, work engagement, psychological distress, and turnover intention as well as participants' job characteristics and demographic variables. The hypothesized model was evaluated via structural equation modeling with 1,019 participants who were employed full-time. **Results:** As expected, boredom at work was negatively associated with quantitative job demands and job resources and positively associated with psychological distress and turnover intention. In contrast, work engagement was positively associated with job resources and negatively associated with turnover intention. Thus, boredom at work and work engagement had different potential antecedents and were inversely related to employee well-being and organizational outcomes. However, contrary to expectations, qualitative job demands were not significantly associated with boredom at work.

**Conclusions:** Further investigation is needed to understand the relationship between boredom and qualitative job demands, which require sustained cognitive load and the use of higher skills.

**Kawada et al. 2024.**

**Industrial Health, vol. 62, no. 2.**

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

**Keywords:** Boredom at work; job demands-resources model; longitudinal design; psychological distress; structural equation modeling; turnover intention; work engagement.

**Evidence Level:** 4B

**Link:** [https://www.istage.jst.go.jp/article/indhealth/62/2/62\\_2023-0028/\\_article](https://www.istage.jst.go.jp/article/indhealth/62/2/62_2023-0028/_article)

### **A new perspective on balancing life domains: Work-nonwork balance crafting**

**Background:** Self-initiated and proactive changes in working conditions through crafting are essential for shaping work and improving work-related well-being. Recently, the research stream of job crafting has been extended to other life domains. The present paper aims to study a novel crafting concept-work-nonwork balance crafting-investigating the role of its antecedents and identifying relevant outcomes. Work-nonwork balance crafting is defined as individuals' unofficial techniques and activities to shape their work-nonwork balance, here considering their life domain boundary preferences. **Methods:** In the study, 1,060 employees in three European countries (Austria, Germany and Switzerland) were surveyed in a longitudinal three-wave study with three-month intervals. We explored the influences of job/home demands and resources as antecedents of work-nonwork balance crafting. Important constructs for employee health and well-being (i.e., work engagement, work-related burnout, mental well-being and

detachment from work) were investigated as outcomes. **Results:** The findings suggest that resources and demands in the context of work or home are key antecedents of work-nonwork balance crafting. Work-nonwork balance crafting was also predictive for important employee health and well-being outcomes over three months, mainly in a positive and health-promoting way. **Conclusion:** This study provides insights into the antecedents of proactive efforts to balance the complex interplay of life domains. By studying work-nonwork balance crafting, we provide a new perspective on crafting beyond job crafting, which may help maintain or improve employees' mental health and well-being.

**Kerksieck et al. 2024.**

**BMC Public Health, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Employee health; health-promoting work behaviour; job crafting; life domain boundaries; work-life balance; work-nonwork interface.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-18646-z>

### **The interaction between voice disorders and stress for work ability of teachers**

**Background:** Less attention has been paid to the interaction between voice disorders, stress, and indoor environmental quality for work ability in teachers. Therefore, our aim was to study whether lower work ability associated more strongly when the variables of voice disorders and stress at work were combined as opposed to evaluating these two factors separately. **Methods:** We conducted a questionnaire study including validated self-assessment of work ability and a technical assessment of school buildings utilizing a sample of 1198 and a subsample ( $n = 538$ ) of Finnish teachers. **Results:** When combined, voice disorders and stress at work had a stronger association to decreased work ability than when they were evaluated separately. The occurrence of stress was more prevalent in poor and moderate work ability than the occurrence of voice disorders. Nine out of 10 of the teachers who had neither voice disorders nor stress reported good work ability, while four out of 10 of the teachers who suffered from both voice disorders and stress had poor work ability. As regards the background variables, nearly half of the subjects working in the non-problem buildings have neither stress nor voice disorders. **Conclusions:** We recommend offering support for reducing stress at work to improve teachers' work performance. The findings also support the maintenance of school buildings and keeping them in good condition. Follow-up studies are needed to investigate the possible effects of voice disorders and the associated variables on work ability.

**Vertanen-Greis et al. 2024.**

**Logopedics Phoniatrics Vocology, vol. 49, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Voice disorder; school building; stress at work; teacher; work ability.

**Evidence Level:** 5B

**Link:** <https://www.tandfonline.com/doi/full/10.1080/14015439.2022.2085787>

### **Changes in family situation and concurrent changes in working life: a 15-year longitudinal analysis**

**Background:** Currently, little is known regarding changes in family situation with concurrent changes in working life. This study aimed to examine whether changes in family situation (based on living with children and/or marrying/divorcing) were associated with changes in working life and whether the associations were influenced by sex, genetics and early life environment. **Methods:** Prospective cohort study. Setting and participants: Data from Swedish national registers of 16 410 twins were used. Fixed-effects logistic regression models assessing ORs with 95% CIs were applied to examine associations between changes in family situation and working life controlling for time-invariant effects and adjusted for covariates, and conditional models to account for confounding of genetics and early life environment. **Results:** Changes in individuals life situation from being single and living without children to married and living with children were associated with transitioning from unsustainable (ie, having unemployment or sickness absence/disability pension) to sustainable working life (men: OR 2.40, 95% CI 2.26 to 2.56; women: OR 1.68, 95% CI 1.59 to 1.78). Changes from being married to single, in contrast, attenuated the likelihood of transitioning to a sustainable working life. Moreover, changes in men's working life seem to be more dependent on changes in family situation compared with women. Genetic factors and early life

environment play a role in the associations. **Conclusions:** Family formation increases the likelihood of a more stable working life whereas divorce is a risk factor for work interruptions. Our study emphasises that family formation improves the work life situation and to a higher degree for men.

**Wang et al. 2024.**

**Family Medicine and Community Health, vol. 12, no. 2.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Epidemiology; family planning policy; family planning services; occupational health.

**Evidence Level:** 4B

**Link:** <https://fmch.bmj.com/content/12/2/e002438.long>

## Fostering Work Participation

### Return to Work

*This month we explore return to work issues associated with long-term breast cancer survivors, refractory out-of-hospital cardiac arrest and disabling work injury or illness.*

### Work status changes and associated factors in a nationwide sample of Norwegian long-term breast cancer survivors

**Background:** The study aims to describe work status at diagnosis and 8 years post-diagnosis in a nationwide sample of breast cancer survivors (BCSs), and investigate associated and self-reported factors of reduced work status. **Methods:** Women aged 20-65 years when diagnosed with stage I-III breast cancer (BC) in 2011 or 2012 were invited to participate in a questionnaire study in 2019 (n = 2803), of whom 49% (n = 1361) responded. For this sub-study, we included 974 BCSs below the legal retirement age in Norway (< 67 years) at survey and with complete work status data. Reduced work status was defined as being in paid work at BC diagnosis and not working at time of survey. Logistic regression analyses were applied to identify factors associated with reduced work status. **Results:** Of BCSs who were in paid work at diagnosis (n = 845), 63% maintained their work status to 8 years later. Reduced work status was associated with not living with children (OR .44, 95% CI .24-.82), age (OR 1.16, 95% CI 1.11-1.21), chemotherapy (OR 2.83, 95% CI 1.24-6.61), > 2 comorbid conditions (OR 2.27, 95% CI 1.16-4.32), cognitive function (OR .99, 95% CI .98-.99), fatigue (OR 1.02, 95% CI 1.01-1.03), and neuroticism (OR 1.57, 95% CI 1.00-2.46). BC and late effects were reported as reasons for reduced work status and disability. **Conclusions:** The majority of BCSs who were in paid work at diagnosis were working 8 years later. Implications for cancer survivors: Our results suggest a need to focus on fatigue and reduced cognitive function among long-term BCSs, with the ultimate aim of improving work sustainability.

**Bøhn et al. 2024.**

**Journal of Cancer Survivorship, vol. 18, no. 2.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Breast cancer; late effects; return to work; survivorship; work sustainability.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s11764-022-01202-2>

### Return to work after refractory out-of-hospital cardiac arrest in patients managed with or without extracorporeal cardiopulmonary resuscitation: A nationwide register-based study

**Background:** Extracorporeal cardiopulmonary resuscitation (ECPR) is increasingly used for refractory out-of-hospital cardiac arrest (OHCA). However, survivors managed with ECPR are at risk of poor functional status. The purpose of this study was to investigate return to work (RTW) after refractory OHCA. **Methods:** Of 44 360 patients with OHCA in the period of 2011 to 2020, this nationwide registry-based study included 805 patients with refractory OHCA in the working age (18-65 years) who were employed before OHCA (2% of the total OHCA cohort). Demographics, prehospital characteristics, status at hospital arrival, employment status, and survival were retrieved through the Danish national registries. Sustainable RTW was defined as RTW for ≥6 months without any long sick leave relapses. Median follow-up time was 4.1 years. ECPR and standard advanced cardiovascular life support were applied in 136 and 669 patients, respectively. **Results:**

RTW 1 year after OHCA was similar (39% versus 54%;  $P=0.2$ ) and sustainable RTW was high in both survivors managed with ECPR and survivors managed with standard advanced cardiovascular life support (83% versus 85%;  $P>0.9$ ). Younger age and shorter length of hospitalization were associated with RTW in multivariable Cox analysis, whereas ECPR was not. **Conclusions:** In refractory OHCA-patients employed prior to OHCA, approximately 1 out of 2 patients were employed after 1 year with no difference between patients treated with ECPR or standard advanced cardiovascular life support. Younger age and shorter length of hospitalization were associated with RTW while ECPR was not.

**Gregers et al. 2024.**

**Journal of the American Heart Association, vol. 13, no. 7.**

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

**Keywords:** Extracorporeal cardiopulmonary resuscitation; out-of-hospital cardiac arrest; return to work.

**Evidence Level:** 4B

**Link:** <https://www.ahajournals.org/doi/full/10.1161/JAHA.123.034024>

### **The adequacy of workplace accommodation and the incidence of permanent employment separations after a disabling work injury or illness**

**Background:** This study aimed to estimate the influence of the adequacy of employer accommodations of health impairments in predicting permanent separation from the employment relationship in a cohort of workers disabled by a work-related injury or illness. **Methods:** The study used data from a retrospective, observational cohort of 1793 Ontario workers who participated in an interviewer-administered survey 18 months following a disabling injury or illness. The relative risks (RR) of a permanent employment separation associated with inadequate employer accommodations were estimated using inverse probability of treatment weights to reduce confounding. **Results:** Over the 18-month follow-up, the incidence of permanent separation was 30.1/100, with 49.2% of separations related to health status. Approximately 51% of participants experiencing a separation were exposed to inadequate workplace accommodations, compared to 27% of participants in continuing employment. The propensity score adjusted RR of a health-related separation associated with inadequate accommodation was substantial [RR 2.72; 95% confidence interval (CI) 2.20-3.73], greater than the RR of separations not related to health (RR 1.68; 95% CI 1.38-2.21).

**Conclusions:** Incidence of permanent separation in this cohort of Ontario labor force participants was approximately two times more frequent than would be expected. The adequacy of employer accommodation was a strong determinant of the risk of permanent separation. These findings emphasize the potential for strengthened workplace accommodation practices in this setting.

**Mustard et al. 2024.**

**Scandinavian Journal of Work, Environment and Health, vol. 50, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Workplace accommodation; disability work injury; illness; permanent separation.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4149>

### **Presenteeism and Absenteeism**

*This month we explore presenteeism and absenteeism issues associated with caring for older parents, childhood maltreatment and adult work absenteeism, effect of managerial and employee participation, post-injury long-term sickness absence and risk of disability pension and work-family conflicts and sickness absence.*

### **Caring for older parents in Norway - How does it affect labor market participation and absence from work?**

**Background:** As the population ages, younger generations will increasingly be called upon to provide informal care to their aging parents. To prepare for this development, it is essential to understand how employees combine the dual responsibilities of work and caring for aging parents. **Methods:** By analyzing data collected in Norway in 2022 from a nationally representative sample of 6049 respondents, aged 35 to

67, we investigated how caring for older parents affects labor market participation and work absence. We provide descriptive statistics and conduct analyses with structural equation modeling. **Results:** These analyses indicated that caregiving had no substantial impact on overall participation in the workforce. However, employees did use work absences to assist their parents. We differentiate between using holidays, compensatory time, and three types of formal leave: paid, unpaid, and sick leave. More than a third of the formal leave was taken as sick leave. Women were moderately more likely to use work absence to care for their parents. We conclude that caregiving for older parents currently has little effect on work participation in Norway and attribute the favorable situation in Norway to its comprehensive public elderly care system. However, a contributing factor is Norway's generous sick leave policy. Although intended for use when employees are sick themselves, sick leave is used by employees to provide care to aging parents. Sick leave seems to act as a safety valve. To mitigate the effects of informal care on work participation, welfare states may create conditions that allow employees to combine work and informal care without resorting to unauthorized sick leave. **Conclusions:** A solution could be to extend the existing support scheme for employees with young children to those providing care for their aging parents.

**Gautun et al. 2024.**

**Social Science and Medicine, vol. 346.**

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

**Keywords:** Absence from work; family care; labor market participation; norway; older parents; sick leave.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0277953624001667?via%3Dihub>

### **Childhood maltreatment and adult work absenteeism: Work meaningfulness as a double-edged sword**

**Background:** The adverse impacts of childhood maltreatment (CM) on an individual's health and economic welfare are widely recognized, yet its occupational and organizational effects remain less explored.

Employee absenteeism, known as absenteeism, is often a sign of workplace maladjustment and may be linked to a history of CM. Some individuals in the helping professions, who exhibit a strong sense of purpose in their employment and pursue it in demanding environments, are CM survivors. **Methods:** This study investigates whether a heightened sense of meaningfulness in their work is associated with increased absenteeism among this subgroup. **Results:** We recruited 320 helping professionals from a variety of social and mental health settings, one third of whom reported experiencing CM. As hypothesized, CM was positively correlated with work absenteeism. Furthermore, the relationship between work meaningfulness and absenteeism was moderated by their CM history: among those with CM experiences, greater work meaningfulness was associated with higher absenteeism rates. **Conclusions:**

Our findings highlight the possibility that work meaningfulness may operate as a double-edged sword, and the importance of better understanding the challenges that high-functioning survivors of CM face within organizational contexts.

**Icekson et al. 2024.**

**International Journal of Environmental Research and Public Health, vol. 21, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Adult survivors; childhood maltreatment; helping professionals; job demands–resources; work absenteeism; work meaningfulness.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/21/4/451>

### **Reducing sickness absence among public-sector healthcare employees: The difference-making roles of managerial and employee participation**

**Background:** Evaluations of organizational-level interventions to prevent work-related illness have identified enabling factors, but knowledge of necessary and sufficient conditions for intervention success is needed. The aim was to identify difference-making factors that distinguish intervention groups with and without a positive intervention effect on sickness absence. **Methods:** An organizational-level intervention designed to decrease sickness absence by providing support from process facilitators was implemented at eight healthcare workplaces in Sweden between 2017 and 2018. We applied coincidence analysis (CNA) to



analyze 34 factors and determine which factors were necessary and sufficient for a successful implementation of tailored interventional measures on an organizational level (dichotomous) and reduced sickness absence (trichotomous). **Results:** Two factors perfectly explained both the presence and absence of a successful implementation: "a high sense of urgency" and "good anchoring and participation from the strategic management". The presence of either of these factors alone was sufficient for successful implementation, whereas the joint absence of both conditions was necessary and sufficient for the absence of successful implementation and an intervention effect. In addition, high employee participation was both necessary and sufficient for a high intervention effect. For organizations without high employee participation, successful implementation led to a medium-effect size. **Conclusions:** This study identified participation as a difference-maker in the implementation process. Participation from different stakeholders turned out to be important in different phases. When implementing organizational-level interventions, high participation from both strategic management and employees appears to be crucial in terms of the intervention's effect on sickness absence.

**Akerstrom et al. 2024.**

**International Archives of Occupational and Environmental Health J, vol. 97, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Absenteeism; coincidence analysis; configurational comparative methods; organization; organizational-level intervention; process evaluation; public sector; work environment; workplace interventions.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00420-024-02048-0>

**Post-injury long-term sickness absence and risk of disability pension: The role of socioeconomic status**

**Background:** Previous research has identified low socioeconomic status (SES) as a risk factor for long-term sickness absence (LTSA) and disability pension (DP) following trauma. However, most studies lack information on medical diagnoses, limiting our understanding of the underlying factors. To address this gap, we retrieved information about diagnostic causes for receipt of welfare benefits to explore the role of SES in the transition from post-injury LTSA to permanent DP among the working population in Norway.

**Methods:** We conducted a population-based cohort study of all Norwegian residents aged 25-59 years registered with a spell of LTSA due to injury commencing in the period 2000-2003. This cohort was followed through 2014 by linking information on receipt of welfare benefits with sociodemographic data from administrative registers. SES was defined as a composite measure of educational attainment and income level. We used flexible parametric survival models to estimate hazard ratios (HR) with 95 % confidence intervals (CI) for all-cause and diagnosis-specific DP according to SES, adjusting for sex, age, marital status, immigrant status and healthcare region of residence. **Results:** Of 53,937 adults with post-injury LTSA, 9,665 (18 %) transferred to DP during follow-up. The crude risk of DP was highest for LTSA spells due to poisoning and head injuries. Overall, individuals in the lowest SES category had twice the risk of DP compared to those in the highest SES category (HR = 2.25, 95 % CI 2.13-2.38). The difference by SES was greatest for LTSA due to poisoning and smallest for LTSA due to head injuries. A majority (75 %) of DP recipients had a non-injury diagnosis as the primary cause of DP. The socioeconomic gradient was more pronounced for non-injury causes of DP (HR = 2.47, 95 % CI 2.31-2.63) than for injury causes (HR = 1.73, 95 % CI 1.56-1.92) and was especially steep for DP due to musculoskeletal diseases and mental and behavioural disorders.

**Conclusions:** The relationship between SES and DP varied by both the type of injury that caused LTSA and the diagnosis used to grant DP, highlighting the importance of taking diagnostic information into account when investigating long-term consequences of injuries.

**Ohm et al. 2024.**

**Injury, vol. 55, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Data linkage; diagnosis; disability; injuries; register-based research; sick leave; socioeconomic factors.

**Evidence Level:** 4B

**Link:** [https://www.injuryjournal.com/article/S0020-1383\(24\)00167-0/fulltext](https://www.injuryjournal.com/article/S0020-1383(24)00167-0/fulltext)

## **Work-family conflicts and sickness absence: A register-linked cohort study among young and early midlife employees**

**Background:** Work-family conflicts (WFC) have been associated with poor mental health, poor self-rated health and sickness absence. However, studies on short sickness absence are lacking and more information is needed also about long sickness absence regarding the direction of WFC, and potential explaining factors particularly among young and early middle-aged employees. **Methods:** The Helsinki Health Study baseline survey (2017) among 19- to 39-year-old municipal employees (N = 3683, 80% women, response rate 51.5%) was linked to employer's sickness absence data. The associations of work-to-family conflicts (WTFC) and family-to-work conflicts (FTWC) with short (1-7 days) and long (over 7 days) sickness absence were analyzed using negative binomial regression analysis. Covariates were age, gender, family-related factors and work-related factors. Stratified analyses by occupational class were performed. The results are presented as rate ratios and their 95% confidence intervals. **Results:** High WTFC were associated with short (1.25, 1.12-1.40) and long (1.37, 1.11-1.70) sickness absence. High FTWC were also associated with short (1.12, 1.03-1.22) and long (1.24, 1.06-1.45) sickness absence. Adjustment for family-related factors strengthened the associations, whereas adjustment for work-related factors abolished the associations between WTFC and sickness absence. Associations between WFC and sickness absence were observed among two lowest occupational classes only. **Conclusion:** WFC are associated with both short and long sickness absence. Work-related factors including the quality of supervisory work and shift work play a role in the association. Intervention studies could determine if improvements in combining work and family life lead to a reduction in sickness absence.

**Salonsalmi et al. 2024.**

**European Journal of Public Health, vol. 34, no. 2.**

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

**Keywords:** Work-family conflict; sickness; absence; employees; young; elderly.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/eurpub/article/34/2/316/7603863?login=false>

## **Wellness Programs**

*This month we explore wellbeing programs including workplace choice architecture modification for healthy eating and daily physical activity and a dietary intervention in a workplace*

### **Effectiveness of workplace choice architecture modification for healthy eating and daily physical activity**

**Background:** Modifying the choice architecture of behavioural contexts can facilitate health behaviour change, but existing evidence builds mostly on small-scale interventions limited in duration, targets, strategies, and settings. We evaluated the effectiveness of a one-year hybrid type 2 implementation-effectiveness trial aimed at promoting healthy eating and daily physical activity with subtle modifications to the choice architecture of heterogeneous worksites. The intervention was contextualised to and integrated into the routine operations of each worksite. Effectiveness was evaluated in a quasi-experimental pre-post design. **Methods:** Intervention sites (n = 21) implemented a median of two (range 1-9) intervention strategies for healthy eating and one (range 1-5) for physical activity. Questionnaires pre (n = 1126) and post (n = 943) intervention surveyed employees' behavioural patterns at work (food consumption: vegetables/roots, fruit/berries, nuts/almonds/seeds, sweet treats, fast food, water; physical activity: restorative movement, exercise equipment use, stair use). The post-intervention questionnaire also measured employees' perception of and response to three intervention strategies: a packed lunch recipe campaign, a fruit crew-strategy, and movement prompts. Multi- and single-level regression models evaluated effectiveness, treating intervention as a continuous predictor formed of the site-specific dose (n intervention strategies employed) and mean quality (three-point rating per strategy halfway and at the end of the intervention) of implementation relevant to each outcome. **Results:** Multinomial logistic regression models found the intervention significantly associated with a favourable change in employees' fruit and berry consumption (interaction effect of time and implementation p = 0.006) and with an unfavourable change in sweet treat consumption (p = 0.048). The evidence was strongest for the finding concerning

fruit/berry consumption-an outcome that sites with greater dose and quality of implementation targeted by using strategies that reduced the physical effort required to have fruit/berries at work and by covering multiple eating-related contexts at the worksite. The quality of implementation was positively associated with the perception of ( $p = 0.044$ ) and response to ( $p = 0.017$ ) the packed lunch recipes, and with response to the fruit crew-strategy ( $p < 0.001$ ). **Conclusions:** The results suggest that a contextualised, multicomponent choice architecture intervention can positively influence eating behaviour in diverse real-world settings over a one-year period, and that higher implementation quality can enhance intervention perception and response. However, outcomes may depend on the type of intervention strategies used and the extent of their delivery.

**Rantala et al. 2024.**

**BMC Public Health, vol. 24, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Behaviour change; choice architecture; diet; health promotion; nudge; physical activity; prevention; Type 2 Diabetes; workplace.

**Evidence Level:** 3B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-024-18482-1>

### **Effects of a dietary intervention on cardiometabolic risk and food consumption in a workplace**

**Background:** Worksite-based health programs have shown positive impacts on employee health and have led to significant improvements in cardiovascular risk factor profiles. We aimed to determine the effect of cafeteria intervention on cardio-metabolic risk factors diet in a worksite setting (Dhulikhel Hospital) in Nepal. **Methods:** In this one-arm pre-post intervention study, we recruited 277 non-pregnant hospital employees aged 18-60 with prediabetes or pre-hypertension. The study was registered in clinicaltrials.gov ([NCT03447340](https://clinicaltrials.gov/ct2/show/study/NCT03447340); 2018/02/27). All four cafeterias in the hospital premises received cafeteria intervention encouraging healthy foods and discouraging unhealthy foods for six months. We measured blood pressure, fasting glucose level, glycated hemoglobin, cholesterol in the laboratory, and diet intake (in servings per week) using 24-hour recall before and six months after the intervention. The before and after measures were compared using paired-t tests. **Results:** After six months of cafeteria intervention, the median consumption of whole grains, mono/polyunsaturated fat, fruits, vegetable and nuts servings per week increased by 2.24( $p < 0.001$ ), 2.88( $p < 0.001$ ), 0.84( $p < 0.001$ ) 2.25( $p < 0.001$ ) and nuts 0.55 ( $p < 0.001$ ) servings per week respectively. The median consumption of refined grains decreased by 5.07 servings per week ( $p < 0.001$ ). Mean systolic and diastolic blood pressure decreased by 2 mmHg (SE = 0.6;  $p = 0.003$ ) and 0.1 mmHg (SE = 0.6;  $p = 0.008$ ), respectively. The low-density lipoprotein (LDL) was significantly reduced by 6 mg/dL (SE = 1.4;  $p < 0.001$ ). **Conclusion:** Overall, we found a decrease in consumption of refined grains and an increase in consumption of whole grains, unsaturated fats, fruits, and nuts observed a modest reduction in blood pressure and LDL cholesterol following a 6-month cafeteria-based worksite intervention incorporating access to healthy foods.

**Shrestha et al. 2024.**

**PLoS One, vol. 19, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Dietary intervention; cardiometabolic risk; food consumption; workplace.

**Evidence Level:** 3B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0301826>

## **Organisational Issues**

### **Does where you work and what you do matter? Testing the role of organizational context and job type for future study of occupation-based secondary trauma intervention development**

**Background:** Organizational context (e.g., criminal justice, community-based, and healthcare) and job type (e.g., police, social workers, and healthcare providers) may impact the extent of occupation-based secondary trauma (OBST). **Methods:** Survey data collected from a multiphase community-based participatory research project were analyzed from a variety of professionals, who were likely to "encounter

the consequences of traumatic events as part of their professional responsibilities" ( $n = 391$ , women = 55%, White = 92%). **Results:** Results document high trauma exposure (adverse childhood experiences [ACEs] and workplace) and OBST-related outcomes (Maslach Burnout Inventory, Secondary Traumatic Stress Scale, post-traumatic stress disorder symptom checklist for DSM-5) for the entire sample with important differences across organizational context and job type. Using multivariate regression, the strongest determinants of suffering, however, were not related to a provider's specific profession but to their number of years on the job and their ACEs (e.g., adjusted  $R^2 = 0.23$ ,  $b = 2.01$ ,  $p < .001$ ). Likewise, the most protective factors were not profession specific but rather the provider's age and perceived effectiveness of OBST-related training (e.g.,  $b = 2.26$ ,  $p < .001$ ). **Conclusions:** These findings inform intervention development and have implications for rural and other often under-resourced areas, where the same OBST-related intervention could potentially serve many different types of providers and organizations.

**Knight et al. 2024.**

**Journal of Interpersonal Violence, vol. 39, no. 7-8.**

**User License:** Creative Commons - Attribution-NonCommercial 4.0 International (CC BY-NC 4.0)

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

**Keywords:** Adverse childhood experiences; burnout; post-traumatic stress disorder; secondary traumatic stress; victim services; workplace trauma exposure.

**Evidence Level:** 4B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10923160/>

## Job Design

### The struggle to regulate precarious work arrangements to minimize their adverse effects on health and safety in Australia

**Background:** As in other countries, the growth of precarious work arrangements in Australia from the late 1970s has had significant adverse effects on occupational health and safety (OHS). While there is now a large body of global research on this issue and its connection to the rise of neoliberalism, there has been less investigation of efforts to address these problems. **Methods:** This article reviews regulatory interventions in Australia over the past two decades. It particularly focuses on industrial relations regulation, which can play a critical role in addressing at least some of the underlying reasons why precarious work undermines OHS. **Results and Conclusions:** The most significant of these changes were passed by the Australian Parliament in February 2024, including a highly controversial but world-leading creation of minimum standards for platform workers.

**Underhill et al. 2024.**

**International Journal of Social Determinants of Health and Health Services, vol. 54, no. 2.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Employment regulation; occupational health and safety; precarious work; trade unions.

**Evidence Level:** 6A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10955779/>

## Shift Work

*This month we explore shift work issues associated with retinal vasculature diameters, risk for coronary artery disease, dietary patterns, moral decision-making and breast cancer*

### Impact of shiftwork on retinal vasculature diameters over a 5-year period: A preliminary investigation using the BCOPS study data

**Background:** Our aim was to investigate the impact of shiftwork on changes in central retinal arteriolar equivalent (CRAE), a measure of arteriolar width, and central retinal venular equivalent (CRVE), a measure of venular width, over five years. **Methods:** The participants were 117 officers (72.7% men) examined at the first (2011-2014) and second (2015-2019) follow-up examinations in the Buffalo Cardio-Metabolic Occupational Police Stress study. Shiftwork data were obtained from the City of Buffalo, NY payroll records.

Retinal diameters were measured using a standardized protocol. ANCOVA was used to compare mean change in CRAE and CRVE between the two examinations across shiftwork categories. **Results:** Among men only, those who worked  $\geq 70\%$  hours on day shifts had a larger decrease in mean CRAE ( $-7.13 \mu\text{m} \pm 2.51$ ) compared to those who worked  $< 70\%$  day ( $-0.08 \pm 0.96$ ;  $p = 0.011$ ). Among patrol officers, those who worked  $\geq 70\%$  day had a larger decrease in CRAE compared to those who worked  $< 70\%$  day ( $p = 0.015$ ). Also, officers who worked  $\geq 70\%$  day had an increase in mean CRVE ( $\mu\text{m}$ ) ( $4.56 \pm 2.56$ ) compared to those who worked  $< 70\%$  ( $-2.32 \pm 1.32$ ;  $p = 0.027$ ). **Conclusions:** Over the five-year period, we observed adverse changes in arteriolar and venular diameters among officers who worked  $\geq 70\%$  on day shifts. The results should be interpreted with caution due to the small sample sizes.

**Charles et al. 2024.**

**International Journal of Environmental Research and Public Health, vol. 21, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** CRAE; CRVE; police officers; retinal arterioles; retinal venules; shiftwork.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/21/4/439>

### **Occupational risk for coronary artery disease in shift workers - A systematic review**

**Background:** Coronary artery disease (CAD) prevention in shift workers (SWs) poses a significant challenge worldwide, as CAD remains a major cause of mortality and disability. In the past, SWs were found at higher risk of CAD than non-SWs. Nevertheless, the pathogenic mechanism between shift work and CAD to date is unclear. This systematic review aims to enhance understanding of the risk of CAD occurrence in SWs.

**Methods:** A systematic literature review was conducted from January 2013 to December 2023.

MEDLINE/Pubmed databases were used initially, and additional relevant studies were searched from references. Shift work was defined as any schedule outside traditional shifts, including the night shift.

**Results:** Fifteen pertinent papers were categorized into risk assessment or risk management. Findings demonstrated an increased risk of CAD among SWs compared to non-SWs, with an increased CAD risk observed for both shift work and night shift work. Discussion: Duration-response associations indicate that greater shift exposure is linked to higher CAD risk. SWs incur an increased risk of CAD through the atherosclerotic process. As shift work duration increases as the risk of atherosclerosis is higher, workers demonstrate a higher prevalence and severity of coronary artery plaques. **Conclusions:** The evidence-based results underscore the increased risk of CAD in SWs and are sufficient for proposing guidelines aimed at reducing the risk of CAD in SWs and at managing people with CAD in return to work characterized by disrupted circadian rhythms.

**D'Ettorre et al. 2024.**

**La Medicina del Lavoro, vol. 115, no. 2.**

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

**Keywords:** Coronary artery disease; shift workers; occupational risk.

**Evidence Level:** 1A

**Link:** <https://www.mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/15532>

### **Night shift work and cardiovascular diseases among employees in Germany: Five-year follow-up of the Gutenberg Health Study**

**Background:** This study aimed to determine if there is an increased risk of incident cardiovascular diseases (CVD) resulting from cumulative night shift work in the German population-based Gutenberg Health Study (GHS). **Methods:** We examined working participants of the GHS at baseline and after five years. Cumulative night shift work in the 10 years before baseline was assessed and categorized as low (1-220 nights  $\cong$  up to 1 year), middle (221-660 nights  $\cong$  1-3 years), and high ( $> 660$  nights  $\cong$  more than 3 years) night shift exposure. Hazard ratios (HR) were estimated for incident "quality-assured CVD events" using Cox proportional hazard models. **Results:** At baseline, 1092 of 8167 working participants performed night shift work. During the follow-up, 202 incident cardiovascular events occurred. The crude incidence rates for CVD per 1000 person-years were 6.88 [95% confidence interval (CI) 4.80-9.55] for night shift workers and 5.19 (95% CI 4.44-6.04) for day workers. Cumulative incidence curves showed a higher cumulative incidence in



workers exposed to night shift work compared to day workers after five years. The adjusted HR for incident CVD events were 1.26 (95% CI 0.68-2.33), 1.37 (95% CI 0.74-2.53) and 1.19 (95% CI 0.67-2.12) for employees in the low, middle and high night shift categories compared to employees without night shift work, respectively. **Conclusions:** The observed tendencies indicate that night shift work might be negatively associated with cardiovascular health. We expect the continued follow-up will clarify the long-term impact of night shift work.

**Jankowiak et al. 2024.**

**Scandinavian Journal of Work, Environment and Health, vol. 50, no. 3.**

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

**Keywords:** Night shift; shift work; cardiovascular diseases; employees.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4139>

### **The effect of shift working on dietary patterns of healthcare practitioners during the COVID-19 pandemic: A cross-sectional study**

**Background:** Health professionals' working schedules often do not allow them to follow a balanced way of life, and the nature of their work can affect their weight and eating habits. The aim of the present study is to shed some light on the impact of night shift working on the dietary practices of healthcare practitioners in Greece. **Methods:** This was a cross-sectional study. With the use of an administered questionnaire several parameters were assessed, including anthropometric characteristics, weight history, as well as nutritional habits of the same group of participants during night shifts and when at regular working hours. Moreover, nutritional beliefs of the subjects were recorded, as well as the level of adherence to the Mediterranean diet. **Results:** It was observed that in all food groups, including water, used to compare the nutritional patterns of the participants during night shifts and when working regular hours, statistical differences were noted ( $p = 0.001$ ). Furthermore, the participants who reported a higher adherence to the Mediterranean diet and self-reported healthier nutritional habits, had a statistically lower weight compared to the participants that rarely followed the specific model or reported unhealthier eating routine ( $p = 0.010$  and  $p = 0.015$ , respectively). **Conclusions:** We conclude that shift-working healthcare professionals are associated with disturbed eating behaviours leading to the high consumption of unhealthy food. The implementation of interventions that will concentrate on educating health workers on balanced nutrition and improving physical environment (i.e., food availability, healthier food choices) seems to be of great importance.

**Migdanis et al. 2024.**

**Medicina, vol. 60, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Healthcare professionals; nutritional patterns; shift working.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1648-9144/60/4/627>

### **Moral decision-making at night and the impact of night work with blue-enriched white light or warm white light: A counterbalanced crossover study**

**Background:** Cognitive function, including moral decision-making abilities, can be impaired by sleep loss. Blue-enriched light interventions have been shown to ameliorate cognitive impairment during night work. This study investigated whether the quality of moral decision-making during simulated night work differed for night work in blue-enriched white light, compared to warm white light. **Methods:** Using a counterbalanced crossover design, three consecutive night shifts were performed in blue-enriched white light (7000 K) and warm white light (2500 K) provided by ceiling-mounted LED luminaires (photopic illuminance:  $\sim 200$  lx). At 03:30 h on the second shift (i.e. twice) and at daytime (rested), the Defining Issues Test-2, assessing the activation of cognitive schemas depicting different levels of cognitive moral development, was administered. Data from 30 (10 males, average age  $23.3 \pm 2.9$  years) participants were analysed using linear mixed-effects models. **Results:** Activation of the post-conventional schema (P-score), that is, the most mature moral level, was significantly lower for night work in warm white light (EMM;

estimated marginal mean = 44.3, 95% CI = 38.9-49.6;  $p^{\text{holm}}=.007$ ), but not blue-enriched white light (EMM = 47.5, 95% CI = 42.2-52.8), compared to daytime (EMM = 51.2, 95% CI = 45.9-56.5). Also, the P-score was reduced for night work overall (EMM = 45.9, 95% CI = 41.1-50.8;  $p=.008$ ), that is, irrespective of light condition, compared to daytime. Neither activation of the maintaining norms schema (MN-score), that is, moderately developed moral level, nor activation of the personal interest schema (i.e. the lowest moral level) differed significantly between light conditions. The MN-score was however increased for night work overall (EMM = 26.8, 95% CI = 23.1-30.5;  $p=.033$ ) compared to daytime (EMM = 23.1, 95% CI = 18.9-27.2). **Conclusion:** The results indicate that moral decisions during simulated night work in warm white light, but not blue-enriched white light, become less mature and principle-oriented, and more rule-based compared to daytime, hence blue-enriched white light may function as a moderator. Further studies are needed, and the findings should be tentatively considered. *Trial registration:* ClinicalTrials.gov (ID: [NCT03203538](https://clinicaltrials.gov/ct2/show/study/NCT03203538)) Registered: 26/06/2017; <https://clinicaltrials.gov/study/NCT03203538>.

**Sunde et al. 2024.**

**Annals of Medicine, vol. 56, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Shift work; colour temperature; light emitting diode; sleep deprivation.

**Evidence Level:** 3B

**Link:** <https://www.tandfonline.com/doi/full/10.1080/07853890.2024.2331054>

### **Validity of self-reported night shift work among women with and without breast cancer**

**Background:** This study aimed to estimate the validity of self-reported information on ever-night shift work among women with and without breast cancer and illustrate the consequences for breast cancer risk estimates. **Methods:** During 2015-2016, 225 women diagnosed with breast cancer and 1800 matched controls without breast cancer employed within the Danish hospital regions during 2007-2016 participated in a questionnaire-based survey. Their reported night shift work status was linked with objective payroll register day-by-day working hour data from the Danish Working Hour Database and the Danish Cancer Registry. For the breast cancer patients and their matched controls, we estimated sensitivity and specificity for ever-working night shifts using the payroll data as the gold standard. We also used quantitative bias analysis to estimate the impact on relative risk estimates for a hypothetical population. **Results:** For breast cancer patients, we observed a sensitivity of ever-night shifts of 86.2% and a specificity of never-night shifts of 82.6%. For controls, the sensitivity was 80.6% and the specificity 83.7%. Odds ratio for breast cancer in a hypothetical population decreased from 1.12 [95% confidence interval (CI) 1.03-1.21] to 1.05 (95% CI 0.95-1.16) when corrected by the sensitivity and specificity estimates. **Conclusion:** This study shows that female breast cancer patients had slightly better recall of previous night shift work than controls. Additionally, both breast cancer patients and controls recalled previous never-night shift work with low specificity. The net effect of this misclassification is a small over-estimation of the relative breast cancer risk due to night shift work.

**Vestergaard et al. 2024.**

**Scandinavian Journal of Work, Environment and Health, vol. 50, no. 3.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Night shift; women; breast cancer.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4142>

## **Management and Leadership**

### **Enhancing employee wellbeing and happiness management in the wine industry: Unveiling the role of green human resource management**

**Background:** In today's business environment, where sustainability has emerged as a strategic axis of business practices, the study of the link between human resources management and environmental management becomes increasingly necessary. In this sense, the present research focuses on analyzing the impact of Green Human Resource Management (GHRM) on the Sustainable Performance (SP) of Spanish

wineries, as well as the mediating effect of Employee Wellbeing (EW) and Work Engagement (WE) on this linkage. In addition, age, size and membership in a Protected Designation of Origin (PDO) are introduced as control variables to increase the precision of the cause-effect relationships examined. **Methods:** The study proposes a conceptual model based on previous studies, which is tested using structural equations (PLS-SEM) with data collected from 196 Spanish wineries between September 2022 and January 2023. **Results:** The findings of the research reveal the existence of a positive and significant relationship between the GHRM development and the SP of Spanish wineries, as well as the partial mediation of EW and WE in this association. **Conclusions:** The uniqueness and significance of this study can be attributed to several crucial factors. First, it enhances the understanding and knowledge regarding the advantages associated with GHRM development. Second, no prior research has conducted a comprehensive study on GHRM as a catalyst for SP within the context of Spanish wineries. Third, to the best of the authors' knowledge, no previous study has analyzed the mediating role of EW and WE as mediators in the relationship between GHRM and SP of wineries.

**Martínez-Falcó et al. 2024.**

**BMC Psychology, vol. 12, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Employee wellbeing; green human resource management; happiness management; spain; sustainable performance; wine industry; work engagement.

**Evidence Level:** 5B

**Link:** <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-024-01703-y>

## Work Ability

*This month we explore work ability issues associated with supported employment and individual placement support, employer-focused interventions targeting disability employment, health-related quality of life, work ability and disability among individuals with persistent post-dural puncture headache and sustainable youth employment quality management.*

### **Understanding interventions and outcomes in supported employment and individual placement support: A qualitative evidence synthesis**

**Background:** Economically developed economies continue to display large and long-standing disability employment gaps. Train-then-place activation models have traditionally dominated efforts to support non-working disabled people to gain employment but recently there has been increasing interest in place-then-train Supported Employment (SE) activation models. Objective: Evidence regarding the effectiveness of SE approaches is growing. However, authors have called for greater understanding of the mechanisms underpinning these interventions. We therefore carried out a systematic review of qualitative research to understand the processes operating. **Methods:** We carried out a systematic review of qualitative research around SE interventions carried out in developed countries since 2000 in any population excepting those with severe mental illness. We used thematic synthesis and logic modelling methods and assessed the quality of the body of literature. **Results:** We identified and included 13 relevant source studies containing qualitative data. Key aspects of the programmes reported were the nature of the support, the employment advisor, and the type of employment. Influencing factors were client-related, employer and employment-related, programme-related, and system-related. Effects beyond the gaining of employment included a changed attitude to work, different outlook, increased skills and/or confidence. Suggested longer-term impacts were on health and wellbeing, financial security, independence, contribution to society and sense of belonging. **Conclusions:** This review adds to the growing evidence regarding the value of SE interventions for disabled people. It adds insights regarding the key elements of the programmes, and suggests outcomes beyond the measures typically considered within quantitative studies.

**Baxter et al. 2024.**

**Disability and Health Journal, vol. 17, no. 2.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Disabled people; employment support; individual placement support; supported employment; systematic review.

**Evidence Level:** 1B

**Link:** <https://www.sciencedirect.com/science/article/pii/S193665742400013?via%3Dihub>

### **Employer-focused interventions targeting disability employment: A systematic review**

**Background:** There are a wide range of interventions that are designed to influence employer behaviour with respect to the employment of people with disabilities. **Methods:** This study presents the results of a systematic review looking at employer-focused interventions to improve disability employment, focusing on interventions or policies taking place in high-income countries as per the OECD. This systematic review focuses on a broad range of potential employment-related outcomes, including the employment rate, time to return to work and length of sickness absence. **Results:** The results of 71 papers that evaluate the effectiveness of a range of interventions were synthesised into a narrative review. Interventions are grouped into six broad categories: anti-discrimination legislation, quota systems, part-time sick leave, graded return to work and wage subsidy schemes. Anti-discrimination legislation is not effective at improving the employment prospects of people with disabilities. **Conclusions:** There is mixed evidence with respect to quota systems and wage subsidy schemes. However, the availability of part time sick leave or graded return to work are both consistently associated with improved work participation for people with disabilities.

**Derbyshire et al. 2024.**

**Social Science and Medicine, vol. 347.**

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

**Keywords:** Disability; employer-focused interventions; employment policy; people with disabilities; systematic review.

**Evidence Level:** 1A

**Link:** <https://www.sciencedirect.com/science/article/pii/S0277953624001862?via%3Dihub>

### **Health-related quality of life, work ability and disability among individuals with persistent post-dural puncture headache**

**Background:** Postdural puncture headache (PDPH) is an acknowledged consequence of procedures like lumbar punctures, epidural analgesia, and neurosurgical interventions. Persistence over more than three months, however has been poorly studied. In particular, little is known about the impact of persistent PDPH (pPDPH) on health related quality of life (HRQoL), disability and ability to work. The study aimed to provide a holistic understanding of pPDPH, encompassing medical, physical and psychological aspects. **Methods:** We conducted a cross-sectional anonymous online survey in individuals aged 18 or older, diagnosed with, or suspected to have pPDPH via self-help groups on Facebook. Participants completed a structured questionnaire covering diagnosis, symptoms, and the ability to work. For assessing headache related disability, and mental health, they filled in the Henry Ford Hospital Headache Disability Inventory (HDI) and the Depression Anxiety Stress Scale-21 (DASS-21). **Results:** A total of 179 participants (83.2% female, mean age 39.7 years) completed the survey. PDPH had been present for one year or more in 74.3%, and 44.1% were unable to be in an upright position for more than one hour per day without having to lie down or sit down. Headaches were extremely severe or severe in 18% and 34%, respectively. According to the HDI, 31.8% of participants had mild, 25.7% moderate, and 42.5% severe disability. DASS-21 revealed substantial mental health challenges with depression, anxiety and stress experienced by 83%, 98%, and 88% of the respondents. The ability to work was limited considerably: 27.9% were unable to work, 59.8% worked part-time, 1.1% changed their job because of pPDPH, and only 11.2% were able to work full-time in their previous job. Despite treatment, the patients' condition had deteriorated in 32.4% and remained unchanged in 27.9%. **Conclusion:** This study stresses the burden of pPDPH in terms of substantial disability, limited quality of life, mental health concerns, and significant impact on the ability to work. The study highlights the long-term impact of pPDPH on individuals, emphasizing the need for timely diagnosis and effective treatment. It underscores the complexity of managing pPDPH and calls for further research into its long-term effects on patient health and HRQoL.

**Kapan et al. 2024.**

**The Journal of Headache and Pain, vol. 25, no. 1.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Cerebrospinal fluid leak; disability; persistent pain; postdural puncture headache; quality of life.

**Evidence Level:** 4B

**Link:** <https://thejournalofheadacheandpain.biomedcentral.com/articles/10.1186/s10194-024-01765-8>

### **Sustainable youth employment quality management: The impact of robotization in China**

**Background:** Robotization has caused widespread concern about job losses, but few scholars have paid attention to changes in employment quality. **Methods:** This study provides supplementary evidences on the impact of robotization on youth employment quality and compares the effectiveness of various measures. **Results:** Using data about individual employment and robot usage in China, this study finds that robotization reduces youth employment quality, especially for males and the middle-educated, aged 26 to 35, and in regions with insufficient workers. The substitution effect, skill preparation effect, and productivity effect play important roles in this process. Besides the common strategy of education, the mitigating capabilities of skill training has been demonstrated, but self-entrepreneurship has not.

**Conclusions:** This study suggests that the exploration of various youth self-development measures, such as skill training, is warranted to improve employment quality.

**Liang et al. 2024.**

**PLoS One, vol. 19, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Youth employment; quality management; robotization; China.

**Evidence Level:** 5B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0298081>

## **Adapting to the Future of Work**

### **Aging Workforce**

*This month we explore aging workforce issues associated with precarious employment trajectories and mental health and metabolic syndrome and poor self-rated health as risk factors for premature employment exit.*

### **Associations between precarious employment trajectories and mental health among older workers in Germany: Vertical and horizontal inequalities**

**Background:** The aim of the study was to investigate the longitudinal association between multi-dimensionally measured precarious employment (PE) trajectories and mental health among older employees in Germany. **Methods:** Current data from the German lidA study was used, including panel cases, who participated in all four survey waves (2011, 2014, 2018, 2022). The study comprised 1636 subjects, aged 46 and 52 years at baseline. Group-based trajectory modelling was used to model PE trajectories based on a score combining multiple items from the dimensions employment insecurity and income inadequacy. The association between PE trajectories (2011-2022) and mental health (2022) was tested using weighted logistic regression. **Results:** We identified a PE trajectory with upward movement that best described 13.6% of the study sample. Representation in this group was socially unequally distributed with noticeably larger shares of female, lower-educated and lower-skilled workers in PE. Women following this trajectory had increased odds [odds ratio (OR) 1.68-1.82] of reporting poor mental health in 2022 compared to their counterparts in constant non-PE. This was not the case for men (OR 0.37-0.51). **Conclusions:** Our findings highlight horizontal and vertical inequalities with respect to exposure to and consequences of PE. Future labor market reforms should improve protection of women, who will likely be disadvantaged by accumulating employment-related mental health risks over the course of their lives.

**Rohrbacher et al. 2024.**

**Scandinavian Journal of Work, Environment and Health, vol. 50, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Precarious employment; mental health; older workers.

**Evidence Level:** 4B



Link: <https://www.sjweh.fi/article/4160>

### **Metabolic syndrome and poor self-rated health as risk factors for premature employment exit: a longitudinal study among 55 016 middle-aged and older workers from the Lifelines Cohort Study and Biobank**

**Background:** Poor self-rated health (SRH) is a well-established risk factor for premature employment exit through unemployment, work disability, and early retirement. However, it is unclear whether the premature employment exit risk associated with underlying cardio-metabolic health conditions is fully captured by poor SRH. This study examines the metabolic syndrome (MetS), an early-stage risk factor for cardiovascular disease and type two diabetes mellitus, as a risk factor for premature employment exit while controlling for poor SRH. **Methods:** We analyzed data from N = 55 016 Dutch workers (40-64 years) from five waves of the Lifelines Cohort Study and Biobank. MetS components were based on physical measures, blood markers, and medication use. SRH and employment states were self-reported. The associations between MetS, SRH, and premature employment exit types were analyzed using competing risk regression analysis. **Results:** During 4.3 years of follow-up, MetS remained an independent risk factor for unemployment [adjusted subdistribution hazard ratio (SHR): 1.14, 95% CI: 1.03, 1.25] and work disability (adjusted SHR: 1.33, 95% CI: 1.11, 1.58) when adjusted for poor SRH, common chronic diseases related to labor market participation (i.e., cancer, musculoskeletal-, pulmonary-, and psychiatric diseases), and sociodemographic factors. MetS was not associated with early retirement. **Conclusions:** Poor SRH did not fully capture the risk for unemployment and work disability associated with MetS. More awareness about MetS as a 'hidden' cardio-metabolic risk factor for premature employment exit is needed among workers, employers, and occupational health professionals. Regular health check-ups including MetS assessment and MetS prevention might help to prolong healthy working lives.

Runge et al. 2024.

European Journal of Public Health, vol. 34, no. 2.

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

**Keywords:** Metabolic syndrome; risk factors; premature employment exit.

**Evidence Level:** 4B

Link: <https://academic.oup.com/eurpub/article/34/2/309/7477893?login=false>

## **Technology**

*This month we explore technology issues associated with artificial intelligence and occupational health and safety and spreading information in work environments and the application of metaverse in occupational health*

### **Artificial intelligence and occupational health and safety, benefits and drawbacks**

**Background and Methods:** This paper discusses the impact of artificial intelligence (AI) on occupational health and safety. **Results:** Although the integration of AI into the field of occupational health and safety is still in its early stages, it has numerous applications in the workplace. Some of these applications offer numerous benefits for the health and safety of workers, such as continuous monitoring of workers' health and safety and the workplace environment through wearable devices and sensors. However, AI might have negative impacts in the workplace, such as ethical worries and data privacy concerns. **Conclusions:** To maximize the benefits and minimize the drawbacks of AI in the workplace, certain measures should be applied, such as training for both employers and employees and setting policies and guidelines regulating the integration of AI in the workplace.

El-Helaly 2024.

La Medicina del Lavoro, vol. 115, no. 2.

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

**Keywords:** Artificial intelligence; occupational health; safety; benefits; drawbacks.

**Evidence Level:** 6A

Link: <https://mattioli1885journals.com/index.php/lamedicinadellavoro/article/view/15835>

### Effects of ChatGPT's AI capabilities and human-like traits on spreading information in work environments

**Background:** The rapid proliferation and integration of AI chatbots in office environments, specifically the advanced AI model ChatGPT, prompts an examination of how its features and updates impact knowledge processes, satisfaction, and word-of-mouth (WOM) among office workers. **Methods:** This study investigates the determinants of WOM among office workers who are users of ChatGPT. We adopted a quantitative approach, utilizing a stratified random sampling technique to collect data from a diverse group of office workers experienced in using ChatGPT. The hypotheses were rigorously tested through Structural Equation Modeling (SEM) using the SmartPLS 4. **Results:** The results revealed that system updates, memorability, and non-language barrier attributes of ChatGPT significantly enhanced knowledge acquisition and application. Additionally, the human-like personality traits of ChatGPT significantly increased both utilitarian value and satisfaction. Furthermore, the study showed that knowledge acquisition and application led to a significant increase in utilitarian value and satisfaction, which subsequently increased WOM. Age had a positive influence on WOM, while gender had no significant impact. **Conclusions:** The findings provide theoretical contributions by expanding our understanding of AI chatbots' role in knowledge processes, satisfaction, and WOM, particularly among office workers.

Jo et al. 2024.

Scientific Reports, vol. 14, no. 1.

User License: Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

Keywords: ChatGPT; knowledge acquisition; knowledge application; office workers; word-of-Mouth.

Evidence Level: 5A

Link: <https://nature.com/articles/s41598-024-57977-0>

### The application of metaverse in occupational health

**Background:** The metaverse, as a new digital interactive platform, is garnering significant attention and exploration across industries due to technological advancements and societal digital transformation. In occupational health, there is immense potential for leveraging the metaverse to enhance work environments and occupational health management. It offers companies more efficient and intelligent solutions for occupational health management while providing employees with safer and more comfortable work environments. **Methods:** A comprehensive literature search was conducted using PubMed, Web of Science, IEEE Xplore, and Google Scholar databases to identify relevant studies published between January 2015 and March 2024. The search terms included "metaverse," "virtual reality," "occupational health," "workplace safety," "job training," and "telemedicine." The selected articles were analyzed, and key findings were summarized narratively. **Results:** The review summarizes the broad application prospects of metaverse technology in immersive training, occupational risk identification and assessment, and occupational disease monitoring and diagnosis. However, applying the metaverse in occupational health also faces challenges such as inadequate technical standards, data privacy issues, human health hazards, high costs, personnel training, and lagging regulations. **Conclusion:** Metaverse offers new possibilities for addressing the numerous challenges faced in occupational health and has broad application prospects. In the future, collaborative efforts from multiple stakeholders will be necessary to promote the sustainable development of metaverse technology in occupational health and better protect workers' occupational health.

Tang et al. 2024.

Frontiers in Public Health, vol. 11.

User License: Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

Keywords: Artificial intelligence; metaverse; occupational health; risk assessment; telemedicine; virtual reality.

Evidence Level: 6A

Link: <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2024.1396878/full>

## Work Environment

*This month we explore work environment issues associated with the role of "family-friendly" practices in the subjective well-being of teleworkers and on-site workers, the mediating role of working from home on Covid-19 infection and the effects of working from home on lifestyle behaviors and mental health*

### **Beyond work: The role of "family-friendly" practices in the subjective well-being of teleworkers and on-site workers in the COVID-19 pandemic**

**Background:** During the COVID-19 pandemic, telework emerged as a pivotal strategy to mitigate the spread of the virus. However, telework's feasibility was contingent on job roles. This gave rise to two distinct groups: teleworkers and on-site workers. However, the impacts of social support and well-being extended to both groups. **Methods:** This study investigated the link between organisational and supervisory family support and subjective well-being, examining work engagement as a mediator. Conducted in Portugal, this cross-sectional study surveyed 515 individuals via web-based questionnaires. Data were analysed using descriptive statistics, correlation analysis, confirmatory factor analysis, and multiple-group analysis.

**Results:** The findings revealed a positive correlation between perceived organisational family support (POFS) and work engagement for both groups. Additionally, perceived supervisory family support (PSFS) positively correlated with work engagement for telecommuters but not on-site workers. Furthermore, work engagement was positively associated with subjective well-being for both groups. Moreover, work engagement mediated the relationship between POFS and subjective well-being. **Conclusions:** This study enriches the literature by analysing POFS, PSFS, work engagement, and subjective well-being dynamics among teleworkers and on-site employees.

**Lopes et al. 2024.**

**International Journal of Environmental Research and Public Health, vol. 21, no. 4.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** COVID-19; organisational support; subjective well-being; supervisor support; teleworkers; work engagement; "family-friendly" practices.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/21/4/447>

### **Education and pandemic SARS-CoV-2 infections in the German working population – The mediating role of working from home**

**Background:** SARS-CoV-2 infections were unequally distributed during the pandemic, with those in disadvantaged socioeconomic positions being at higher risk. Little is known about the underlying mechanism of this association. This study assessed to what extent educational differences in SARS-CoV-2 infections were mediated by working from home. **Methods:** We used data of the German working population derived from the seroepidemiological study "Corona Monitoring Nationwide - Wave 2 (RKI-SOEP-2)" (N=6826). Infections were assessed by seropositivity against SARS-CoV-2 antigens and self-reports of previous PCR-confirmed infections from the beginning of the pandemic until study participation (November 2021 - February 2022). The frequency of working from home was assessed between May 2021 and January 2022. We used the Karlson-Holm-Breen (KHB) method to decompose the effect of education on SARS-CoV-2 infections. **Results:** Individuals with lower educational attainment had a higher risk for SARS-CoV-2 infection (adjusted prevalence ratio of low versus very high = 1.76, 95% confidence interval 1.08-2.88; P=0.023). Depending on the level of education, between 27% (high education) and 58% (low education) of the differences in infection were mediated by the frequency of working from home.

**Conclusions:** Working from home could prevent SARS-CoV-2 infections and contribute to the explanation of socioeconomic inequalities in infection risks. Wherever possible, additional capacities to work remotely, particularly for occupations that require lower educational attainment, should be considered as an important measure of pandemic preparedness. Limitations of this study are the observational cross-sectional design and that the temporal order between infection and working from home remained unclear.

**Wachtler et al. 2024.**

**Scandinavian Journal of Work, Environment and Health, vol. 50, no. 3.**

**User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** SARS-CoV-2; COVID; education; working from home.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4144>

**Effects of working from home on lifestyle behaviors and mental health during the COVID-19 pandemic: A survey study**

**Background:** The COVID-19 outbreak has led to relevant changes in everyday life worldwide. One of these changes has been a rapid transition to and an increasing implementation of working from home (WH) modality. **Methods:** This study aimed to evaluate the impact of mandatory WH during the COVID-19 pandemic on lifestyle behaviors, Mediterranean diet adherence, body weight, and depression. An online cross-sectional survey was conducted in the early 2022 at the National Research Council of Italy using ad hoc questions and validated scales collecting information on physical activity, sedentary behavior, hobbies/pastimes, dietary habits including adherence to the Mediterranean diet, body weight, and depression during WH compared with before WH. 748 respondents were included in the study. **Results:** An increased sedentary lifetime was reported by 48% of respondents; however, the subsample of workers who previously performed moderate physical activity intensified this activity. Body weight gain during WH was self-reported in 39.9% of respondents. Mediterranean diet adherence increased ( $p < 0.001$ ) during WH compared with before WH. The average level of mental health did not record an overall variation; however, the proportion of subjects with mild and moderate depression increased ( $p = 0.006$ ), while workers who reported values indicative of depression before the transition declared an improvement. **Conclusions:** These findings highlight health-related impact of WH during the COVID-19 pandemic that may inform future strategies and policies to improve employees' health and well-being.

**Scoditti et al. 2024.**

**PLoS One, vol. 19, no. 4.**

**User License:** *Creative Commons Attribution (CC BY 4.0)* (<https://creativecommons.org/licenses/by/4.0/>)

**Keywords:** Working from home; lifestyle; behaviours; mental health; COVID-19.

**Evidence Level:** 4B

**Link:** <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0300812>