



# Emerging Evidence Alert

July 2022

This Emerging Evidence Alert 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 published in June 2022 only.

## Contents

- Description of Evidence Levels Definitions Used in this Review .....2**
- Fostering Work Participation.....3**
  - Return to Work ..... 3
  - Presenteeism and Absenteeism..... 6
  - Working Hours ..... 9
- Building Employer Capability.....9**
  - Wellness Programs ..... 9
  - Job Design ..... 11
  - Shift Work..... 12
  - Management and Leadership ..... 15
  - Work Ability ..... 16
- Adapting to the Future of Work .....18**
  - Aging Workforce..... 18
  - Technology ..... 20
- Guiding and Supporting Mental Health and Wellbeing.....22**
  - Mental Health..... 22
  - Bullying and Harassment..... 24
  - Psychosocial Issues ..... 26
- Enabling Healthy and Safe Workplaces..... 30**
  - Health and Wellbeing ..... 30
  - Work Health and Safety ..... 35
  - Risk Assessment..... 39
  - Chronic Health Issues..... 40
  - Occupational Exposure..... 42
  - Sedentary Practices ..... 49
  - Physical Activity ..... 50
  - Musculoskeletal Health..... 51



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### Description of Evidence Levels Definitions Used in this Review

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

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

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

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

## Fostering Work Participation

### Return to Work

*This month we explore issues associated with return to work following vocational rehabilitation amongst low-income disability pension applicants, and following anterior cruciate ligament reconstruction, total knee and hip arthroplasty, myocardial infarction, breast cancer, common mental disorders and Covid-19.*

#### **The impact of vocational rehabilitation on employment outcomes: A regression discontinuity approach**

**Background:** Since 2015, Finnish disability pension applicants who are rejected or receive a short-term temporary pension have, under certain conditions, also received a preliminary decision for vocational rehabilitation (VR). A key requirement for eligibility is a certain amount of earnings during the previous five years (€34 910.29 in 2017). We exploit this discontinuity to examine the impact of assignment to VR on labor market outcomes. **Methods:** All new disability pension applicants from 2015 to 2017 were included. Fuzzy regression discontinuity design was used to evaluate the impact of assignment to VR on employment, unemployment and earned income two years later among those close to the threshold (+/- €20 000) providing eligibility for the preliminary decision. Arguably, those just below and just above the earnings limit are similar to each other, allowing causal interpretation of the estimates. **Results:** For each of the employment outcomes, we found a modest effect in the expected direction at the income threshold, but there is considerable uncertainty in these findings. On average, exceeding the income limit increased the probability of employment by 7.6 percentage points, but the estimate was far from statistical significance. Unemployment became slightly less common and earned income slightly increased, but the estimates were also clearly statistically non-significant. **Conclusions:** We found no consistent evidence of the impact of assignment to VR on employment outcomes among low-income disability pension applicants. However, given the narrow and specific study population, this should not be taken as evidence of ineffectiveness of VR more generally.

**Laaksonen et al. 2022.**

**Scandinavian Journal of Work, Environment and Health, vol. 13.**

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**Keywords:** Vocational rehabilitation; disability pension; Finnish.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4038>

#### **Return to work following anterior cruciate ligament reconstruction**

**Background and purpose:** Amongst people of working age, the return to work (RTW) after anterior cruciate ligament (ACL) reconstruction is an important marker of success of surgery. We determined when patients are able to return to work after ACL reconstruction and identified factors that are associated with the timing of RTW. **Patients and methods:** We used logistic regression analyses to examine patient-related factors that may be associated with the length of RTW (above vs. below the median 59 days) after arthroscopic ACLR in a large cohort of patients working in the public sector in Finland (n = 803; n = 334 male, n = 469 female; mean age 41 years [SD 8.6]). **Results:** The mean length of RTW was 65 days (SD 41). Higher odds ratios (OR) were observed for age groups 40-49 and ≥ 50 years compared with ≤ 30 years old (OR 2.0, 95% confidence interval 1.3-3.1 and 2.0, 1.2-3.4, respectively); for lower level non-manual and manual work compared with higher level non-manual work (3.0, 2.0-4.3 and 4.9, 3.4-7.0, respectively); and for those who had been on sick leave > 30 days in the preceding year (2.0, 1.4-2.9). Sex, comorbid conditions, preceding antidepressant treatment and concomitant procedures were not associated with the length of RTW. **Interpretation:** Factors associated with prolonged sick leave beyond the median time of 59 days are higher age, lower occupational status, and preoperative sick leaves.

**Arimaa et al. 2022.**

**Acta Orthopaedica, vol. 14, no. 93.**

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**Keywords:** Return to work; anterior cruciate ligament; ACL; reconstruction; surgery.

**Evidence Level:** 4B

**Link:** <https://actaorthop.org/actao/article/view/3139>

**The effectiveness of case-management rehabilitation intervention in facilitating return to work and maintenance of employment after myocardial infarction: Results of a randomized controlled trial**

**Background:** To study the long-term effectiveness of case-management rehabilitation intervention on vocational reintegration of patients after myocardial infarction (MI). **Design:** Blinded simple randomization was used to construct an intervention and control groups that were followed up for two years. **Subjects and setting:** 151 patients, aged  $50.3 \pm 5.9$  years, who experienced uncomplicated MI and were enrolled in a cardiac rehabilitation program were recruited. **Interventions:** included an early referral to an occupational physician, tailoring an occupational rehabilitation program, based on individual patient needs, coordination with relevant parties, psychosocial intervention, intensive follow-up sessions during a two-year follow-up. **Main measures:** Return to work within six months of hospitalization and maintenance of employment at one and two years of follow-up. **Results:** Return-to-work (RTW) rate in the intervention group was 89% and nearly all maintained employment at one year of follow-up (92%) and two years of follow-up (87%). Moreover, almost all of them returned to and maintained their previous jobs. The corresponding figures were: 98%, 94% and 98%, respectively. The figures for the RTW and employment maintenance for the control group were: 74%, 75%, and 72%, respectively. Only about 75%, in this group kept their previous job. The case-management intervention was associated with increased odds of maintaining employment at follow-up of one year (OR = 5.89, 95% CI 1.42-24.30) and two years (OR = 3.12, 95% CI 1.01-10.03). **Conclusions:** The extended case-management rehabilitation intervention had a substantial positive impact on both the RTW of MI patients and their maintenance of employment at one and two years of follow-up. **Zack et al. 2022.**

**Clinical Rehabilitation, vol. 36, no. 6.**

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**Keywords:** Myocardial infarction; case-management; randomized controlled trial; rehabilitation; return to work.

**Evidence Level:** 2B

**Link:** <https://journals.sagepub.com/doi/full/10.1177/02692155221076826>

**Psychosocial working conditions play an important role in the return-to-work process after total knee and hip arthroplasty**

**Purpose:** Both personal and work-related factors affect return to work (RTW) after total knee arthroplasty (TKA) and total hip arthroplasty (THA). Little is known about work-related factors associated with the recovery process. This study aimed to determine which work-related factors are associated with time to RTW for both TKA and THA patients. **Methods:** A prospective multicenter survey study was conducted that included patients aged 18-63, had a paid job and were scheduled to undergo primary TKA/THA. Surveys were completed preoperatively, 6 weeks, and 3, 6, and 12 months postoperatively, and included four domains of work-related factors: work characteristics, physical working conditions, psychosocial working conditions and work adjustments. Control variables included age, sex, education, and comorbidity. Time to RTW was defined as days from surgery until RTW. Multivariate linear regression analyses were conducted separately for TKA/THA patients. **Results:** Enrolled were 246 patients (n = 146 TKA, n = 100 THA, median age 56 years, 57% female). Median time to RTW was 79 days (IQR 52.0-146.0). Mainly physical tasks (TKA: B 58.2, 95%CI 9.5-106.8; THA: B 52.1, 95%CI 14.1-90.2) and a combination of physical and mental tasks (TKA: B 50.2, 95%CI 6.4-94.0; THA B 54.0, 95%CI 24.2-83.7) were associated with longer time to RTW after both TKA and THA. More possibilities for personal job development (B - 12.8, 95%CI - 25.3-0.4) and more work recognition (B - 13.2, 95%CI - 25.5 to - 0.9) were significantly associated with shorter time to RTW after TKA. Higher quality of supervisor leadership (B - 14.1, 95%CI - 22.2 to - 6.0) was significantly associated with shorter time to RTW after THA. **Conclusion:** The findings of this study stress the importance of psychosocial working conditions, besides type of job tasks, in RTW after TKA/THA. Further research on work-related factors is needed, as arthroplasty is being performed on an increasingly younger population of knee and hip OA patients for whom participating in work is of critical importance.

**Kamp et al. 2022.**

**Journal of Occupational Rehabilitation, vol. 32, no. 2.**

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**Keywords:** Hip prosthesis; knee prosthesis; physical work factors; psychosocial working conditions; return to work; work characteristics; workplace.

**Evidence Level:** 4A

**Link:** <https://link.springer.com/article/10.1007/s10926-021-10006-7>

### **Return to work of breast cancer survivors: Toward an integrative and transactional conceptual model**

**Background:** To propose a conceptual framework of the return to work (RTW) of breast cancer survivors (BCS) according to the transactional perspective. **Methods:** The Technique for Research of Information by Animation of a Group of Experts was implemented. For each determinant in an initial list established from the literature, experts selected for the consensus exercise were firstly asked to indicate their agreement level individually, via an online questionnaire. Determinants obtaining an agreement level of 80% or over during this first phase were retained. Determinants obtaining an agreement level below 80%, and additional determinants proposed by the experts, were then discussed collectively. After discussion, experts voted via a new online questionnaire to retain (or not) each determinant. Determinants obtaining an agreement level of 80% or over after this second phase were retained. Based on the determinants selected, a conceptual model was developed following the transactional approach. **Results:** Eleven experts participated in the study. Forty of the 51 determinants listed initially from the literature achieved an agreement level over 80%, and 20 were added after the individual consultation phase. Twenty-two of the 31 determinants discussed collectively were retained. In total, 62 determinants were selected to construct the conceptual model. **Conclusions:** This integrative, operational, and transactional conceptual model of the RTW of BCS, constructed following an expert consensus, will help to design more efficient patient-centered intervention studies. **Implications for cancer survivors:** Identification of the 62 determinants associated with the RTW of BCS will help design tools that are easily used by all stakeholders involved in the RTW process.

**Porro et al. 2022.**

**Journal of Cancer Survivors, vol. 16, no. 3.**

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**Keywords:** Breast cancer survivors; conceptual model; determinants; expert consensus; return to work; TRIAGE method.

**Evidence Level:** 5B

**Link:** <https://link.springer.com/article/10.1007/s11764-021-01053-3>

### **Barriers and facilitators for return to work from the perspective of workers with common mental disorders with short, medium and long-term sickness absence: A longitudinal qualitative study**

**Background:** Although common mental disorders (CMDs) highly impact individuals and society, a knowledge gap exists on how sickness absence can be prevented in workers with CMDs. This study explores: (1) workers' perceived causes of sickness absence; (2) perceived return to work (RTW) barriers and facilitators; and (3) differences between workers with short, medium and long-term sickness absence. **Methods:** A longitudinal qualitative study was conducted involving 34 workers with CMDs. Semi-structured interviews were held at two time-points during their RTW process. The 68 interviews were audio-taped, transcribed and thematically analyzed to explore workers' perspective on sickness absence causes, RTW barriers and facilitators, and compare data across the three sub-groups of workers. **Results:** Workers reported various causes for their absence, including: (1) high work pressure; (2) poor work relationships; (3) unhelpful thoughts and feelings, e.g. lacking self-insight; and (4) ineffective coping behaviors. According to workers, RTW was facilitated by work adjustments, fulfilling relationships with supervisors, and adequate occupational health guidance. Workers with short-term leave more often reported favorable work conditions, and proactive coping behavior. In contrast, the long-term group reported reactive coping behavior and dissatisfaction with their work. **Conclusion:** Supporting workers with CMDs in gaining self-awareness and regaining control, discussing the value of their work, and creating work conditions that enable workers to do valuable work, seem central for successful RTW and might prevent sickness absence.

Supervisors play a key role in enabling workers to do valuable work and further research should focus on how supervisors can be supported in this task.

**Joosen et al. 2022.**

**Journal of Occupational Rehabilitation, vol. 32, no. 2.**

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**Keywords:** Barriers and facilitators; mental health; return-to-work; sick leave; work disability prevention; workers' perspective.

**Evidence Level:** 5A

**Link:** <https://link.springer.com/article/10.1007/s10926-021-10004-9>

### **Return to work of healthcare workers after SARS-COV-2 infection: Determinants of physical and mental health**

**Background:** The SARS-CoV-2 pandemic has involved healthcare workers (HCWs) both as caregivers and as patients. This study is a retrospective cross-sectional analysis of the HCWs working in a third-level hospital in Central Italy who were infected with COVID-19 from March 2020 to April 2021. This research aims at identifying the physical and mental health outcomes of HCWs infected with COVID-19 who returned to work after the infection, the determinants of those outcomes, such as age and sex, and the identification of possible vulnerable professional groups. **Methods:** A questionnaire about the acute illness, the experience of returning to work, and health perceptions after the disease was administered to 427 healthcare workers 3 months after recovering from the SARS-CoV-2 infection. **Results:** The majority interviewed (84.5%) reported symptoms at the time of the positive test, with no significant differences regarding age or sex, while a significant difference in the mean age was found regarding hospitalization ( $p < 0.001$ ). At 3 months after the infection, females ( $p = 0.001$ ), older workers ( $p < 0.001$ ), and healthcare assistants ( $p < 0.001$ ) were more likely to report persistent symptoms. Sex ( $p = 0.02$ ) and age ( $p = 0.006$ ) influenced the quality of sleep after the infection. At work, the nurses group reported increase in workload ( $p = 0.03$ ) and worse relationships ( $p = 0.028$ ). At 3 months after the infection, female workers perceived worse physical ( $p = 0.002$ ) and mental ( $p < 0.001$ ) health status according to the SF-12. A negative correlation was found between age and PCS score ( $p < 0.001$ ) but not MCS score ( $p = 0.86$ ). A significant difference in PCS score was found between nurses and physicians ( $p = 0.04$ ) and between residents and all other groups ( $p < 0.001$ ). Finally, the group of workers reporting sleep alterations showed lower PCS and MCS scores ( $p < 0.001$ ) and working relationships had an impact on MCS scores ( $p < 0.001$ ). **Conclusions:** Age, sex, and type of job had an impact on physical and mental outcomes. Organizing specific interventions, also tailored to professional sub-groups, should be a target for healthcare systems to protect and boost the physical and mental health of their workers.

**Grazzini et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 11.**

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**Keywords:** SARS-CoV-2 infection; aging workforce; gender; health perception; healthcare workers; occupational health; occupational wellbeing; resilience; return to work; sleep alterations.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/19/11/6811>

### **Presenteeism and Absenteeism**

*This month sees an exploration on the effects on sick leave related absenteeism from factors such as open-plan offices, psychosocial work factors including work-life interference, and a carpal tunnel syndrome diagnosis. The effect of sleep debt, social jetlag, and insomnia symptoms on presenteeism is also explored.*

### **Association of open-plan offices and sick leave - A systematic review and meta-analysis**

**Background:** We aimed to systematically review and meta-analyze the association of employees working in various kinds of open-plan offices with sick leave data, compared to those working in traditional cell offices.

**Methods:** Databases of PubMed, PubPsych, and Psynindex were systematically searched following the PRISMA statement. Pooled summary estimates of odds ratio (OR) were calculated comparing sick leave of employees in cell offices with those working in small open-plan offices (4-9 people), and those in various open-plan office solutions ( $\geq 4$  people). We used Forest plots visualizing study-specific estimates and the pooled fixed and random effects estimators. **Results:** Five studies were identified (2008-2020) with a total of 13,277 (range 469-6,328) participants. Compared with employees working in cell offices, those working in small open-plan offices were associated with higher odds of sick leave days (OR=1.27; 95% CI 0.99-1.54;  $p=0.046$ ) as well as those working in various kinds of open-plan offices with  $\geq 4$  colleagues (OR=1.24; 95% CI 0.96-1.51;  $p=0.004$ ). **Discussion:** Our results are consistent with those of earlier reviews focusing on other effects of open-plan office solutions such as health and well-being. Different solutions for office design and architectural lay-out should be the focus of future studies to balance pros and cons of open-plan offices.

**Mauss et al. 2022.**

**Industrial Health, vol. 9.**

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**Keywords:** Absenteeism; activity-based working; employees; office type; open office; sick leave; sickness; workspace.

**Evidence Level:** 1A

**Link:** [https://www.istage.jst.go.jp/article/indhealth/advpub/0/advpub\\_2022-0053/article](https://www.istage.jst.go.jp/article/indhealth/advpub/0/advpub_2022-0053/article)

### **Impact of sleep debt, social jetlag, and insomnia symptoms on presenteeism and psychological distress of workers in Japan: A cross-sectional study**

**Background:** Presenteeism is an indicator of productivity loss and the risk of absence from work due to mental health problems. The purpose of this study was to determine the impact of sleep debt, social jetlag, and insomnia symptoms on presenteeism and psychological distress. **Methods:** The participants were 351 Japanese workers (271 males, 79 females, and one of other gender, with a mean age of  $49 \pm 9.49$  years). The eligibility criteria for this study were full-time employment, working eight hours per day, five days per week, and no night shifts. The participants answered questionnaires measuring sleep debt, social jetlag, insomnia symptoms, presenteeism, and psychological distress. **Results:** Insomnia symptoms had the greatest impact on presenteeism and psychological distress when compared with sleep debt and social jetlag (adjusted odds ratio (OR) = 5.61, 95% confidence interval (CI) = 2.88-10.91; adjusted OR = 7.29, 95%CI = 3.06-17.35). Sleep debt had a greater impact on presenteeism and psychological distress than did social jetlag (adjusted OR = 1.61, 95%CI = 1.14-2.27; adjusted OR = 1.68, 95%CI = 1.11-2.54), which had no impact on these variables (adjusted OR = 1.04, 95%CI = 0.91-1.20; adjusted OR = 0.96, 95%CI = 0.76-1.22).

**Conclusions:** The findings of this study indicated that insomnia symptoms had a more significant impact on presenteeism and psychological distress than social jetlag and sleep debt. Although sleep debt might have an independent impact on presenteeism and psychological distress, social jetlag did not.

**Takano et al. 2022.**

**Biopsychosocial Medicine, vol. 16, no. 1.**

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**Keywords:** Cross-sectional survey; insomnia symptoms; presenteeism; sleep debt; social jetlag.

**Evidence Level:** 4B

**Link:** <https://bpsmedicine.biomedcentral.com/articles/10.1186/s13030-022-00242-5>

### **Sickness absence and disability pension after carpal tunnel syndrome diagnosis: A register-based study of patients and matched references in Sweden**

**Background:** The aim of this study was to examine sickness absence and disability pension (SA/DP) during working lifespan among individuals diagnosed with carpal tunnel syndrome (CTS) and their matched references, accounting for sociodemographic factors. **Methods:** We used a register cohort of 78,040 individuals aged 19-60 years when diagnosed with CTS in secondary health care (hospitals and outpatient specialist health care) and their 390,199 matched references from the general population in 2001-2010. Sociodemographic factors and SA/DP net days during a three-year follow-up were included. Negative binomial regression was used. **Results:** For those not on DP at inclusion, the average number of SA/DP days

per person-year was 58 days (95% confidence interval (CI) 56-60 days) among individuals with CTS and 20 days (95% CI 19-21 days) among the matched references. Among both groups, these numbers increased with age and were higher among women than among men. The rate ratio (RR) of SA/DP days was threefold higher among people with CTS than among the matched references (adjusted RR=3.00, 95% CI 2.91-3.10). Moreover, compared to the matched references, the RR for SA/DP was higher among men with CTS (RR=3.86, 95% CI 3.61-4.13) than among women with CTS (RR=2.69, 95% CI 2.59-2.78). The association between CTS and the number of SA/DP days was smaller among older age groups. Sociodemographic factors were similarly associated with SA/DP among people with and without CTS. **Conclusions:** Numbers of SA/DP days were higher among people with CTS than their matched references in all age groups, particularly among individuals in their early work careers, highlighting public-health relevance of the findings.

**Lallukka et al. 2022.**

**Scandinavian Journal of Public Health, vol. 50, no. 4.**

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**Keywords:** Work disability; entrapment neuropathies; follow-up; occupational factors; population-based.

**Evidence Level:** 4B

**Link:** <https://journals.sagepub.com/doi/full/10.1177/14034948211002729>

### **Combined psychosocial work factors and risk of long-term sickness absence in the general working population: Prospective cohort with register follow-up among 69 371 workers**

**Background:** This study aimed to investigate the importance of combined psychosocial work factors for the risk of long-term sickness absence (LTSA). **Methods:** We followed 69 371 employees in the general working population (Work Environment and Health in Denmark study 2012-2018), without LTSA during the preceding year, for up to two years in the Danish Register for Evaluation of Marginalization. Using k-means cluster analyses and weighted Cox-regression controlling for age, gender, survey year, education, health-behaviors, and physical work demands, we determined the prospective association of 11 identified clusters - based on the combination of nine psychosocial work factors (recognition, quantitative demands, work pace, emotional demands, influence, justice, role clarity, role conflicts, and support from colleagues) - with the risk of LTSA. **Results:** During 124 045 person-years of follow-up, 6197 employees developed LTSA (weighted 8.5%). Using the cluster with the most favorable psychosocial scores as reference, clusters scoring poorly on several combined psychosocial factors had increased risk of LTSA. The cluster scoring poor on all nine psychosocial factors exhibited the highest risk [hazard ratio (HR) 1.68, 95% confidence interval (CI) 1.45-1.94]. Scoring poorly on one or two psychosocial factors did not increase the risk of LTSA when combined with favorable scores on the other psychosocial factors. Interaction analyses showed that gender, but not age and education, modified the association between cluster and LTSA.

**Conclusion:** Scoring poorly on several combined psychosocial work factors plays an important role in the risk of LTSA. Scoring favorably on several psychosocial factors outweighed the potentially adverse effects of scoring poorly on one or two factors.

**Andersen et al. 2022.**

**Scandinavian Journal of Work, Environment and Health, vol. 1, no. 4035.**

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**Keywords:** Psychosocial; long-term sickness absence; employees; Danish.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4035>

### **Is work-life interference a risk factor for sickness absence? A longitudinal study of the Swedish working population**

**Background:** While there is increasing literature on the health effects of work-life interference, few studies have investigated the relationship between a direct measure of work-life interference and objective sickness absence measures. The aim of this study is to investigate whether work-life interference is a risk factor for subsequent long-term sickness absence (LTSA). **Methods:** Data were derived from the Swedish Longitudinal Occupational Survey of Health 2010, 2012, 2014 and 2016. Data were linked to register data



on LTSA (having at least one continuous period of medically certified sick leave exceeding 14 days) the following 2 years after each data collection wave. We applied generalized estimating equations, odds ratios (ORs) and 95% confidence intervals (CIs). The sample included 15 244 individuals (43.1% men and 56.9% women). Nearly a fifth of the sample (18.7%, n = 1110) started at least one period of LTSA at any point between 2010 and 2018. **Results:** Work-life interference was found to be a risk factor for subsequent LTSA (OR = 1.55; 95% CI = 1.44-1.67) even when adjusting for relevant factors including general health (OR = 1.39; 95% CI = 1.29-1.51). We found no significant moderating effect of gender. **Conclusion:** The results of this study indicate that work-life interference is a risk factor for subsequent LTSA for working men and women in Sweden.

**Hagqvist et al. 2022.**

**European Journal of Public Health, vol. 32, no. 3.**

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**Keywords:** Sickness; absence; work-life interference; Sweden.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/eurpub/article/32/3/398/6561491?login=true>

## Working Hours

### **Overtime work and the incidence of long-term sickness absence due to mental disorders: A prospective cohort study**

**Background:** Although previous research has focused on the association between long working hours and several mental health outcomes, little is known about the association in relation to mental health-related sickness absence, which is a measure of productive loss. We aimed to investigate the association between overtime work and the incidence of long-term sickness absence (LTSA) due to mental disorders.

**Methods:** Data came from the Japan Epidemiology Collaboration on Occupational Health Study (J-ECOH). A total of 47,422 subjects were followed-up in the period between April 2012 and March 2017. Information on LTSA was obtained via a study-specific registry. Baseline information was obtained at an annual health checkup in 2011; overtime working hours were categorized into <45; 45-79; 80-99; and ≥100 hours/month.

**Results:** During a total follow-up period of 211,443 person-years, 536 people took LTSA due to mental disorders. A Cox proportional hazards model showed that compared to those with less than 45 hours/month of overtime work, those with 45-79 hours/month were at a lower risk of LTSA due to mental health problems (hazard ratio [HR] 0.63; 95% confidence interval [CI], 0.56-0.71) while those with overtime work of ≥100 hours/month had a 2.11 (95% CI, 1.12-3.98) times higher risk of LTSA due to mental health problems. **Conclusion:** Engaging in excessive overtime work was linked with a higher risk of LTSA due to mental health problems while the lower risk observed among individuals working 45-79 hours/month of overtime work might have been due to a healthy worker effect.

**Inoue et al. 2022.**

**Journal of Epidemiology, vol. 32, no. 6.**

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**Keywords:** Asia; healthy workers effect; occupational health; prospective studies; workplace.

**Evidence Level:** 4B

**Link:** [https://www.istage.jst.go.jp/article/jea/32/6/32\\_JE20200382/article](https://www.istage.jst.go.jp/article/jea/32/6/32_JE20200382/article)

## Building Employer Capability

### Wellness Programs

*This month sees the exploration of workplace interventions for mental health and general health promotion.*

## **Clinical and financial outcomes associated with a workplace mental health program before and during the COVID-19 pandemic**

**Background:** Investment in workplace wellness programs is increasing despite concerns about lack of clinical benefit and return on investment (ROI). In contrast, outcomes from workplace mental health programs, which treat mental health difficulties more directly, remain mostly unknown. **Objective:** To determine whether participation in an employer-sponsored mental health benefit was associated with improvements in depression and anxiety, workplace productivity, and ROI as well as to examine factors associated with clinical improvement. **Design, setting, and participants:** This cohort study included participants in a US workplace mental health program implemented by 66 employers across 40 states from January 1, 2018, to January 1, 2021. Participants were employees who enrolled in the mental health benefit program and had at least moderate anxiety or depression, at least 1 appointment, and at least 2 outcome assessments. **Intervention:** A digital platform that screened individuals for common mental health conditions and provided access to self-guided digital content, care navigation, and video and in-person psychotherapy and/or medication management. **Main outcomes and measures:** Primary outcomes were the Patient Health Questionnaire-9 for depression (range, 0-27) score and the Generalized Anxiety Disorder 7-item scale (range, 0-21) score. The ROI was calculated by comparing the cost of treatment to salary costs for time out of the workplace due to mental health symptoms, measured with the Sheehan Disability Scale. Data were collected through 6 months of follow-up and analyzed using mixed-effects regression. **Results:** A total of 1132 participants (520 of 724 who reported gender [71.8%] were female; mean [SD] age, 32.9 [8.8] years) were included. Participants reported improvements from pretreatment to posttreatment in depression ( $b = -6.34$ ; 95% CI,  $-6.76$  to  $-5.91$ ; Cohen  $d = -1.11$ ; 95% CI,  $-1.18$  to  $-1.03$ ) and anxiety ( $b = -6.28$ ; 95% CI,  $-6.77$  to  $-5.91$ ; Cohen  $d = -1.21$ ; 95% CI,  $-1.30$  to  $-1.13$ ). Symptom change per log-day of treatment was similar post-COVID-19 vs pre-COVID-19 for depression ( $b = 0.14$ ; 95% CI,  $-0.10$  to  $0.38$ ) and anxiety ( $b = 0.08$ ; 95% CI,  $-0.22$  to  $0.38$ ). Workplace salary savings at 6 months at the federal median wage was US \$3440 (95% CI, \$2730-\$4151) with positive ROI across all wage groups. **Conclusions and relevance:** Results of this cohort study suggest that an employer-sponsored workplace mental health program was associated with large clinical effect sizes for employees and positive financial ROI for employers.

**Bondar et al. 2022.**

**JAMA Network Open, vol. 5, no. 6.**

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**Keywords:** Workplace wellness programs; COVID-19 pandemic; mental health.

**Evidence Level:** 4B

**Link:** <https://jamanetwork.com/journals/jamanetworkopen/fullarticle/2793174>

## **The CDC worksite health scorecard: A tool to advance workplace health promotion programs and practices**

**Background:** The CDC Worksite Health ScoreCard (ScoreCard) is a free, publicly available survey tool designed to help employers assess the extent to which they have implemented evidence-based interventions or strategies at their worksites to improve the health and well-being of employees. We examined how, how broadly, and to what effect the ScoreCard has been applied. **Methods:** We analyzed peer-reviewed and grey literature along with the ScoreCard database of online submissions from January 2012 through January 2021. Our inclusion criteria were workplace settings, adult working populations, and explicit use of the ScoreCard. **Results:** We found that the ScoreCard had been used in 1) surveillance efforts by states, 2) health promotion training and technical assistance, 3) research on workplace health promotion program effectiveness, and 4) employer efforts to improve program design, implementation, and evaluation. **Conclusion:** The ScoreCard has been used as intended to support the development, planning, monitoring, and continuous improvement of workplace health promotion programs. Our review revealed gaps in the tool and opportunities to improve it by 1) enhancing surveillance efforts, 2) engaging employers in low-wage industries, 3) adding new questions or topic areas, and 4) conducting quantitative studies on the relationship between improvements in the ScoreCard and employee health and well-being outcomes.

**Roemer et al. 2022.**

### **Preventing Chronic Disease, vol. 23.**

**Keywords:** Wellbeing; workplace health promotion; programs; health.

**Evidence Level:** 5B

**Link:** [https://www.cdc.gov/pcd/issues/2022/21\\_0375.htm](https://www.cdc.gov/pcd/issues/2022/21_0375.htm)

### **Job Design**

*This month job design issues related to working from home, the relationship between participative work agreements and workplace health management and workplace adjustments for pregnant employees.*

### **Reflections on workplace adjustments for pregnant employees: A qualitative study of the experiences of pregnant employees and their managers**

**Background:** The European Union directive requires employers to assess and ensure safety measures for pregnant women in the workplace. Despite this, the rate of sick leave among pregnant Scandinavian women is relatively high. This study aims to provide insight into how pregnant employees and their managers experience and address pregnancy at the workplace, to identify preconditions for successful workplace adjustments for pregnant women. **Methods:** We carried out a qualitative study that involved semi-structured interviews with seventeen participants: eight pregnant women and nine managers from occupations whose employees demonstrate an increased likelihood of taking sick leave during pregnancy. The interviews were thematically coded and organized into main themes and subthemes. **Results:** Based on semi-structured interviews with the seventeen participants (eight pregnant employees and nine managers), we identified preconditions for successful workplace adjustments. According to the pregnant employees, these included, "The managers' concern, understanding, and acknowledgment," "support and acceptance from colleagues," and "pregnant employees' acceptance of their need for adjustments." According to the managers, the preconditions for successful workplace adjustments included "an open and honest dialogue" and "a systematic approach." **Conclusion:** Implementing workplace adjustments for pregnant employees is a complex process that comprises various initiatives, and their success may depend on several factors. This study's findings suggest that the success of workplace interventions depends on 1) management, colleagues, and the pregnant employee recognizing and accepting pregnant women's needs, 2) an organizational culture that supports women and pregnancy without compromising the occupational health of other employees, and 3) professional guidance that supports both women and managers when dealing with pregnancy-related concerns. We suggest that this study's findings may be used to improve the implementation of workplace adjustments for pregnant women.

**Andersen et al. 2022.**

**BMC Pregnancy and Childbirth, vol. 22, no. 1.**

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**Keywords:** Pregnant employees; work environment; workplace adjustments; workplace intervention.

**Evidence Level:** 5B

**Link:** <https://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/s12884-022-04749-1>

### **Work from home in the post-COVID world**

**Background:** The working standard of shared office spaces has evolved in recent years. Due to the ongoing COVID-19 pandemic, many companies have instituted work from home (WFH) policies in accordance with public health guidelines in order to increase social distancing and decrease the spread of COVID-19. As the pandemic and WFH-related policies have continued for more than a year, there has been a rise in people becoming accustomed to the remote environments; however, others are more enthusiastic about returning to in-person work environments, reflecting the desire to restore pre-pandemic environments. As working from home is related to transportation issues such as changing commuting patterns and decreased congestion, motorized trips, and emission, there is a need to explore the extent of public attitudes on this important issue. **Methods:** This study used unique open-source survey data that provides substantial information on this topic. Using an advanced categorical data analysis method known as cluster

correspondence analysis, this study identified several key findings. **Results:** Not having prior WFH experiences, being eager to interact with colleagues, difficulties with adapting to virtual meeting technologies, and challenges with self-discipline while WFH were strongly associated with individuals who refused to continuously WFH at all after the pandemic. Individuals holding a strong view against the seriousness of the COVID-19 pandemic were also largely associated with never choosing WFH during and after the pandemic. For individuals with some prior WFH experiences, the transition to WFH every day in response to the outbreak was much easier, compared to those without prior experiences. Moreover, being forced to WFH during the COVID-19 pandemic positively influences the choice of WFH after the pandemic. **Discussion:** The findings of this study will be beneficial to help policymakers and sustainable city planners understand public opinions about WFH.

**Kong et al. 2022.**

**Case Studies on Transport Policy, vol. 10, no. 2.**

**User License:** Elsevier Connect COVID-19 resource centre

**Keywords:** COVID-19; pandemic; work from home.

**Evidence Level:** 5B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8985448/>

### **Healthy mobile work: The relationship of a participative work agreement and workplace health management-qualitative results of a longitudinal study**

**Background:** Mobile work is becoming increasingly common, and it has been, consequently, associated with new health-related hazards and resources. Our study examined health-related stresses, strains and resources of mobile work in a medium-sized company. **Methods:** The study aimed to generate implications for a work agreement and for workplace health management (WHM). For this, a multi-method longitudinal study (2019-20) was conducted, with 29 focus group and 6 individual interviews (absolute number of all participants N = 187). It was designed as a qualitative content analysis and theoretically based on the job demands-resources model (JD-R). **Results:** Positive effects (e.g., increased work-life balance, higher concentration), as well as negative consequences (e.g., alienation in the team, communication effort), can be found. Numerous fields of action for both the work agreement and WHM could be identified. For example, the work agreement regulates the equipment for working from home with support from WHM in order to ensure occupational health-oriented selection and handling, or by fixing core working hours through the work agreement and supporting competence building for leaders in order to enable flexible work commitments for employees. **Discussion:** Self-organised work at home can be supported both by rules in the service agreement and by building up self-management skills through the WHM's offers. The findings illustrate that a work agreement can make a relevant contribution to a healthy design of mobile work by systematically linking it with WHM. The synergies between work agreement, employee health and WHM become clear.

**Jöllenbeck et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 12.**

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**Keywords:** Health-oriented work design; mobile work; work agreement; workplace health management.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/19/12/7526>

### **Shift Work**

*This month we explore the effect of shift work on all-cause and cause-specific mortality, insomnia and constipation, irritable bowel syndrome and functional dyspepsia and ischemic heart disease and atrial fibrillation.*

### **Association between insomnia and constipation: A multicenter three-year cross-sectional study using shift workers' health check-up data**

**Background:** Although insomnia and constipation are highly prevalent worldwide, studies examining a possible association between them are lacking. We examined the relationship between insomnia and

constipation in shift workers who have a high prevalence of insomnia and other diseases. **Methods:** This study had a multicenter cross-sectional design and conducted using health examination data including self-reported questionnaires. In total, 12,879 and 4,650 shift workers were enrolled in Severance Hospital and Wonju Severance Hospital, respectively, during 2015-2017. Multivariate logistic regression models and subgroup analysis were performed in each center with the same protocol, using a common data model. **Results:** The mean age of the total population was 44.35 (standard deviation = 8.75); the proportion of males was 56.9%. Female sex, being underweight and non-smoker were strongly associated with an increased risk of constipation symptom ( $p < 0.001$ ). Pooled odds ratios (ORs) were calculated using ORs of both centers with weights; there was a significant dose-response relationship (sub-threshold 1.76 [95% confidence interval [CI] 1.62-1.91]; moderate 2.28 [95% CI 2.01-2.60]; severe 4.15 [95% CI 3.18-5.41] in the final model,  $p$  for trend  $< 0.001$ ). Subgroup analysis performed by stratifying sex and pooled ORs showed a similar trend to that of the entire group. **Conclusion:** We observed a strong correlation between insomnia and constipation in this population. Our findings may help in formulating guidelines and policies to improve quality of life in shift workers through the management of sleep quality and proper bowel function. This study is the first to report this relationship among people working in shifts.

**Yun et al. 2022.**

**Safety and Health at Work, vol. 13, no. 2.**

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

**Keywords:** Constipation; insomnia; multicenter study; shift work.

**Evidence Level:** 4B

**Link:** <https://www.sciencedirect.com/science/article/pii/S2093791122000014?via%3Dihub>

### **Shift and night work and all-cause and cause-specific mortality: Prospective results from the STRESSJEMstudy**

**Background:** The literature remains sparse and inconclusive about the impact of shift and night work on mortality, and still more on specific causes of death. The objectives were to explore the prospective associations between exposure to shift and night work and all-cause and cause-specific mortality. **Methods:** The study was based on a large national representative French prospective cohort of 1,511,456 employees followed up from 1976 to 2002. Exposure to shift and night work relied on a job-exposure matrix, and 3 time-varying measures (current, cumulative, and recency-weighted cumulative exposure) were constructed. Mortality and causes of death were provided by the national registry, and all-cause, cardiovascular, cancer and preventable mortality, and suicide were studied. Cox proportional hazards models were performed to study the associations between shift and night work and mortality. **Results:** During follow-up, 22,105 deaths occurred for all-cause mortality. In the study of mortality until the end of last job during follow-up, shift and/or night work were associated with all-cause, cardiovascular, cancer and preventable mortality, and suicide (except night without shift work with cancer mortality and suicide) among men. Shift work (especially shift without night work) was associated with all-cause, cancer and preventable mortality among women. **Discussion:** The results were similar for current, cumulative, and recency-weighted cumulative exposure. Associations were found for more detailed causes of death: cerebrovascular diseases for both genders, ischemic heart diseases, respiratory cancers, smoking-related mortality, and external causes of death among men, and breast cancer among women. In the study of mortality until the end of follow-up, some additional associations were found among women between night work and all-cause and preventable mortality, and suicide, suggesting long-term or delayed exposure effects. The study may, however, be underpowered to detect all the exposure-outcome associations, especially among women. More research and prevention are needed to reduce mortality among shift and night workers.

**Neidhammer et al. 2022.**

**Journal of Biological Rhythms, vol. 37, no. 3.**

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

**Keywords:** Cancer mortality; cardiovascular mortality; mortality; night work; preventable mortality; shift work; suicide; time schedules.

**Evidence Level:** 4B

**Link:** <https://journals.sagepub.com/doi/full/10.1177/07487304221092103>

### **Impact of shift work on irritable bowel syndrome and functional dyspepsia: A meta-analysis**

**Background:** The possible association between shift work with irritable bowel syndrome (IBS) and functional dyspepsia (FD) remains controversial. The purpose of the study is to conduct a meta-analysis to explore the potential association between shift work with IBS/FD. **Methods:** We searched relevant observational studies on Medline (PubMed) and Embase until June 30, 2021. Two different investigators extracted data and assessed the quality of each study independently. The meta-analysis was used to evaluate the pooled odds risk (OR) between shift work and IBS/FD. **Results:** Eight studies were included ultimately. Shift workers were more likely to suffer from IBS. The OR of shift work was 1.81 (95% confidence interval 1.42; 2.32) with low heterogeneity ( $P < .05$ ,  $I^2 = 0\%$ ) for IBS. However, no evidence of the association was observed between shift work and the risk of FD. The OR of shift work was 0.87 (95% confidence interval 0.62; 1.23) ( $P > .05$ ) for FD. **Conclusions:** There was a positive association between shift work and IBS. The prevalence of IBS was 81% higher among shift workers than among non-shift workers. Shift work was probably a risk factor for IBS. The low heterogeneity supports the reliability of the results. However, there was no significant association between shift work and FD. The strength of the evidence was limited and further prospective cohort studies were needed.

**Wang et al. 2022.**

**Medicine, vol. 101, no. 25.**

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**Keywords:** Shift work; irritable bowel syndrome; functional dyspepsia.

**Evidence Level:** 1A

**Link:** [https://journals.lww.com/md-journal/Fulltext/2022/06240/Impact\\_of\\_shift\\_work\\_on\\_irritable\\_bowel\\_syndrome.6.aspx](https://journals.lww.com/md-journal/Fulltext/2022/06240/Impact_of_shift_work_on_irritable_bowel_syndrome.6.aspx)

### **Night and shift work characteristics and incident ischemic heart disease and atrial fibrillation among healthcare employees - A prospective cohort study**

**Objective:** This study aimed to examine the effects of various aspects of night and shift work on the risk of incident ischemic heart disease (IHD) and atrial fibrillation (AF) using detailed and registry-based exposure data. **Methods:** This prospective cohort study included >30 300 healthcare employees (eg, nurses, nursing assistants) employed for at least one year in Region Stockholm 2008-2016. Information on daily working hours was obtained from a computerized administrative employee register and outcomes from national and regional registers. Using discrete-time proportional hazard models, we analyzed the outcomes as functions of working hour characteristics the preceding year, adjusted for sex, age, country of birth, education, and profession. **Results:** We observed 223 cases of IHD and 281 cases of AF during follow-up 2009-2016. The risk of IHD was increased among employees who the preceding year had permanent night shifts compared to those with permanent day work [hazard ratio (HR) 1.61, 95% confidence interval (CI) 1.06-2.43] and among employees working night shifts >120 times per year compared to those who never worked night (HR 1.53, 95% CI 1.05-2.21). When restricted to non-night workers, the risk of IHD was increased for employees having frequent quick returns from afternoon shifts. No increased risks were observed for AF. **Conclusions:** Night work, especially working permanent night shifts and frequent night shifts, is associated with an increased risk of incident IHD but not AF. Moreover, frequent quick returns from afternoon shifts (among non-night workers) increased IHD risk. Organizing work schedules to minimize these exposures may reduce IHD risk.

**Kader et al. 2022.**

**Scandinavian Journal of Work, Environment and Health, vol. 20.**

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**Keywords:** Night shift; shift work; ischemic heart disease; atrial fibrillation; healthcare workers.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4045>

## Management and Leadership

*This month we explore the relationship between a supervisor's behaviour and employee's mental health and the safety climate.*

### **The relationship between ambivalence towards supervisor's behavior and employee's mental health**

**Background:** Ambivalence in social interactions has been linked to health-related outcomes in private relationships and recent research has started to expand this evidence to ambivalent leadership at the workplace by showing that ambivalent supervisor-employee relationships are related to higher stress levels in employees. However, the mental health consequences of ambivalent leadership have not been examined yet. **Methods:** Using a multilevel approach, this study estimated associations of ambivalent leadership with mental health indicators (depression, anxiety, vital exhaustion, fatigue) in 993 employees from 27 work groups. **Results and Discussion:** A total effect of ambivalent leadership was found for all four mental health measures, as well as within-group and between-group effects. The consistent relationships of ambivalent leadership with higher symptoms of mental ill-health at the individual- (i.e., within-group) and the group-level (i.e., between-group) support the existence of an un-confounded association, as well as group effects of collective ambivalence.

**Herr et al. 2022.**

**Scientific Reports, vol. 12, no. 1.**

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**Keywords:** Mental health; ambivalence; behavior; relationships; leadership.

**Evidence Level:** 5B

**Link:** <https://www.nature.com/articles/s41598-022-13533-2>

### **Role of supervisor behavioral integrity for safety in the relationship between top-management safety climate, safety motivation, and safety performance**

**Background:** This study examines whether employee perceptions of supervisor behavioral integrity for safety moderates the relationship between top-management safety climate and safety performance (i.e., safety compliance and safety participation) and the mediated relationships through safety motivation.

**Methods:** Data collected from 389 blue-collar employees were analyzed using latent moderated structural equation modeling. **Results:** The results indicate that the relationship between top-management safety climate and safety behavior, and the mediating role of safety motivation were replicated. Moreover, the results show that the mediated relationships between top-management safety climate and safety behaviors through safety motivation were stronger for employees who report high supervisor behavioral integrity for safety. **Conclusion:** The study findings suggest the role of supervisor behavioral integrity for safety in clarifying how the employee perceptions of top-management safety climate transfer to the employee safety behaviors through the motivational pathway.

**Peker et al. 2022.**

**Safety and Health at Work, vol. 13, no. 2.**

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**Keywords:** Safety climate; Safety compliance; Safety motivation; Safety participation; Supervisor behavioral integrity for safety.

**Evidence Level:** 5A

**Link:** <https://www.sciencedirect.com/science/article/pii/S2093791122000476?via%3Dihub>

### **Strengthening supervisor support for employees with common mental health problems: Developing a workplace intervention using intervention mapping**

**Background:** This study presents the development of a workplace intervention to strengthen supervisor's support for employees with common mental health problems (CMHP). CMHP have been increasing over the last years, resulting into negative work outcomes, such as absenteeism or reduced work performance. To date, organisational interventions have been promising in preventing these negative work outcomes, however it is yet unknown in what way the role of workplace stakeholders, in particular supervisors, can be

strengthened. This study contributes to the literature of interventions on an organizational level which uses a preventative approach by promoting stay at work among employees with CMHP through supervisor support. **Methods:** we applied the intervention mapping (IM) approach, by actively involving workplace stakeholders (employees with CMHP, supervisors and occupational health professionals) through the development process and the use of Integrated model of behaviour prediction for employers. All six steps of IM are followed and thematic analysis was used to analyse interviews and focus groups.

**Results:** Based on a comprehensive needs assessment, the intervention resulted in an online guideline, with five step-wise themes on how to support employees with CMHP to stay at work (SAW). The guideline addressed the most important and changeable actions using the Integrated model of behaviour prediction. The guideline presents how to signal and address problems in the workplace and find solutions by stimulating autonomy of employees, explore job accommodations and ask for occupational support. In addition, basic conditions on how to create mentally healthy workplaces were presented. Coaching sessions by occupational health professionals, that include practical strategies using the best available evidence, were identified by the stakeholders. **Conclusions:** This SAW-Supervisor Guideline-intervention responds to the need of supervisors to be supported in their role, responsibility and ways to support employees with mental health issues, through a behaviour-oriented, preventative approach. Intervention mapping provided a systematic process to identify, structure and prioritize factors of supervisor support, resulting in a novel workplace intervention. The active involvement of workplace stakeholders throughout the process resulted into a well-received intervention. The theoretical framework provided practical ways to induce supportive behaviour of supervisors, bridging theory with practice.

**van Hees et al. 2022.**

**BMC Public Health, vol. 22, no. 1.**

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**Keywords:** Absenteeism; intervention mapping; leadership; mental health; occupational health; organizational intervention; prevention; staying at work; supervisor support; workplace interventions.

**Evidence Level:** 5B

**Link:** <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-022-13545-7>

## Work Ability

*This month we explore issues of work ability related to fibromyalgia, psychological distress, Raynaud's phenomenon, and surviving breast cancer.*

### **A cross-sectional research on female workers examining the loss of productivity caused by mild, moderate and severe fibromyalgia**

**Background and Methods:** This study explored the impacts of fibromyalgia (FM) symptoms on patients' work ability **Results:** The study found that FM severity is associated with reduced job productivity. Early identification and treatment of FM may provide a window of opportunity for job preservation.

**Salaffi et al. 2022.**

**Clinical and Experimental Rheumatology, vol. 40, no. 6.**

**Keywords:** Fibromyalgia; symptoms; severity; female.

**Evidence Level:** 4A

**Link:** <https://www.clinexprheumatol.org/abstract.asp?a=18250>

### **Employment and disability among young Australians and associations with psychological distress during the COVID-19 pandemic**

**Background:** Emerging global data indicates that the employment status and mental health of young people is being adversely impacted by the COVID-19 pandemic. However, little research has focused on young people with disabilities, despite their lower pre-pandemic employment rates and poorer mental health. We quantified the association between employment status and mental health among young Australians, and tested for effect modification by disability status. **Methods:** Linear regression analysis of Wave 9 (October-December 2020) of the Longitudinal Study of Australian Children (LSAC) assessing the



association between employment status (employed, unemployed) on psychological distress (Kessler-10) and including an interaction term for employment status and disability. **Results:** The association between employment status and psychological distress differed by disability status. Young adults with disabilities had higher adjusted mean K10 scores indicating greater psychological distress both when they were employed (mean 22.99, 95% CI 21.41, 24.58) and unemployed (mean 29.19, 95% CI 25.36, 33.03) compared to their peers without disabilities (employed mean 18.72, 95% CI 17.75, 19.70; unemployed mean 20.45, 95% CI 18.60, 22.29). **Conclusion:** Young Australians in general may benefit from additional supports to improve their employment and mental health outcomes. Young people with disabilities may particularly benefit from targeted supports to gain and maintain employment and improve mental health.

**Shields et al. 2022.**

**SSM Population Health, vol. 19.**

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**Keywords:** COVID-19 pandemic; disability; employment; mental health; psychological distress; young people.

**Evidence Level:** 4A

**Link:** <https://www.sciencedirect.com/science/article/pii/S2352827322001197?via%3Dihub>

### **The impact of Raynaud's phenomenon on work ability - A longitudinal study**

**Background:** To determine if having Raynaud's phenomenon (RP) affects the work ability, job retainment, or occurrence of sick leave. **Methods:** Surveys on the working-age general population of northern Sweden were conducted in 2015 and 2021, gathering data on RP, occupation and sick leave. Work ability was assessed using the Work Ability Score. **Results:** The study population consisted of 2,703 women and 2,314 men, among which 390 women and 290 men reported RP at follow-up. For women, the mean [standard deviation (SD)] Work Ability Score was 8.02 (2.24) for subjects reporting RP and 7.68 (2.46) for those without RP. For men, the corresponding numbers were 7.37 (2.03) and 7.61 (2.14), respectively. Multiple linear regression did not show an association between RP status and work ability ( $p = 0.459$  for women and  $p = 0.254$  for men), after adjusting for age, body mass index, physical workload, cardiovascular disease, and perceived stress. Having retained the same main livelihood since baseline was reported by 227 (58.5%) women with RP, 1,163 (51.2%) women without RP, 152 (52.6%) men with RP, and 1,075 (54.1%) men without RP ( $p = 0.002$  for women and  $p = 0.127$  for men). At follow-up, any occurrence of sick leave during the last year was reported by 80 (21.4%) women with RP, 410 (18.6%) women without RP, 48 (17.1%) men with RP, and 268 (13.7%) men without RP ( $p = 0.208$  for women and  $p = 0.133$  for men). Among those reporting sick leave, the mean (SD) duration in months was 2.93 (3.76) for women with RP, 3.00 (4.64) for women without RP, 2.77 (3.79) for men with RP, and 2.91 (12.45) for men without RP ( $p = 0.849$  for women and  $p = 0.367$  for men). **Conclusion:** For neither women nor men was there a significant effect of having RP on work ability. Women with RP reported a slightly higher job retainment compared to those without the condition, while there was no difference in job retainment among men. For neither gender did the presence of RP influence the occurrence of recent sick leave, nor did it affect the length of time away from work.

**Stjernbrandt et al. 2022.**

**Journal of Occupational Medicine and Toxicology, vol. 17, no. 1.**

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**Keywords:** Longitudinal Studies; Raynaud Disease; sick leave; sweden; work.

**Evidence Level:** 4B

**Link:** <https://occup-med.biomedcentral.com/articles/10.1186/s12995-022-00354-2>

### **Work ability 8 years after breast cancer: Exploring the role of social support in a nation-wide survey**

**Background:** As the 5-year survival rate after breast cancer in Norway is 92%, the population of breast cancer survivors (BCSs) is increasing. Knowledge of work ability in this population is scarce. In a population-based cohort of BCSs, we explored work ability 8 years after diagnosis and the association between work ability and social support, and cancer-related variables including late effects and lifestyle factors.

**Methods:** In 2019, all Norwegian women < 59 years when diagnosed with stage I-III breast cancer in 2011 or 2012, were identified by the Cancer Registry of Norway and invited to participate in a survey on work life experiences. Work ability was assessed using the Work Ability Index (scale 0-10). Factors associated with excellent work ability (score  $\geq 9$ ) were identified using univariate and multivariate logistic regression analyses, and adjusted for socioeconomic-, health- and cancer-related variables. **Results:** Of the 1951 eligible BCSs, 1007 (52.8%) responded. After excluding survivors with relapse (n = 1), missing information on work ability score (n = 49), or work status (n = 31), the final sample comprised 926 BCSs within working age at survey (< 67 years). Mean age at survey was 56 years and 8 years (SD 0.7) had passed since diagnosis. Work ability had been reduced from 8.9 (SD 2.3) at diagnosis to 6.3 (SD 3.1). One in three BCSs reported poor work ability (WAS  $\leq 5$ ), and seven out of ten reported that their physical work ability had been reduced due to cancer. Social support from colleagues during cancer therapy was associated with excellent work ability, which was not observed for social support provided by supervisors or the general practitioner. Cognitive impairment and fatigue were inversely associated with work ability. None of the cancer-related variables, including treatment, were associated with work ability 8 years after diagnosis. **Conclusion:** In this population-based sample, one in three BCSs reported poor work ability 8 years after diagnosis. Collegial social support during cancer therapy appears to be a protective factor for sustained work ability, whilst survivors struggling with fatigue and cognitive impairments may represent a particularly vulnerable group for reduced work ability.

**Vandraas et al. 2022.**

**Breast Cancer Research and Treatment, vol. 193, no. 3.**

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**Keywords:** Breast cancer; fatigue; social support; work ability.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s10549-022-06599-z>

## Adapting to the Future of Work

### Aging Workforce

*This month we explore gender inequality amongst older working couples, and the relationship between aging and construction accidents, workplace slips and the effectiveness of slip-resistant footwear.*

#### **Unencumbered and still unequal? Work hour - Health tipping points and gender inequality among older, employed Australian couples**

**Background:** Could working into older age offer women an opportunity to 'catch up' their careers and redress their financial disadvantage in retirement? This is a period of relative 'unencumbrance' from childrearing, potentially freeing women's time for more paid work. **Methods:** Here, we examine whether women aged 50 to 70 are able to increase their workhours, and what happens to their mental health, vitality and wealth. We used a representative household-based panel of employed older Australians (the HILDA survey). The longitudinal bootstrapped 3SLS estimation technique adjusted for reciprocal relationships between wages, workhours, and health, modelled in the context of domestic work time.

**Results:** We found that, relative to their same-aged male counterparts, older women spent 10 h more each week on domestic work, and 9 h less on work that earned income. When women sought to add more paid hours on top of their unpaid hours, their mental health and vitality were impaired. Men were typically able to maintain their workhours and health advantage by spending fewer hours each week on domestic work.

**Discussion:** Unable to work longer without trading-off their health, and paid less per hour if they did so, our analysis questions whether working into older age offers women a road out of inequality and disadvantage.

**Doan et al. 2022.**

**SSM Population Health, vol. 13, no. 18.**

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**Keywords:** Gender inequality; mental health; older women; vitality; workhours.

**Evidence Level:** 4A

**Link:** <https://www.sciencedirect.com/science/article/pii/S2352827322001008?via%3Dihub>

### **Construction accidents in Spain: Implications for an aging workforce**

**Background:** Construction workers are getting older. In the European Union, the percentage of workers over 50 grew from 24.7% in 2011 to 31.5% in 2018, in Spain from 20.4% to 31.2%. Identify trends and detailed patterns of accidents of older construction workers compared to other age groups. **Data and Method.** We analyzed construction accidents in Spain from 2011 to 2018 (N = 455,491). The number of accidents and lost working days (LWD) were broken down by occupation, seniority, company size, temporal variables (weekday, hour), trigger, and body part injured and compared for different age groups. **Results.** Although older worker had fewer accidents, the consequences of accidents were more serious. Those over 50 years had 84% more lost working days (LWD) than those under 24 years, 48% more than those between 25 and 39 years, and 21% more than those between 40 and 49 years. (1) Occupation: the percentage of accidents grew with age for supervisors, lorry drivers, and bricklayers. (2) Seniority: the least experienced (less than 6 months) and the most experienced (more than 6 years) had the most LWD. (3) Company size: there are 24.5% of accidents in companies of less than four workers. (4) Trigger: older workers suffered more falls, both from height and at the same level. (5) Time: the percentage of accidents in those over 50 was higher on Thursdays and Fridays, in the afternoons from 4 to 7 p.m., and after four hours of work. (6) Injury: this shows the longest absences for shoulder injuries for those over 50 years, with an average of 70 LWD.

**Fontaneda et al. 2022.**

**BioMed Research International, vol. 2.**

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**Keywords:** Workplace accidents; construction; Spain.

**Evidence Level:** 4B

**Link:** <https://www.hindawi.com/journals/bmri/2022/9952118/>

### **Relationship between age, workplace slips and the effectiveness of slip-resistant footwear among healthcare workers**

**Background:** To explore any age-related trend in workplace slip rate and assess the effectiveness of appropriate slip-resistant footwear in preventing workplace slips by age. **Methods:** Secondary data analysis of the Stopping Slips among Healthcare Workers trial, a two-arm randomised controlled trial conducted between March 2017 and May 2019. 4553 National Health Service (NHS) staff across seven sites in England were randomised 1:1 to the intervention group (provision of 5\* GRIP-rated slip-resistant footwear) or the control group (usual work footwear). The primary outcome was self-reported workplace slips, ascertained primarily through weekly text messages throughout the 14-week trial follow-up and analysed using mixed-effects negative binomial regression. This paper reports a control group-only analysis of the association between age and slip rate, and a full intention-to-treat analysis of the effectiveness of slip-resistant footwear by age. **Results:** The mean age of participants was 43 years (range 18-74). In the control group-only analysis, slip rate differed by age ( $p < 0.001$ ) with those aged 60+ having double the slip rate of those aged <30 years (95% CI 1.40 to 2.87). In the intention-to-treat analysis, the interaction between allocation and age was statistically significant ( $p = 0.002$ ). In addition, for all age groups except those aged <30 years, the slip rate in the intervention group was statistically significantly lower than the control group; the smallest incidence rate ratio (ie, the biggest effect) was 0.39 (95% CI 0.24 to 0.64) in the 60+ age group.

**Conclusion:** The provision of appropriate slip-resistant footwear was more effective at reducing workplace slips for older NHS staff.

**Frost et al. 2022.**

**Injury Prevention, vol. 28, no. 3.**

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**Keywords:** Interventions; occupational injury; older people; randomized trial; workplace.

**Evidence Level:** 2A

**Link:** <https://injuryprevention.bmj.com/content/28/3/256.long>

## Technology

*In this month's Technology section we explore remote working and digital transformation during the Covid-19 pandemic, strategies for implementing occupational eMental health interventions, the use of virtual reality for hand hygiene training and the new normal of remote work within a technology-organization-environment (TOE) context.*

### **Remote working and digital transformation during the COVID-19 pandemic: Economic-financial impacts and psychological drivers for employees**

**Background:** Digital and Information and Communication Technologies (ICTs) and, consequently, remote working have increased since the start of the COVID-19 pandemic. However, workers' economic-financial perception of remote working conditions, such as digital technology and its implementation, has scarcely been researched. Therefore, this study aims to investigate the economic-financial impacts of remote working on labourers. **Methods:** Using a mixed-methods sequential exploratory design, a sample of 976 workers is investigated. **Results and Discussion:** This study highlights that the majority of workers experience a negative economic-financial impact due to the additional costs incurred for digital technology and platforms and for utilities as well as the non-payment of overtime and meal vouchers, which are higher than the savings in commuting costs and out-of-pocket expenses. Furthermore, this research emphasizes that psychological-behavioural variables, specifically job satisfaction and technostress, are essential in the choice to continue working remotely after the COVID-19 pandemic. Finally, our results have important theoretical implications related to the existing literature both on the managerial issues connected to digital transformation, with interdisciplinary elements linked to psychological aspects, and on corporate finance topics associated to the economic-financial impacts of remote working.

**Battisti et al. 2022.**

**Journal of Business Research, vol. 150, no. 38-50.**

**User License:** Elsevier Connect COVID-19 resource centre

**Keywords:** COVID-19 pandemic; digital technology; digital transformation; economic-financial impacts; psychological drivers; remote working.

**Evidence Level:** 5B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9186428/>

### **Strategies for implementing occupational eMental health interventions: Scoping review**

**Background:** The implementation of eMental health interventions, especially in the workplace, is a complex process. Therefore, learning from existing implementation strategies is imperative to ensure improvements in the adoption, development, and scalability of occupational eMental health (OeMH) interventions. However, the implementation strategies used for these interventions are often undocumented or inadequately reported and have not been systematically gathered across implementations in a way that can serve as a much-needed guide for researchers. **Objective:** The objective of this scoping review was to identify implementation strategies relevant to the uptake of OeMH interventions that target employees and detail the associated barriers and facilitation measures. **Methods:** A scoping review was conducted. The descriptive synthesis was guided by the RE-AIM (reach, effectiveness, adoption, implementation, and maintenance) framework and the Consolidated Framework for Implementation Research. **Results:** A total of 31 of 32,916 (0.09%) publications reporting the use of the web-, smartphone-, telephone-, and email-based OeMH interventions were included. In all, 98 implementation strategies, 114 barriers, and 131 facilitators were identified. The synthesis of barriers and facilitators produced 19 facilitation measures that provide initial recommendations for improving the implementation of OeMH interventions. **Conclusions:** This scoping review represents one of the first steps in a research agenda aimed at improving the implementation of OeMH interventions by systematically selecting, shaping, evaluating, and reporting implementation strategies. There is a dire need for improved reporting of implementation strategies and combining common implementation frameworks with more technology-centric implementation frameworks to fully capture the complexities of eHealth implementation. Future research should investigate a wider range of common implementation outcomes for OeMH interventions that also focus on a wider set of common mental health problems in the workplace. This scoping review's findings can be

critically leveraged by discerning decision-makers to improve the reach, effectiveness, adoption, implementation, and maintenance of OeMH interventions.

**Bernard et al. 2022.**

**Journal of Medical Internet Research, vol. 24, no. 6.**

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**Keywords:** Barriers; eMental health; facilitators; implementation; mHealth; mental health; mobile health; mobile phone; occupational health; scoping review.

**Evidence Level:** 6A

**Link:** <https://www.jmir.org/2022/6/e34479/>

### **Is virtual reality suitable for hand hygiene training in health care workers? Evaluating an application for acceptability and effectiveness**

**Background:** For effective prevention of nosocomial transmissions continuous training and motivation of health care workers (HCW) are essential to maintain and increase compliance with high rates of hand hygiene. The use of Virtual Reality (VR) seems to be a contemporary and interesting approach for hand hygiene training in HCW. Nevertheless, HCW should be asked for their preferences as intrinsic motivation is essential for compliance with hand hygiene and training success should be evaluated. **Methods:** A prospective, cross-controlled trial was conducted at two wards in a tertiary care hospital comparing a conventional lecture for hand hygiene to the use of VR. Both interventions were assigned at ward level. Primary outcome was HCW acceptance, which was verified in a third ward, secondary outcomes were hand rub consumption and compliance to indications for hand hygiene as proposed by WHO. **Results:** In summary, 81 trainings were conducted, 48 VR trainings and 33 trainings by lecture. VR training was well accepted by HCW with a mean score in all items from 3.9 to 4.3 (out of 5). While most HCW (69%) would prefer VR teaching rather than a lecture for hand hygiene education, only 4% preferred the traditional lecture. 400 observations of hand hygiene indications were made, 50 before intervention and 50 after each intervention at the three wards. Mean proportion of correct and indication-appropriate performances was 81% before intervention, 87% after VR training ( $p = 0.12$ ), and 95% after lecture ( $p = 0.04$ ). Hand rub consumption did not change significantly in any group. **Conclusions:** Due to the high acceptance of VR technology among healthcare workers, it can be considered an interesting addition to conventional lectures for teaching hand hygiene. However, the hypothesis that VR teaching has a higher impact on hand rub use and hand hygiene compliance than a conventional lecture cannot be confirmed.

**Eichel et al. 2022.**

**Antimicrobial Resistance and Infection Control, vol. 11, no. 1.**

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**Keywords:** Healthcare workers; hand hygiene; HCW; virtual reality.

**Evidence Level:** 4A

**Link:** <https://aricjournal.biomedcentral.com/articles/10.1186/s13756-022-01127-6>

### **Remote work as a new normal? The technology-organization-environment (TOE) context**

**Background:** The COVID-19 pandemic has established remote work as the new normal. However, the factors that influence the effectiveness of remote work are unexplored. Moreover, the relationships between remote work and job performance and emotional exhaustion are under-investigated. This study addresses these gaps by investigating the factors that influence the effectiveness and outcomes of remote work. The technology-organisation-environment (TOE) framework and the theory of planned behaviour (TPB) are used as a theoretical lens to examine the internal and external factors that affect remote work and work-life balance. **Methods and Results:** An online cross-sectional survey of knowledge workers engaged in remote work in Hong Kong indicates that both external (technological competence, government support) and internal (work flexibility, attitude, perceived behavioural control) factors are significant predictors of successful remote work. Furthermore, remote work is positively associated with job performance but has no association with emotional exhaustion. **Discussion:** These findings suggest that to ensure a successful transition to the new normal, governments and organisations should provide technical support to employees engaged in remote work. The theoretical and practical implications of the findings are discussed.

Ng et al. 2022.

Technology in Society, vol. 70.

User License: Elsevier Connect COVID-19 resource centre

Keywords: Emotional exhaustion; job performance; remote work; technology-organisation-environment (toe) framework; theory of planned behaviour.

Evidence Level: 4B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9187876/>

## Guiding and Supporting Mental Health and Wellbeing

### Mental Health

*This month we explore the effects of covid related work changes on psychological distress and mental health. Other studies explore the effect on mental health of emotional demands at work in client-facing workers, gender dominance in the occupation and workplace and the job mobility.*

#### Association between work-related changes caused by the COVID-19 pandemic and severe psychological distress among Japanese workers

**Background:** This study aimed to evaluate the association between work-related changes caused by COVID-19 and psychological distress among Japanese workers. **Methods:** The cross-sectional study was conducted from August 25 to September 30, 2020. The participants were 15,454 employees who were registered as panelists with an online survey company. The Kessler psychological distress scale with a 13-point cutoff was used to measure psychological distress. Multiple logistic regression was performed. **Results:** Of the respondents, 8.9% were evaluated as having severe psychological distress. Among five examined work-related changes, being laid off and changing jobs (adjusted odds ratio [aOR] = 5.43; 95% confidence interval [CI]: 4.18-7.05), experiencing temporary workplace closure (aOR = 1.94; 95% CI: 1.67-2.25), being forced to visit the workplace for paperwork (aOR = 1.84; 95% CI: 1.58-2.15), and starting telework from home (aOR = 1.18; 95% CI: 1.01-1.37) were associated with increased psychological distress; no significant association was found for participation in work-related online meetings. The impact on psychological distress was greater among men, especially for being laid off and changing jobs because of COVID-19. **Discussion:** It is important to assess and reduce negative mental health effects among workers experiencing work-related changes caused by the COVID-19 pandemic, taking gender differences into account.

Shiota et al. 2022.

Industrial Health, vol. 60, no. 3.

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Keywords: COVID-19; mental disorder; occupational health; psychological distress; worker.

Evidence Level: 4B

Link: [https://www.jstage.jst.go.jp/article/indhealth/60/3/60\\_2021-0092/article](https://www.jstage.jst.go.jp/article/indhealth/60/3/60_2021-0092/article)

#### Relation between occupation, gender dominance in the occupation and workplace and suicide in Sweden: A longitudinal study

**Background:** To describe the association between occupations and suicide, and to explore the effect of gender dominance in the occupation and in the workplace on the risk of suicide. **Design:** Register-based cohort study. **Participants:** 3 318 050 workers in Sweden in 2005 and followed up until 2010. Exclusion criteria for the study were: missing information in the occupational codes, yearly income of <100 Swedish krona, missing information of the employer, death or migration, and registered occupational code reported from more than 5 years ago. **Outcome:** Suicides occurring during 2006-2010 identified in the cause of death register by the International Classification of Diagnoses-10 codes X60-84 and Y10-34. **Results:** Occupations with increased suicide were life science and health professionals (OR: 2.8, 95% CI: 1.50 to 5.26) among women. In men, these were metal, machinery and related workers (OR: 1.5, 95% CI: 1.09 to 2.05) and personal and protective service workers (OR: 1.59, 95% CI: 1.14 to 2.22). In terms of gender dominance in

the occupation, borderline associations with increased suicide risk were found for men in both male-dominated (OR: 1.32, 95% CI: 0.98 to 1.79) and female-dominated (OR: 1.37, 95% CI: 0.99 to 1.91) occupations. For women, borderline increased risk of suicide was found in female-dominated occupations (OR: 1.51, 95% CI: 0.95 to 2.40). Finally, men showed a borderline increased risk of suicide in female-dominated workplaces (OR: 1.31, 95% CI: 0.94 to 1.81). **Conclusions:** This study found that women in the 'life science and health professionals' group and men in the 'metal, machinery and related workers' as well as 'personal and protective service workers' groups have increased incidence of suicide also when adjusting for sociodemographic characteristics, precariousness of the employment relationship, spells of unemployment, previous mental disorders and suicide attempts. Moreover, gender dominance at workplace and occupation seems to be associated with the risk of suicide among men. The results of our study are novel and are worth exploring in future qualitative studies.

**Matilla Santander et al. 2022.**

**BMJ Open, vol. 12, no. 6.**

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**Keywords:** Epidemiology; mental health; occupational & industrial medicine; public health; suicide & self-harm.

**Evidence Level:** 4B

**Link:** <https://bmjopen.bmj.com/lookup/pmidlookup?view=long&pmid=35738642>

### **High emotional demands at work and poor mental health in client-facing workers**

**Background:** This study investigated the association between emotional demands and depression or anxiety in a wide range of jobs. **Methods:** We used data from the third Korean Working Conditions Survey ( $n = 50,032$ ) for all occupational classifications, with no limitations placed on job title or employment type. Among the full set of regular paid workers in addition to self-employed, unpaid family workers, and informal employees such as independent contractors, 23,989 respondents worked with "customers, passengers, students, or patients" (i.e., clients). Emotional demands were evaluated using two questions: handling angry clients and needing to hide feelings for work performance. Any depression or anxiety over the last 12 months was taken to indicate poor mental health. Multivariable logistic regression modeling was performed to calculate adjusted ORs with 95% confidence intervals for the influence of emotional demands on mental health, adjusting for demographic factors (age, gender, education, income), occupational psychological demands, decision latitude, social support, weekly work hours and job insecurity. **Results and Discussion::** The prevalence of emotional demands was higher in self-employed and informal employees than in regular paid employees. The more frequent the exposure to the two emotional demands combined was, the higher the risk of depression or anxiety. High psychological demands, low social support, and low job security each further increased the risk of poor mental health. Emotional demands turned out to be widespread in the entire economy, were not limited to service or sales occupations, and were more evident in precarious work. The contribution of emotional demands and other preventable job stressors to the burden of depression or anxiety in society may be substantial.

**Suh et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 12.**

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**Keywords:** Anxiety; customer service; depression; emotional demand; emotional labor; mental health.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/19/12/7530>

### **The long-term effect of job mobility on workers' mental health: A propensity score analysis**

**Background:** The main purpose of this longitudinal study was to elucidate the impact of external job mobility, due to a change of employer, on mental health. **Methods:** A cohort of Belgian employees from the IDEWE occupational medicine registry was followed-up for twenty-seven years, from 1993 to 2019. The use of drugs for neuropsychological diseases was considered as an objective indicator of mental health. The covariates were related to demographic, physical, behavioural characteristics, occupational and work-related risks. Propensity scores were calculated with a Cox regression model with time-varying covariates. The PS matching was used to eliminate the systematic differences in subjects' characteristics and to

balance the covariates' distribution at every time point. **Results:** The unmatched sample included 11,246 subjects, with 368 (3.3%) that changed their job during the baseline year and 922 (8.2%) workers that left their employer during the follow-up. More than half of the matched sample were males, were aged less than 38 years old, did not smoke, were physically active, and normal weighted, were not exposed to shift-work, noise, job strain or physical load. A strong association between job mobility and neuropsychological treatment was found in the matched analysis (HR = 2.065, 95%CI = 1.397-3.052, P-value < 0.001) and confirmed in the sensitivity analysis (HR of 2.012, 95%CI = 1.359-2.979, P-value < 0.001). Furthermore, it was found a protective role of physical activity and a harmful role of job strain on neuropsychological treatment. **Conclusions:** Our study found that workers with external job mobility have a doubled risk of treatment with neuropsychological medication, compared to workers without job mobility.

**Maniscalco et al. 2022.**

**BMC Public Health, vol. 22, no. 1.**

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**Keywords:** Depressive disorder; Epidemiology; Job mobility; Longitudinal study; Mental health; Neuropsychological treatment.

**Evidence Level:** 4B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-022-13558-2>

### **Satisfaction with activity-support and physical home-workspace characteristics in relation to mental health during the COVID-19 pandemic**

**Background:** Previous research indicates that employees' mental health might be influenced by their satisfaction with physical office characteristics, such as noise, daylight, and ventilation. However, similar research on mental health in relation to working from home (WFH) is limited. Therefore, this study aimed to identify the relationships between satisfaction with physical home workspace characteristics and support of work activities and mental health while WFH during the COVID-19 pandemic. **Methods:** Relationships were analysed using a path analysis approach, based on a sample of 1219 office workers, who had to work fully from home. The internal relationships between the ten considered mental health variables were also studied. **Results:** Results showed that satisfaction with daylight, artificial light, greenery, and views outside were directly related to one of the mental health variables and indirectly to several others. Surprisingly, satisfaction with temperature, noise, ventilation, and air quality did not seem to play a role at the home workplace. In addition, unlike at the office, personal characteristics did not relate to workspace satisfaction nor perceived support of activities at home. Furthermore, all mental health variables were related to at least one other mental health variable. **Discussion:** Workplace managers could use these insights to formulate recommendations for employees on how to design their home-workspace.

**Bergefurt et al. 2022.**

**Journal of Environmental Psychology, vol. 81.**

**User License:** *Elsevier Connect COVID-19 resource centre*

**Keywords:** COVID-19; mental health; office; physical workspace characteristics; well-being; working from home.

**Evidence Level:** 5A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9135482/>

### **Bullying and Harassment**

*This month we explore the relationship between workplace bullying and long-term sickness absence, and the risk of suicide and suicide attempts. Specific issues associated with workplace bullying and harassment are also explored in private security work and healthcare workers.*

### **Workplace bullying and risk of suicide and suicide attempts: A register-based prospective cohort study of 98 330 participants in Denmark**

**Background:** The aim of this study was to analyze whether individuals reporting exposure to workplace bullying had a higher risk of suicidal behavior, including both suicide attempt and death by suicide, than



those not reporting such exposure. **Methods:** Using a prospective cohort study design, we linked data from nine Danish questionnaire-based surveys (2004-2014) to national registers up to 31 December 2016. Exposure to workplace bullying was measured by a single item. Suicide attempts were identified in hospital registers and death by suicide in the Cause of Death Register. Among participants with no previous suicide attempts, we estimated hazard ratios (HR) and 95% confidence intervals (CI), adjusting for sex, age, marital status, socioeconomic status, and history of psychiatric morbidity. **Results:** The sample consisted of 98 330 participants (713 798 person-years), 63.6% were women, and the mean age was 44.5 years. Of these participants, 10 259 (10.4%) reported workplace bullying. During a mean follow-up of 7.3 years, we observed 184 cases of suicidal behavior, including 145 suicide attempts, 35 deaths by suicide and 4 cases that died by suicide after surviving a suicide attempt. The fully-adjusted HR for the association between workplace bullying and suicidal behavior was 1.65 (95% CI 1.06-2.58). The HR for suicide attempts and death by suicide were 1.65 (1.09-2.50) and 2.08 (0.82-5.27), respectively. Analyses stratified by sex showed a statistically significant association between workplace bullying and suicidal behavior among men but not women. **Conclusions:** The results suggest that exposure to workplace bullying is associated with an elevated risk of suicidal behavior among men.

**Conway et al. 2022.**

**Scandinavian Journal of Work, Environment and Health, vol. 1.**

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**Keywords:** Bullying; suicide; Denmark; workplace.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4034>

### **Prevalence and risk factors of bullying and sexual and racial harassment in healthcare workers: A cross-sectional study in Italy**

**Background:** This cross-sectional study aims to evaluate the prevalence and socio-demographic factors associated with workplace bullying, sexual harassment and racial harassment among Italian health workers.

**Methods:** We recruited 3129 participants using an online Italian translation of the 'Workplace Violence in the Health Sector Country Case Studies Research Instruments Survey' (WVHS) questionnaire. Data were analyzed with univariate (chi-square) and multivariate (multiple logistic regression) analysis.

**Results:** Univariate analysis shows that females are significantly more affected by bullying (16.4% vs. 12.3%) and sexual harassment (2.4% vs. 1.3%). On the other hand, males are significantly more affected by racial harassment (3.1% vs. 2.0%). Multivariate analysis shows higher odds of being affected by bullying (OR = 1.30; 95% CI (1.03, 1.64)) and sexual harassment (OR = 2.08; 95% CI (1.04, 4.00)) for females, and higher odds of undergoing racial harassment (OR = 1.55; 95% CI (0.95, 2.53)) for males. **Conclusion:** This analysis of work situations looks to identify those risk factors, existing or potential, that increase the probability of episodes of violence. A group of work or other subjects identified by direction will have to evaluate the vulnerability of workplaces and establish more effective preventive actions to be adopted.

**La Torre et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 11.**

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**Keywords:** Italy; bullying; cross-sectional; healthcare workers; racial harassment; sexual harassment.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/19/11/6938>

### **Consequences of exposure to violence, aggression, and sexual harassment in private security work: A mediation model**

**Background:** While exposure to violence and aggression is well known for its detrimental effects on employees' health as well as organizational outcomes, certain high-risk work domains have scarcely been researched. **Methods:** Thus, this study set out to determine negative consequences of work-related exposure to four forms of harmful behaviors in private security. **Results:** In a sample of 487 German-speaking security guards, 23% had experienced outsider-initiated violence, 56% aggressive acts, 30% vicarious violent acts, and 3% were sexually harassed over the past 12 months. Additionally, 19% reported substantial to extreme worries about violence. By presenting an integrated model of negative

consequences to outsider-initiated violent, aggressive as well as sexual harassing acts, we strived to extend previous research by showing that turnover intention (as an ultimate negative behavioral outcome) is only indirectly related to these experiences via worries about violence and psychosomatic complaints. Structural equation modeling provided support for the model and plausibility for a sequential "two-step" prediction of turnover intention. Further, we provided support that worries about violence are not solely triggered by directly experiencing physical violence but also vicarious violence, aggressive acts, and sexual harassment.

**Discussion:** Consistent with previous studies, worries about violence were identified as a central mediator in the transmission process from exposure to harmful behaviors at work to negative consequences, that is, psychosomatic complaints and turnover intention. Our findings have implications for the detailed understanding of consequences emerging from exposure to workplace violence and aggression as well as the development of effective prevention strategies especially in high-risk occupations such as private security.

**Herrmann et al. 2022.**

**Journal of Interpersonal Violence, vol. 37, no. 11-12.**

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**Keywords:** Private security; psychosomatic complaints; sexual harassment; turnover intention; violence exposure; workplace aggression; workplace violence.

**Evidence Level:** 5B

**Link:** <https://journals.sagepub.com/doi/full/10.1177/0886260520984432>

### **Workplace bullying and long-term sickness absence-a five-year follow-up study of 2476 employees aged 31 to 60 years in Germany**

**Background:** The aim was to investigate workplace bullying as a risk factor for five-year occurrence of long-term sickness absence (LTSA) in a representative cohort of employees in Germany. **Methods:** In the German Study on Mental Health at Work (S-MGA) ( $n = 2476$ ), episodes of long-term sickness absence (LTSA) between baseline and follow-up were assessed in the follow-up interview. Workplace bullying was measured in the baseline interview using a hybrid approach, which combines the behavioural experience and self-labelling methods. Through binomial regressions, the association of baseline level of workplace bullying with first-episode LTSA during follow-up was estimated, adjusting for baseline age, gender, occupational level, smoking status and physical demands at work. **Results:** Severe bullying heightened the risk for LTSA by approximately 50% (Rate ratio-RR: 1.48, 95% Confidence interval-CI: 1.05; 2.19), while occasional bullying heightened the risk by 15% (RR: 1.15, CI: 0.85; 1.55). When excluding LTSA events occurring in the first 2 years, the associations between bullying and LTSA increased by approximately one third. **Conclusions:** Workplace bullying seems to be a risk factor for LTSA even when controlling for occupational level, smoking and physical demands at work and when taking possible reverse causality into account. We suggest to investigate effects of LTSA in more settings, to distinguish between occasional and severe bullying and employ longer follow-up intervals.

**Burr et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 12.**

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**Keywords:** Bullying; harassment; long-term sickness absence; prospective analyses; sickness absence.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/19/12/7193>

### **Psychosocial Issues**

*This month explores psychosocial issues related to working from home, job insecurity, and the burnout syndrome occurrence during the Covid-19 pandemic. Other issues include the impact of national legislation on psychosocial risks, the factors associated with work-related stress and alcohol-related morbidity, health-related quality of life after major trauma, and the role of employment sector and psychosocial working conditions on emotional exhaustion and well-being among employees.*

### **Working from home and positive/negative experiences due to social distancing as interacting factors of depressive symptoms during the COVID-19 pandemic in a Chinese general population**

**Background:** This study investigated the associations between some factors related to working from home status (WFHS) and positive/negative experiences due to social distancing and their interactions effects on depressive symptoms during the COVID-19 pandemic. **Methods:** A random population-based telephone survey interviewed income-earning adults in the Hong Kong general population during April 21-28, 2020 (n = 200). **Results:** Mild to severe depression (according to PHQ-9) was reported by 12% of the participants. The prevalence of WFHS categories was 14% for 3-7 days and 13% for  $\geq 8$  days (past 2 weeks). The multivariable regression analysis showed that, social isolation ( $\beta = 0.36$ ;  $p < 0.001$ ), relaxation feeling in daily life ( $\beta = -0.22$ ;  $p = 0.002$ ), and WFHS  $\geq 8$  days ( $\beta = 0.15$ ;  $p = 0.027$ ), but not perceived huge inconvenience and improved family relationship, were associated with depressive symptoms. Statistically significant interaction effects were found. Some positive experiences buffered the potential harms of some negative experiences of social distancing on depressive symptoms; WFHS  $\geq 8$  days significantly moderated the risk/protective effects of social isolation, improved family relationship, and relaxation feeling on depressive symptoms. **Conclusions:** Social distancing is double-edged. Positive experiences should be maximized while negative experiences be minimized, as both were directly and interactively associated with depression. Intensive but not mild to moderate ( $< 80\%$ ) WFHS may impact depressive symptoms negatively via its direct association with depression; it also moderated the associations between positive/negative experiences due to social distancing and depression. Further research is required to discern the inter-relationships among WFHS, positive/negative experiences of social distancing, and depression to better cope with the stressful pandemic.

Yu et al. 2022.

**Social Psychiatry and Psychiatric Epidemiology**, vol. 57, no. 6.

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**Keywords:** COVID-19; China; depression; interaction; social distancing; working from home.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00127-021-02179-6>

### **Predictive factors of the burnout syndrome occurrence in the healthcare workers during the COVID-19 pandemic**

**Background:** The coronavirus disease 2019 (COVID-19) pandemic is probably the most critical epidemiological situation that human civilization has faced in the last few decades. In this context, of all the professional categories involved in the management of patients with COVID-19 are the most likely to develop burnout syndrome. The main objective of this study is to analyze specific predictive factors of the occurrence and development of the burnout syndrome in the healthcare workers involved in the diagnosis and treatment of patients with COVID-19. The study focused on determining factors of the occurrence, development and maintaining the specific burnout syndrome related to the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) pandemic infection. **Methods:** The study was conducted on a sample of 959 participants, medical personnel from all the public medical entities in Romania (including 5 hospitals): 122 male and 755 female (82 participants did not declare their gender), with a mean age of 42.29 years (SD = 9.97). **Results:** The sample included 219 doctors, 477 nurses, 214 auxiliary medical personnel and 49 other types of hospital workers. A cross-sectional design was used. Three predictors of the burnout syndrome were identified: Work conditions, Fear of the consequences (including death) determined by the COVID-19 and Need for emotional support. Meaning of work had a moderating role. Several moderated mediation models were tested. The indirect relationship of Work conditions with burnout *via* Fear of infection was statistically significant; in addition, the indirect effect of Work conditions on burnout through both fear of infection and need for support was statistically significant. The moderation analysis showed that Meaning of work buffer the relationship between Work conditions and Fear of infection. The variance explained by the model including the moderator (30%) was higher than the variance explained by Model 1 (27%), showing that adding the moderating effect of Meaning of work to the relationship of Work conditions with burnout was relevant. **Discussion:** The results could be used to design specific interventions to reduce the occurrence of the burnout syndrome in healthcare workers, the

implementation of a strategy to motivate employees by highlighting and recognizing the high significance of the work of those in the frontline of the fight against COVID-19.

**Grigorescu et al. 2022.**

**Frontiers in Medicine, vol. 9, no. 9.**

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**Keywords:** COVID-19; burnout syndrome; emotional support; fear of death; healthcare workers; meaning of work; public healthcare; work conditions.

**Evidence Level:** 5B

**Link:** <https://www.frontiersin.org/articles/10.3389/fmed.2022.842457/full>

### **The impact of national legislation on psychosocial risks on organisational action plans, psychosocial working conditions, and employee work-related stress in Europe**

**Background:** Work-related psychosocial hazards are recognised as a key priority in the future of work. Even though European Union (EU) legislation requires employers to assess and manage all types of risks to workers' health and safety associated with all types of hazards in the work environment, it does not include clear reference to psychosocial risks and work-related stress. In several EU member states, there is now more specific legislation on psychosocial risks that clarifies employer responsibilities. **Methods:** The aim of this study is to explore whether the introduction of specific legislation on psychosocial risks and/or work-related stress is related to organisations implementing action plans to prevent work-related stress, and in turn, better psychosocial working conditions (job demands and resources), and less reported work-related stress in the workforce. It does so by comparing EU member states and candidate countries that have introduced more specific legislation to those that have not, conducting multilevel modelling analysis by linking two representative European-level datasets, the 2014 employer European Survey of Enterprises on New & Emerging Risks and the 2015 employee European Working Conditions Survey. **Results:** Findings indicate that the presence of specific national stress legislation is associated with more enterprises having a work-related stress action plan. The existence of action plans was found to be associated with increased job resources but not decreased job demands. Furthermore, only in those countries with specific national legislation on stress, job resources were found to be associated with less reported stress through the existence of organisational action plans. **Discussion:** Findings lend support to the argument for more specific legislation on psychosocial risks/work-related stress in the EU. However, they also raise questions on whether current interventions implemented at organisational level to deal with work-related stress may be geared more towards the development of individual resources and less towards better work organisation and job design.

**Jain et al. 2022.**

**Social Science and Medicine, vol. 302.**

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**Keywords:** ESENER; EWCS; Europe; legislation; psychosocial risks; work-related stress.

**Evidence Level:** 4B

**Link:** [https://linkinghub.elsevier.com/retrieve/pii/S0277-9536\(22\)00293-3](https://linkinghub.elsevier.com/retrieve/pii/S0277-9536(22)00293-3)

### **Health-related quality of life and return to work 1 year after major trauma from a network perspective**

**Background:** Major trauma often results in long-term disabilities. The aim of this study was to assess health-related quality of life, cognition, and return to work 1 year after major trauma from a trauma network perspective. **Methods:** All major trauma patients in 2016 (Injury Severity Score > 15, n = 536) were selected from trauma region Southwest Netherlands. Eligible patients (n = 365) were sent questionnaires with the EQ-5D-5L and questions on cognition, level of education, comorbidities, and resumption of paid work 1 year after trauma. **Results:** A 50% (n = 182) response rate was obtained. EQ-US and EQ-VAS scored a median (IQR) of 0.81 (0.62-0.89) and 70 (60-80), respectively. Limitations were prevalent in all health dimensions of the EQ-5D-5L; 90 (50%) responders reported problems with mobility, 36 (20%) responders reported problems with self-care, 108 (61%) responders reported problems during daily activities, 129 (73%) responders reported pain or discomfort, 70 (39%) responders reported problems with anxiety or depression, and 102 (61%) of the patients reported problems with cognition. Return to work rate was 68%

(37% full, 31% partial). A median (IQR) EQ-US of 0.89 (0.82-1.00) and EQ-VAS of 80 (70-90) were scored for fully working responders; 0.77 (0.66-0.85,  $p < 0.001$ ) and 70 (62-80,  $p = 0.001$ ) for partial working respondents; and 0.49 (0.23-0.69,  $p < 0.001$ ) and 55 (40-72,  $p < 0.001$ ) for unemployed respondents.

**Conclusion:** The majority experience problems in all health domains of the EQ-5D-5L and cognition. Return to work status was associated with all health domains of the EQ-5D-5L and cognition.

van Ditshuizen et al. 2022.

**European Journal of Trauma and Emergency Surgery**, vol. 48, no. 3.

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**Keywords:** Cognition; EQ-5D-5L; major trauma; return to work; trauma registry.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00068-021-01781-2>

### **Occupational class differences in emotional exhaustion among municipal employees - The role of employment sector and psychosocial working conditions**

**Background:** Studies examining occupational class differences in burnout symptoms across employment sectors are scarce. The aim of this study was to examine whether occupational class is associated with emotional exhaustion, and whether there are differences in the examined associations between employment sectors. A further aim was to examine to which extent psychosocial working conditions may explain these associations. **Methods:** Survey data were collected in 2017 among 19-39-year-old employees of the City of Helsinki (4630 women and 1267 men, response rate 51.5%). Occupational class included four classes: 1. manuals, 2. routine non-manuals, 3. semi-professionals, 4. managers and professionals. Employment sector was classified into three groups: 1. health and social care, 2. education and 3. 'other'. Linear regression analysis and IBM SPSS 25 statistical program were used. **Results:** The analytical sample included 4883 participants. The highest occupational class, i.e. managers and professionals, reported the highest emotional exhaustion. In terms of the sector, those working in education had the highest scores of emotional exhaustion. The associations between occupational class and emotional exhaustion differed somewhat between the sectors. Adjustment for job demands attenuated the differences in emotional exhaustion between occupational classes, whereas adjustment for job control and job strain widened the differences. **Discussion:** Attention should be paid to occupations with excess mental demands, and to employees in the education sector, who showed the highest risk of emotional exhaustion.

Lahti et al. 2022.

**Psychological Reports**, vol. 1.

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**Keywords:** Burnout; employment sector; socioeconomic position; stress; working conditions.

**Evidence Level:** 4B

**Link:** <https://pubmed.ncbi.nlm.nih.gov/35642717/>

### **Psychosocial workplace factors and alcohol-related morbidity: A prospective study of 3 million Swedish workers**

**Background:** Psychosocial workplace factors may be associated with alcohol-related morbidity, but previous studies have had limited opportunities to take non-occupational explanatory factors into account. The aim of this study is to investigate associations between job control, job demands and their combination (job strain) and diagnosed alcohol-related morbidity while accounting for several potentially confounding factors measured across the life-course, including education. **Methods:** Job control, job demands and job strain were measured using the Swedish job exposure matrix measuring psychosocial workload on the occupational level linked to over 3 million individuals based on their occupational titles in 2005 and followed up until 2016. Cox regression models were built to estimate associations with alcohol-related diagnoses recorded in patient registers. **Results:** Low job control was associated with an increased risk of alcohol-related morbidity, while high job demands tended to be associated with a decreased risk. Passive and high-strain jobs among men and passive jobs among women were also associated with an increased risk of alcohol diagnoses. However, all associations were found to be weakened in models adjusted for other factors measured prospectively over the life-course, especially in models that included level of education. **Conclusion:** The associations between low job control and high job demands, and the risk of

alcohol-related morbidity reflect underlying socioeconomic differences to some extent. Lower job control, however, remained associated with a higher risk of alcohol-related morbidity.

**Almroth et al. 2022.**

**European Journal of Public Health, vol. 32, no. 3.**

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**Keywords:** Psychosocial; alcohol-related morbidity; job demands; risk.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/eurpub/article/32/3/366/6540691?login=true>

### **Multiple psychosocial work exposures and well-being among employees: prospective associations from the French national Working Conditions Survey**

**Background:** Working conditions, especially psychosocial work factors (PWFs), are thought to influence mental health outcomes among working populations, but there have been few studies on well-being per se. We assessed the prospective associations between a wide variety of occupational factors, including PWFs, multiple exposure to these factors, and well-being among employees in France. **Methods:** This study was based on a nationally representative sample of 15,776 employees, including 6595 men and 9181 women, followed up from 2013 to 2016. Psychological well-being was assessed using the WHO-5 Well-Being Index. Occupational factors included 20 PWFs, 4 factors related to working time/hours, and 4 physical work exposures. The associations of occupational exposures with poor well-being were estimated using weighted robust Poisson regression models in men and women separately. **Results:** Among the employees who rated their well-being as good in 2013, 10.3% of men and 16.8% of women had a poor well-being 3 years later. Most PWFs in 2013 were associated with poor well-being in 2016 among women, and half of them among men. An increase in the risk of poor well-being with the number of PWFs was found. Noise exposure was associated with poor well-being in women. **Conclusions:** The occupational factors associated with psychological well-being were mainly those related to the psychosocial work environment. A linear association was observed between the number of exposures to PWFs and well-being. Preventive policies focused on PWFs may be beneficial for well-being. More attention should be given to multiple exposures to these factors.

**Bertrais et al. 2022.**

**Scandinavian Journal of Public Health, vol. 50, no. 4.**

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**Keywords:** Working conditions; multiple exposures; occupational exposures; psychosocial work factors; well-being.

**Evidence Level:** 4B

**Link:** [https://hal.univ-angers.fr/hal-03241175/file/Bertrais\\_and\\_coauthors\\_ScandJPublicHealth\\_accepted\\_manuscript.pdf](https://hal.univ-angers.fr/hal-03241175/file/Bertrais_and_coauthors_ScandJPublicHealth_accepted_manuscript.pdf)

## **Enabling Healthy and Safe Workplaces**

### **Health and Wellbeing**

*This month explores the relationship between health and wellbeing and employment status, work characteristics, engaged well-being at work, and job attitudes, and LGBTQ+ employees. The effect of opioid workplace prevention training is also explored. In Covid-19 related research the multi-dimensional influences on meat consumption when home and office working during the Covid-19 lockdown are explored, as are experiences of personal protective equipment wearing, the risk of Covid-19 transmission upon return to work in RNA-positive workers.*

### **Improving the wellbeing of LGBTQ+ employees: Do workplace diversity training and ally networks make a difference?**

**Background:** Despite growing recognition that lesbian, gay, bisexual, trans, queer, and other minority (LGBTQ+) employees have lower levels of workplace wellbeing than cis-gender heterosexual employees, few studies have examined how different workplace interventions may mitigate these disparities. This study provides first-time evidence of associations between LGBTQ+ employee wellbeing and two types of initiatives that have received substantial public attention and employer uptake: workplace gender and sexuality diversity training and ally (or employee) networks. **Methods:** To accomplish this, the analyses leverage Australian data from a unique, national employer-employee survey of workplace inclusion (2020 Australian Workplace Equality Index Employee Survey; n = 31,277). These data were used to drive individual- as well as organizational-level measures of diversity training and ally behaviors, and to estimate their associations with a multidimensional index of LGBTQ+ employee wellbeing using fully adjusted random-intercept multilevel regression models. **Results:** The results indicated that all individual- and organizational-level measures of workplace diversity training and ally behaviors exhibited positive, large, and statistically significant associations with the LGBTQ+ employee wellbeing index, controlling for an extensive set of confounds and organization-specific random effects. These findings have significant implications for health policy and practice. Specifically, they indicate that diversity training and ally networks may improve wellbeing amongst LGBTQ+ employees. **Discussion:** This suggests that employer investments in diversity training and ally networks are effective interventions to enhance workplace culture, employee productivity and intergroup relations.

**Perales 2022.**

**Preventative Medicine, vol. 161.**

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**Keywords:** Ally networks; diversity training; lgbtq+; wellbeing; workplace.

**Evidence Level:** 4A

**Link:** <https://www.sciencedirect.com/science/article/pii/S0091743522001621?via%3Dihub>

### **Opioids and the workplace prevention and response train-the-trainer and leadership training mixed methods follow-up evaluation**

**Background:** This study was designed to evaluate the outcomes of a national summer 2020 'Opioids and the Workplace' Prevention and Response (OWPR) Train-the-Trainer (TTT) and Leadership training tool and program at 6-month follow-up. The TTT program goal is to help instructors plan and conduct education and training on opioids and the workplace awareness. The Leadership program goal is to help trainees, who are in a position to take organizational level actions, implement policies, and programs related to opioid and substance use and injury prevention. **Methods:** Trainees were from various backgrounds, such as labor unions, academic consortiums, health and safety professionals, government, and community organizations. About 6 months following each individual course date a follow-up survey was sent to each available participants' e-mail (n = 53 TTT, n = 28 Leadership) with a response rate of 47.2% for the TTT (n = 25) and 63.2% for Leadership (n = 12). Trainees were asked about individual or workplace level actions taken; any obstacles that prevented them or their coworkers from being involved in or conducting activities; if the OWPR training tool was used in their workplace for a training program; and whether the pandemic impacted their ability to address opioids in the workplace. **Results:** Among TTT trainees, about half of follow-up survey respondents from the 2020 training reported planning and conducting training and education, reaching out to coworkers to see how they are doing, sharing factsheets and information from the opioid training with coworkers, and re-focusing on self-care. Among Leadership trainees, about two-fifths of follow-up survey respondents from the 2020 training reported sharing factsheets and information from the opioid training. Some trainees described the COVID-19 pandemic as limiting their ability to take actions in addressing opioids and the workplace. **Conclusions:** Evidence supports that the 'Opioids and the Workplace' Train-the-Trainer program and materials have contributed to helping trainees plan and conduct opioids awareness training at their organizations. Evidence supports that the Opioids in the Workplace Leadership program helped contribute to trainees taking workplace level actions to implement policies and programs.

**Persaud et al. 2022.**

**Annals of Work Exposure and Health, vol. 66, no. 5.**

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**Keywords:** Program planning and evaluation; training; worksite safety and health.

**Evidence Level:** 5A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8690258/>

### **Long-term effects of COVID-19 on workers in health and social services in Germany**

**Background:** Health workers are at increased risk for SARS-CoV-2 infections. What follows the acute infection is rarely reported in the occupational context. **Methods:** This study examines the employees' consequences of COVID-19 infection, the risk factors and the impact on quality of life over time. In this baseline survey, respondents were asked about their COVID-19 infection in 2020 and their current health situation. **Results:** Out of 2053 participants, almost 73% experienced persistent symptoms for more than three months, with fatigue/exhaustion, concentration/memory problems and shortness of breath being most frequently reported. Risk factors were older age, female gender, previous illness, many and severe symptoms during the acute infection, and outpatient medical care. An impaired health-related quality of life was found in participants suffering from persistent symptoms. Overall, a high need for rehabilitation to improve health and work ability is evident. Further follow-up surveys will observe the changes and the impact of vaccination on the consequences of COVID-19 among health workers.

**Peters et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 12.**

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**Keywords:** COVID-19; health workers; long COVID; persistent symptoms; post-COVID-19 syndrome; social workers.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/1660-4601/19/12/6983>

### **Where we work determines what we eat: A qualitative exploration of the multi-dimensional influences on meat consumption when home and office working during the COVID 19 lockdown in London, UK**

**Background:** Food choices, including the decision to consume meat, are complex and determined by many inter-related influences. **Methods:** This study examined the choice of working professionals to consume meat in the context of forced changes in working conditions during lockdowns in London during the Covid 19 outbreak in 2020-21. Guided by an adapted Ecological Framework depicting influences on food choice in this context, semi-structured interviews were conducted with 33 employees of a financial services consultancy who normally work from offices in central London but were homeworking at the time of research. Food choices associated with all meals (but especially lunches) when working in each setting were explored. **Results:** Four key themes emerged from the research. Firstly, when office-working the influence of colleagues (social environment factor) on the choice to consume meat was variable and individual-level factors, particularly personality traits, impacted the extent of social influence. Secondly, limited availability of non-meat options and preferences for buying meat-based meals outside the home (physical environment factor), contributed to more meat consumption when office-working. Thirdly, alignment of food choices between household members (social environment factor), largely for convenience reasons, resulted in a greater likelihood of non-meat meals being eaten when homeworking. Finally, not having to commute (physical environment factor) meant participants had more time available, resulting in changes to routines and priorities (individual-level factors), with some reduced meat consumption. **Discussion:** Overall, research findings contribute to building understanding of how both home and office-working influence the choice to consume meat. Findings may be used to inform strategies to reduce meat consumption, which will in turn play a role in supporting global climate change targets and reducing harm to the natural environment associated with food choices.

**Pluck et al. 2022.**

**Appetite, vol. 24.**

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**Keywords:** Dietary habits; Food attitudes; Food choices; Meat consumption; Social influence; Working from home.

**Evidence Level:** 5B

**Link:** <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-12307-1>

### **Work related well-being is associated with individual subjective well-being**

**Background: and Methods:** This study utilizes Gallup-ShareCare Well-being Index data to investigate the association between work-related well-being, i.e., job satisfaction, and overall subjective well-being among US workers. Subjective well-being is measured by i) daily positive and negative emotional experiences - happiness, smiles, enjoyment, sadness, anger, worry, and stress (hedonic well-being); and ii) current and future life evaluation (evaluative well-being). **Results:** The study finds significant positive relationships between job satisfaction and subjective well-being both in terms of higher odds of positive hedonic experiences and increased life evaluation scores after controlling for covariates and other nonwork-related contributors to well-being. Job satisfaction accounted for a 14% increase in current and an 8% increase in future life evaluation scores. The results emphasize that not only the income generated by work but the quality of work is also important for worker well-being. In fact, those without a job had higher well-being than those workers who are dissatisfied at work. **Discussion:** This is probably the first study that relates work-related well-being to overall well-being, using a nationally representative sample of US workers. Further, this is one of the few instances where the subjective measure of well-being is used in the occupational safety and health literature.

**Ray 2022.**

**Industrial Health, vol. 60, no. 3.**

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**Keywords:** Evaluative; gallup; hedonic; job satisfaction; unemployment; well-being; work.

**Evidence Level:** 5B

**Link:** [https://www.istage.jst.go.jp/article/indhealth/60/3/60\\_2021-0122/article](https://www.istage.jst.go.jp/article/indhealth/60/3/60_2021-0122/article)

### **Associations between work characteristics, engaged well-being at work, and job attitudes - Findings from a longitudinal German study**

**Background:** The Job Demand & Resources model suggests work characteristics are related to mental well-being and work engagement. Previous work describes the development of a combined construct 'engaged well-being at work' (EWB). To what extent changes in measures of this construct are responsive to changes in job demands and resources or associated with changes in job-related attitudes has not been established. **Methods:** Longitudinal employee-level data from three waves (German Linked Personnel Panel) were used. Logistic and linear fixed effects regression analyses explored longitudinal associations between changes in EWB for participants over a three-year period with changes in job demands and resources and job-related attitudes (job commitment, satisfaction, and turnover intentions). **Results:** While job resources were associated with increased odds for a change into a healthier and/or more engaged category of EWB, job demands reduced them. Job resources were more strongly related to higher EWB (ORrange = 1.22 - 1.61) than job demands (ORrange = 0.79 - 0.96). Especially psychological job demands showed negative associations with improved EWB (OR = 0.79). A change from the least desirable category 'disengaged strain' to any other category of EWB was associated with greater odds by up to 20.6 % for increased commitment and job satisfaction and lower odds for turnover intentions. **Discussion:** Improving work characteristics, especially job resources, could increase employees' EWB, emphasizing the importance of job characteristics for a healthy workplace. Because EWB seems to be associated with job attitudes, an improvement of this indicator would be relevant for employees and employers.

**Brokmeier et al. 2022.**

**Safety and Health at Work, vol. 13, no. 2.**

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**Keywords:** Job attitudes; Job characteristics; Mental well-being; Work engagement; Workplace health.

**Evidence Level:** 4B

Link: <https://www.sciencedirect.com/science/article/pii/S2093791122000440?via%3Dihub>

### **Experiences of personal protective equipment by Australian healthcare workers during the COVID-19 pandemic, 2020: A cross-sectional study**

**Background:** The aim of this study was to capture Australian frontline healthcare workers' (HCWs) experiences with personal protective equipment (PPE) during the COVID-19 pandemic in 2020. **Methods:** This was a cross-sectional study using an online survey consisting of five domains: demographics; self-assessment of COVID risk; PPE access; PPE training and confidence; and anxiety. Participants were recruited from community and hospital healthcare settings in Australia, including doctors, nurses, allied health professionals, paramedics, and aged care and support staff. Data analysis was descriptive with free-text responses analysed using qualitative content analysis and multivariable analysis performed for predictors of confidence, bullying, staff furlough and anxiety. **Results:** The 2258 respondents, comprised 80% women, 49% doctors and 40% nurses, based in hospital (39%) or community (57%) settings. Key findings indicated a lack of PPE training (20%), calls for fit testing, insufficient PPE (25%), reuse or extended use of PPE (47%); confusion about changing guidelines (48%) and workplace bullying over PPE (77%). An absence of in-person workplace PPE training was associated with lower confidence in using PPE (OR 0.21, 95%CI 0.12, 0.37) and a higher likelihood of workplace bullying (OR 1.43; 95% CI 1.00, 2.03) perhaps reflecting deficiencies in workplace culture. **Discussion:** Deficiencies in PPE availability, access and training linking to workplace bullying, can have negative physical and psychological impacts on a female dominant workforce critical to business as usual operations and pandemic response.

**Ayton et al. 2022.**

**PLoS One, vol. 17, no. 6.**

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**Keywords:** Personal protective equipment; healthcare workers; Australia; COVID-19.

**Evidence Level:** 4A

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0269484>

### **The ethics of encouraging employees to get the COVID-19 vaccination**

**Background:** The coronavirus pandemic continues to hinder the ability of businesses to operate at full capacity. Vaccination offers a path for employees to return to work, and for businesses to resume full capacity, while protecting themselves, their fellow workers, and customers. Many employers reluctant to mandate vaccination for their employees are considering other ways to increase employee vaccination rates. Because much has been written about the ethics of vaccine mandates, we examine a related and less discussed topic: the ethics of encouragement strategies aimed at overcoming vaccine reluctance (which can be due to resistance, hesitance, misinformation, or inertia) to facilitate voluntary employee vaccination.

**Results:** While employment-based vaccine encouragement may raise privacy and autonomy concerns, and though some employers might hesitate to encourage employees to get vaccinated, our analysis suggests ethically acceptable ways to inform, encourage, strongly encourage, incentivize, and even subtly pressure employees to get vaccinated.

**Berkman et al. 2022.**

**Journal of Public Health Policy, vol. 43, no. 2.**

**User License:** *PMC Open Access Subset*

**Keywords:** Autonomy; COVID-19; privacy; vaccine encouragement; vaccine incentives.

**Evidence Level:** 6A

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8966597/>

### **Risk of SARS-CoV-2 transmission upon return to work in RNA-positive healthcare workers**

**Background:** Healthcare workers (HCWs) are at risk for coronavirus disease 2019 (COVID-19), and for spreading severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) amongst colleagues and patients.

**Aim:** To study the presence of SARS-CoV-2 RNA and possible onward transmission by HCWs upon return to work after COVID-19, and association with disease severity and development of antibodies over time.

**Methods:** Unvaccinated HCWs with positive SARS-CoV-2 reverse transcriptase polymerase chain reaction (RT-PCR) were recruited prospectively. Data on symptoms were collected via telephone questionnaires on

days 2, 7, 14 and 21 after a positive test. Upon return to work, repeat SARS-CoV-2 RT-PCR was performed and serum was collected. Repeat serum samples were collected at weeks 4, 8, 12 and 16 to determine antibody dynamics over time. Phylogenetic analysis was conducted to investigate possible transmission events originating from HCWs with a positive repeat RT-PCR. **Findings:** Sixty-one (84.7%) participants with mild/moderate COVID-19 had a repeat SARS-CoV-2 RT-PCR performed upon return to work (median 13 days after symptom onset), of which 30 (49.1%) were positive with a median cycle threshold (Ct) value of 29.2 (IQR 26.9-29.9). All HCWs developed antibodies against SARS-CoV-2. No significant differences in symptomatology and presence of antibodies were found between repeat RT-PCR-positive and -negative HCWs. Eleven direct colleagues of six participants with a repeat RT-PCR Ct value <30 tested positive after the HCW returned to work. Phylogenetic and epidemiologic analysis did not indicate onward transmission through HCWs who were SARS-CoV-2 RNA positive upon return to work. **Conclusions:** HCWs regularly return to work with substantial SARS-CoV-2 RNA loads. However, this study found no evidence for subsequent in-hospital transmission.

**Kolodziej et al. 2022.**

**Journal of Hospital Infections, vol. 124, no. 72-78.**

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**Keywords:** COVID-19; healthcare worker; infectious disease transmission; SARS-CoV-2.

**Evidence Level:** 4A

**Link:** [https://www.journalofhospitalinfection.com/article/S0195-6701\(22\)00079-2/fulltext](https://www.journalofhospitalinfection.com/article/S0195-6701(22)00079-2/fulltext)

## Work Health and Safety

*This month we explore the relationship between work health and safety and personal protective equipment use, including face masks, the risk of cerebro-cardiovascular diseases among police officers and firefighters and association between occupation and cervical disc degeneration . In Covid-19 related research the impact of perceived workplace Covid-19 safety climate and employee job insecurity and the Covid-19 infection risk among occupations during the first pandemic wave are also explored.*

### **The work environment during coronavirus epidemics and pandemics: A systematic review of studies using quantitative, qualitative, and mixed-methods designs**

**Background:** We aimed to provide an overview of how work environment and occupational health are affected, and describe interventions designed to improve the work environment during epidemics and pandemics. **Methods:** The guidelines on Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) were followed. The databases Cinahl, Medline, PsycInfo, and Web of Science were searched for population: working population; exposure: coronavirus epidemic or pandemic; and outcome: work environment, in articles published until October 2020. Quality assessment was based on a modified version of the Mixed Methods Appraisal Tool (MMAT). **Results:** After deduplication 3711 articles remained, of which 530 were selected for full-text screening and 119 for quality assessment. After the exclusion of studies that were low quality, 95 remained, of which 85 focused on healthcare personnel and 10 on employees in other industries; 73 used quantitative methods and 22 used qualitative or mixed methods; the majority were based on cross-sectional data. Healthcare staff experienced increased job demands, poor leadership, and lack of resources (personal protective equipment, personnel, and competence). **Discussion:** High demands and work with infected patients were associated with negative mental health outcomes. There was a lack of studies assessing interventions, studies from industries other than healthcare, and studies of high quality.

**Nyberg et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 11.**

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**Keywords:** PPE; epidemic; mental health; occupational health; pandemic; work environment.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/19/11/6783>

### **Occupational facial dermatoses related to mask use in healthcare professionals**

**Background:** The use of face masks can lead to facial dermatoses due to factors, such as hyperhydration, seborrhea, high humidity caused by sweating, and the occlusive effect of the mask. **Aim:** This study explored mask-related facial dermatoses in healthcare personnel. **Methods:** Healthcare workers with facial dermatoses were screened. **Results:** The most common form of facial dermatoses was acne. Females, using a N95 mask, and the daily duration of mask use were risk factors for acne development. **Altun et al. 2022.**

**Journal of Cosmetic Dermatology, vol. 21, no. 6.**

**Keywords:** COVID-19; face mask; facial dermatoses; healthcare professionals.

**Evidence Level:** 5B

**Link:** <https://onlinelibrary.wiley.com/doi/10.1111/jocd.14415>

### **Headache related to personal protective equipment in healthcare workers during COVID-19 pandemic in Mexico: Baseline and 6-month follow-up**

**Background and aim:** Headaches related to the use of personal protective equipment (PPE) could affect performance at work in healthcare personnel. Our aim was to describe the prevalence and risk factors for headaches related to PPE, in the personnel of a specialized coronavirus disease 2019 (COVID-19) tertiary hospital. **Methods:** In this cross-sectional survey study, we invited healthcare workers from COVID-19 referral center in Mexico (May 22-June 19, 2020) to answer a standardized structure questionnaire on characteristics of new-onset PPE-related headache or exacerbation of primary headache disorder. Participants were invited regardless of whether they had a current headache to avoid selection bias. This is the primary analysis of these data. **Results:** Two hundred and sixty-eight subjects were analyzed, 181/268 (67.5%) women, 177/268 (66%) nurses, mean age 28 years. The prevalence of PPE-related headache was 210/268 (78.4%). Independent risk factors were occupation other than physician (OR 1.59, 95% CI 1.20-2.10), age > 30 years (OR 2.54, 95% CI 1.25-5.14), and female sex (OR 3.58, 95% CI 1.86-6.87). In the 6-month follow-up, 13.1% of subjects evolve to chronic headache, with stress as predictive risk factor. **Conclusion:** The frequency of PPE-associated headache is high, and a subgroup could evolve to chronic headache. More studies are necessary to improve the knowledge about this condition.

**Dominguez-Moreno et al. 2022.**

**International Archives of Occupational and Environmental Health, vol. 18, no. 1-10.**

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**Keywords:** COVID-19; headache; migraine; personal protection equipment.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00420-022-01895-z>

### **The dangers of reused personal protective equipment: Healthcare workers and workstation contamination**

**Background:** The reuse of personal protective equipment in healthcare workers presents a risk for accidental contamination. **Methods:** This study involved 28 health care workers performing five donning and doffing encounters while performing simulated full COVID-19 patient evaluations. **Results:** Contamination was common in the upper body and face. The greatest contamination occurred with the hook and paper bag storage methods, and the least with the tabletop storage method. **Discussion:** Current PPE design needs improving as PPE reuse presents a risk of contamination for healthcare workers.

**Doos et al. 2022.**

**The Journal of Hospital Infection, vol. 7.**

**Keywords:** Healthcare workers; contamination; human factors; occupational hazards; personal protective equipment; worker safety.

**Evidence Level:** 5A

**Link:** [https://www.journalofhospitalinfection.com/article/S0195-6701\(22\)00170-0/fulltext](https://www.journalofhospitalinfection.com/article/S0195-6701(22)00170-0/fulltext)

### **Risk of cerebro-cardiovascular diseases among police officers and firefighters: A nationwide retrospective cohort study**

**Background:** Police officers and firefighters are exposed to risk factors for cerebro-cardiovascular diseases, and the actual risk is expected to increase compared with other occupational groups. The present study aimed to estimate the risks of cerebro-cardiovascular diseases in police officers and firefighters compared to other occupational groups. **Materials and methods:** Using the National Health Insurance Service data, we constructed a retrospective cohort of public officers. Three-year consecutive health insurance registration data were used to identify police officers and firefighters. Cerebro-cardiovascular diseases consisted of acute myocardial infarction, other ischemic heart disease, cardiac arrhythmia, and stroke. We compared the incidences of cerebro-cardiovascular diseases between each of the two occupational groups (police officers and firefighters) and other public officers by calculating standardized incidence ratios (SIRs). **Results:** SIRs and 95% confidence intervals of all cerebro-cardiovascular diseases for police officers and firefighters were 1.71 (1.66-1.76) and 1.22 (1.12-1.31), respectively, as compared with all public officers. The incidence ratios remained significantly higher compared to general and education officers. Subgroup analyses for myocardial infarction, stroke, and cardiac arrhythmia exhibited significant increases in incidence ratios among police officers and firefighters. **Conclusion:** This study suggests that both police officers and firefighters are at high risk of cerebro-cardiovascular diseases. Therefore, medical protection measures for these occupational groups should be improved.

**Lee et al. 2022.**

**Yonsei Medical Journal, vol. 63, no. 6.**

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

**Keywords:** Cardiovascular diseases; firefighters; police officers.

**Evidence Level:** 4A

**Link:** <https://www.eymj.org/DOIx.php?id=10.3349/ymj.2022.63.6.585>

### **Association between occupation and cervical disc degeneration in 1211 asymptomatic subjects**

**Background:** Magnetic resonance imaging (MRI) system has frequently observed degenerative changes in the cervical discs of healthy subjects. Although there are concerns regarding the link between an individual's occupation and intervertebral disc degeneration (IDD) in the cervical spine, whether the occupation affects IDD is still not clear. **Methods:** This study aimed to evaluate the occupation and IDD interplay using cervical spine MRI among a cohort of healthy individuals, and to evaluate any association between the type of labor and IDD. Using MRI, we prospectively measured at every level, the anteroposterior (AP) intervertebral disc diameter and disc height, in a cohort of 1211 healthy volunteers (606 (50%) male; mean age, 49.5 years). Using a minimum of 100 male and female each from the third to eighth decades of age (20-79 years), IDD was evaluated based on the modified Pfirrmann classification system to derive a disc degeneration score (DDS). We also measured the AP diameters of disc protrusion and of the dural sac as well as the spinal cord. **Results:** The overall DDS and number of disc protrusions increased with age. Among 11 occupations, there were no significant differences in AP diameter of the dural sac as well as the spinal cord. For the four labor types (heavy object handling, same position maintenance, cervical extension position, and cervical flexion position), there were no significant differences in overall DDS and number of disc protrusions, with or without work. Also, among the four labor types, there were no significant differences in the AP diameter of the dural sac as well as the spinal cord. **Discussion:** In this cross-sectional survey of cervical spine MRI data among healthy adult volunteers, occupation and type of labor might have no effect on IDD in the cervical spine.

**Machino et al. 2022.**

**Journal of Clinical Medicine, vol. 11, no. 12.**

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**Keywords:** Asymptomatic subjects; cervical disc degeneration; disc degeneration; magnetic resonance image; occupation.

**Evidence Level:** 4B

**Link:** <https://www.mdpi.com/2077-0383/11/12/3301>

### **Occupation and SARS-CoV-2 infection risk among 108 960 workers during the first pandemic wave in Germany**

**Background:** The aim of this study was to identify the occupational risk for a SARS-CoV-2 infection in a nationwide sample of German workers during the first wave of the COVID-19 pandemic (1 February-31 August 2020). **Methods:** We used the data of 108 960 workers who participated in a COVID follow-up survey of the German National Cohort (NAKO). Occupational characteristics were derived from the German Classification of Occupations 2010 (Klassifikation der Berufe 2010). PCR-confirmed SARS-CoV-2 infections were assessed from self-reports. Incidence rates (IR) and incidence rate ratios (IRR) were estimated using robust Poisson regression, adjusted for person-time at risk, age, sex, migration background, study center, working hours, and employment relationship. **Results:** The IR was 3.7 infections per 1000 workers [95% confidence interval (CI) 3.3-4.1]. IR differed by occupational sector, with the highest rates observed in personal (IR 4.8, 95% CI 4.0-5.6) and business administration (IR 3.4, 95% CI 2.8-3.9) services and the lowest rates in occupations related to the production of goods (IR 2.0, 95% CI 1.5-2.6). Infections were more frequent among essential workers compared with workers in non-essential occupations (IRR 1.95, 95% CI 1.59-2.40) and among highly skilled compared with skilled professions (IRR 1.36, 95% CI 1.07-1.72). **Conclusions:** The results emphasize higher infection risks in essential occupations and personal-related services, especially in the healthcare sector. Additionally, we found evidence that infections were more common in higher occupational status positions at the beginning of the pandemic.

**Reuter et al. 2022.**

**Scandinavian Journal of Work, Environment and Health, vol. 7.**

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**Keywords:** COVID-19; infection risk; pandemic; Germany.

**Evidence Level:** 4B

**Link:** <https://www.sjweh.fi/article/4037>

### **COVID-19 moral disengagement and prevention behaviors: The impact of perceived workplace COVID-19 safety climate and employee job insecurity**

In response to the COVID-19 pandemic, the U.S. Centers for Disease Control and Prevention developed recommendations for individual COVID-19 prevention behaviors, as well as guidance for the safe reopening of businesses. Drawing from previous research on occupational safety, business ethics, and economic stressors, we tested the hypothesis that more positive perceptions of the workplace COVID-19 safety climate would be associated with lower employee COVID-19 related moral disengagement. In turn, we predicted that higher COVID-19 moral disengagement would be associated with lower enactment of preventive behaviors both at work and in nonwork settings (i.e., a spillover effect). Further, we investigated whether employee job insecurity would impact organizational socialization processes, such that the relationship between the perceived COVID-19 safety climate and moral disengagement would be weaker at higher levels of job insecurity. By analyzing a three-wave lagged dataset of U.S. employees working on-site during the pandemic using a Bayesian multilevel framework, we found empirical support for the hypothesized moderated mediation model. We discuss the relevance of these findings (i.e., the spillover effect and the role of job insecurity) in light of the extant safety climate literature and outline how our findings have several implications for the scope and conceptualization of safety climate in light of the surge of new working arrangements, infectious diseases, and continuing employment instability.

**Bazzoli et al. 2022.**

**Safety Science, vol. 150.**

**User License:** *Elsevier Connect COVID-19 resource centre*

**Keywords:** COVID-19 safety climate; job insecurity; moral disengagement; preventative behaviors; spillover effect.

**Evidence Level:** 6B

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8824170/>

## The evaluation of personal protective equipment usage habit of mining employees using structural equation modeling

**Background:** In occupational studies, it is a known situation that technical and organizational attempts are used to prevent occupational accidents. Especially in the mining sector, if these attempts cannot prevent occupational accidents, personal protective equipment (PPE) becomes a necessity. Thus, in this study, the main objective is to examine the effects of the variables on the use of PPE and identify important factors.

**Methods:** A questionnaire was implemented and structural equation modeling was conducted to ascertain the significant factors affecting the PPE use of mining employees. The model includes the factors that ergonomics, the efficiency of PPE and employee training, and PPE usage habit. **Results:** The results indicate that ergonomics and employee training have no significant effect ( $p > 0.05$ ) on the use of PPE. The efficiency of PPE has a statistically meaningful effect ( $p < 0.05$ ) on the use of PPE. Various variables have been evaluated in previous studies. However, none of them examined the variables simultaneously.

**Conclusion:** The developed model in the study enables to better focus on ergonomics and employee training in the PPE usage. The effectiveness of a PPE makes its use unavoidable. Emphasizing PPE effectiveness in OHS training and even showing them in practice will increase employees' PPE usage. The fact that a PPE with high effectiveness is also ergonomic means that it will be used at high rates by the employee.

Kursunoglu et al. 2022.

**Safety and Health at Work, vol. 13, no. 2.**

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**Keywords:** Mining employees; occupational accidents; personal protective equipment; structural equation modeling.

**Evidence Level:** 5B

**Link:** <https://www.sciencedirect.com/science/article/pii/S2093791122000452?via%3Dihub>

## Risk Assessment

*This month we explore the organizational factors and specific risks on construction sites and the role of environmental and occupational factors in fall-related maxillofacial fractures.*

### Organizational factors and specific risks on construction sites

**Background:** This study develops an empirical test of two theoretical models using the approach of Structural Equation Model (SEM) to test the relationships between specific organizational factors of safety management system (SMS) and specific risk variables. **Method:** Two SEM models with two and four latent variables, respectively, and 10 observed risk variables were used to identify the strongest relationships that may lead to an accident on site. A random sample of 474 construction sites were visited and assessed in Spain from 2003 to 2010. Most of the samples were small and medium sized enterprises (SMEs), which is the predominant type of company in the Spanish construction industry. To assess the risk on sites and get the measurements of the variables included in the models, the validated method CONSRAT (Construction Sites Risk Assessment Tool) was used. After estimating the proposed models, an adequate fit was obtained for both of them. **Results:** Results provide empirical evidence that: (a) the factor "Resources on site" is more determinant in explaining influences on risk variables because of their influence on all risk variables (Model 1); (b) the factor "Site structure complexity" (which includes structure and organization, and safety resources available on site) has a stronger effect on risk variables than other factors related to intrinsic characteristics of the work, site, or companies (Model 2). **Conclusions:** These results mean that the complexity and resource factors that depend on companies are those that have the greatest impact on risks, which makes it possible for companies to undertake the appropriate risk control measures. **Practical application:** These results can help construction firms obtain earlier information about which organizational elements can affect future safety conditions on site, improve those elements for preventing risks, and consequently, avoid accidents before they occur.

Forteza et al. 2022.

**Journal of Safety and Research, vol. 81, no. 270-282 .**

**User License:****Keywords:** Risk onsite; Site complexity; Site resources; Structural Equation Modeling.**Evidence Level:** 4B**Link:** <https://www.sciencedirect.com/science/article/pii/S0022437522000408?via%3Dihub>**Role of environmental and occupational factors in fall-related maxillofacial fractures**

**Background:** The objective of this study was to determine the frequency and patterns of maxillofacial fractures in falls due to environmental and occupational reasons. **Material and methods:** One hundred and nineteen patients were included in this study who presented to the department of Oral and maxillofacial surgery at Khyber College of Dentistry, Peshawar. The duration of study was 3 years from January 1, 2017 to December 31, 2019. Demographic data such as age, gender and data environmental or occupational etiology of falls and pattern of fractures was noted in a customized Performa after detailed history, clinical and radiographic examination. Patients of maxillofacial fractures resulting due to falls with age ranging from 16 to 64 years were included. Those cases of falls that presented with systemic diseases or had chances of pathological fractures were excluded from the study. **Results:** Male population was affected more than females (60% vs. 39.4%). The mean age was 32.39 SD  $\pm$  16.031. Falls due to environmental factors were more common than occupational factors (81.5% vs 18.5%). Fracture of midface was more common (57.1%) than fracture of mandible (36.7%) in patients of falls. 5.5% had both midface and mandible fractures. **Conclusion:** We concluded that Environmental and work-related facial fractures in falls are common in third and fourth decade of life. Falls due to stumbling, tripping and slipping, falls from height and falls from stairs most commonly result in midface fractures. Mandible fractures are commonly seen in sportsmen and laborers. Preventive strategies shall be adopted to prevent morbidity and mortality associated with such injuries.

**Sattar et al. 2022.****Clinical and Experimental Dental Research, vol. 8, no. 3.****User License:** Creative Commons Attribution (CC BY 4.0) (<https://creativecommons.org/licenses/by/4.0/>)**Keywords:** Dento-alveolar trauma; environmental factors; falls; maxillofacial fractures; occupational factors.**Evidence Level:** 4B**Link:** <https://onlinelibrary.wiley.com/doi/10.1002/cre2.545>

## Chronic Health Issues

*This month we explore the relationship between worker profiles and 10-year cardiovascular disease risk, issues associated with young workers with asthma and the risk of subclinical cardiac dysfunction in firefighters.*

**Workers' activity profiles associated with predicted 10-year cardiovascular disease risk**

**Background:** There is a need to explore common activity patterns undertaken by workers and the association between these activity profiles and cardiovascular disease (CVD). This study explored the number and type of distinct profiles of activity patterns among workers and the association between these profiles and predicted 10-year risk for a first atherosclerotic CVD event. **Methods and Results:** Distinct activity patterns from a cross-section of workers' accelerometer data were sampled from Canadian Health Measures Survey participants (5 cycles, 2007-2017) and identified using hierarchical cluster analysis techniques. Covariates included accelerometer wear time, work factors, sociodemographic factors, clinical markers, and lifestyle variables. Associations between activity profiles and high atherosclerotic CVD risk >10% were estimated using robust Poisson regression models. Six distinct activity profiles were identified from 8909 workers. Compared with the "lowest activity" profile, individuals in the "highest activity" and "moderate evening activity" profiles were at 42% lower risk (relative risk [RR], 0.58; 95% CI, 0.47, 0.70) and 33% lower risk (RR, 0.67; 95% CI, 0.44, 0.87) of predicted 10-year atherosclerotic CVD risk of >10%, respectively. "Moderate activity" and "fluctuations of moderate activity" profiles were also associated with lower risk estimates, whereas the "high daytime activity" profile was not statistically different to the



reference profile. **Conclusions:** Workers accumulating physical activity throughout the day and during recreational hours were found to have optimal CVD risk profiles. Workers accumulating physical activity only during daytime work hours were not associated with reduced CVD risk. Findings can inform alternative strategies to conferring the cardiovascular benefits of physical activity among workers. Large prospective studies are needed to confirm these findings.

**Biswas et al. 2022.**

**Journal of American Heart Association, vol. 3.**

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**Keywords:** Cardiovascular diseases; epidemiology; exercise; physical activity; workers.

**Evidence Level:** 4B

**Link:**<https://www.ahajournals.org/doi/full/10.1161/JAHA.121.025148#:~:text=Compared%20with%20the%20E2%80%9Clowest%20activity,of%20%3E10%25%2C%20respectively.>

### **Disease control, not severity, drives job absenteeism in young adults with asthma - A nationwide cohort study**

**Background:** The impact of asthma and disease control on job absenteeism in young adults is sparsely investigated and conflicting evidence exist. Based on a nationwide cohort, the present study aims to describe the overall job absenteeism across asthma severities and describe the possible influence of asthma control. **Methods:** REASSESS is a nationwide cohort of Danish asthma patients aged 18-45 using controller medication between 2014 and 2018, followed retrospectively for up to 15 years using national databases. Impact of asthma was investigated using negative binomial regression adjusted for age, sex, Charlson score and level of education and presented as adjusted incidence rate ratios with 95% confidence intervals. **Results:** A total of 60,534 patients with asthma (median age 33 (25, 39), 55% female, 19% uncontrolled disease and 5.7% possible severe asthma) were followed for 12.7 (6.5-14.8) years. The prevalence of any absenteeism was more common in both mild-to-moderate and possible severe asthma compared to the background population (67%, 80% and 62%, respectively;  $p < 0.0001$ ). Compared to the background population, mild-to-moderate and possible severe asthma were more likely to have temporary sick leave (1.37 (1.33-1.42); 1.78 (1.62-1.96)), unemployment (1.11 (1.07-1.14); 1.26 (1.15-1.38)) and obtain disability benefits (1.67 (1.66-1.67); 2.64 (2.63-2.65)). Uncontrolled asthma had increased temporary sick leave (1.42 (1.34-1.50)), unemployment (1.40 (1.32-1.48)) and disability (1.26 (1.26-1.27)) when compared to controlled disease. Significant increases in absenteeism could be measured already at  $\geq 100$  annual doses of rescue medication (1.09 (1.04-0.1.14)), patients' first moderate or severe exacerbation (1.31 (1.15-1.49) and 1.31 (1.24-1.39), respectively). Further increases in absenteeism were observed with increasing rescue medication use and severe exacerbations. **Conclusion:** Across severities, job absenteeism is increased among patients with asthma compared to the background population. Increases in absenteeism was seen already at  $\geq 100$  annual doses of rescue medication, representing a substantial, and probably preventable, reduction in productivity among young adults.

**Håkansson et al. 2022.**

**Journal of Asthma and Allergy, vol. 20, no. 15.**

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**Keywords:** Airway diseases; burden of disease; cost of disease; observational cohort; societal cost.

**Evidence Level:** 4B

**Link:** <https://www.dovepress.com/disease-control-not-severity-drives-job-absenteeism-in-young-adults-wi-peer-reviewed-fulltext-article-JAA>

### **Subclinical cardiac dysfunction is associated with reduced cardiorespiratory fitness and cardiometabolic risk factors in firefighters**

**Background:** Past studies have documented the ability of cardiopulmonary exercise testing to detect cardiac dysfunction in symptomatic patients with coronary artery disease. Firefighters are at high risk for work-related cardiac events. This observational study investigated the association of subclinical cardiac dysfunction detected by cardiopulmonary exercise testing with modifiable cardiometabolic risk factors in

asymptomatic firefighters. **Methods:** As part of mandatory firefighter medical evaluations, study subjects were assessed at 2 occupational health clinics serving 21 different fire departments. Mixed effects logistic regression analyses were used to estimate odds ratios (ORs) and account for clustering by fire department. **Results:** Of the 967 male firefighters (ages 20-60 years; 84% non-Hispanic white; 14% on cardiovascular medications), nearly two-thirds (63%) had cardiac dysfunction despite having normal predicted cardiorespiratory fitness (median peak  $VO_2 = 102\%$ ). In unadjusted analyses, cardiac dysfunction was significantly associated with advanced age, obesity, diastolic hypertension, high triglycerides, low high-density lipoprotein (HDL) cholesterol, and reduced cardiorespiratory fitness (all P values < .05). After adjusting for age and ethnicity, the odds of having cardiac dysfunction were approximately one-third higher among firefighters with obesity and diastolic hypertension (OR = 1.39, 95% confidence interval [CI] = 1.03-1.87 and OR = 1.36, 95% CI = 1.03-1.80) and more than 5 times higher among firefighters with reduced cardiorespiratory fitness (OR = 5.41, 95% CI = 3.29-8.90). **Conclusion:** Subclinical cardiac dysfunction detected by cardiopulmonary exercise testing is a common finding in career firefighters and is associated with substantially reduced cardiorespiratory fitness and cardiometabolic risk factors. These individuals should be targeted for aggressive risk factor modification to increase cardiorespiratory fitness as part of an outpatient prevention strategy to improve health and safety.

Smith et al. 2022.

American Journal of Medicine, vol. 135, no. 6.

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Keywords: Cardiac dysfunction; firefighters; prevention; risk stratification; stress testing.

Evidence Level: 5B

Link: [https://www.amjmed.com/article/S0002-9343\(22\)00077-8/fulltext](https://www.amjmed.com/article/S0002-9343(22)00077-8/fulltext)

## Occupational Exposure

*This month we explore occupational exposures related to cholangiocarcinoma, radiofrequency electromagnetic fields, Covid -19 virus, lead, blood and body fluids, ambient air pollution, wood dust, inhalation of ethylene phosphorodifluoridite, UVR exposure, pesticides, ultrasonic noise, peptide couplers and occupational chemicals.*

### Cholangiocarcinoma attributed to occupation: A systematic reviews

**Background:** The occurrence of a cluster of occupational cholangiocarcinoma (CCA) cases among Japanese workers at a small offset printing plant led to the hypotheses that occupational exposure was the root cause of this cancer. Numerous workplace carcinogens can be found at various jobs sites and are integral to various industrial processes. Therefore, a systematic evaluation of potential occupationally-related CCA and likely exposure types is needed. **Objective:** To conduct a systematic review on the cause of CCA in relation to occupation. **Methods:** The systematic review included papers published between 1980 and 2020. Databases included PubMed, Science Direct, CINAHL, ProQuest Medical Library, Springer, Wiley online library, and the Cochrane library. The review focused on CCA, intrahepatic CCA (as distinct from other types of liver cancer), and extrahepatic CCA (not including the gallbladder). While some occupations involve an expected risk of exposure to carcinogens, this study sought both primary reports on specific carcinogens or surrogates by occupation or industry title. Of the 65 English version abstracts, 18 studies were selected for in-depth review according to the eligibility criteria. Two occupational physicians independently assessed the relevance to the study objectives, data extractability, and data quality as per the Newcastle-Ottawa Scale. **Results:** The review revealed that ten observational studies met the eligibility criteria. There was heterogeneity of occupational exposure assessment and the reported results. The possible carcinogens statistically significantly related to the incidence or mortality of CCA risk included 1,2-dichloropropane (the highest RR = 32.40, 95%CI=6.40-163.90), asbestos (the highest OR=4.81, 95 % CI =1.73-13.33), endocrine-disrupting compounds (the highest OR =2.00, 95% CI=1.10-3.70), and rotating shift work (the highest HR =1.97, 95%CI=1.02-3.79). These carcinogens are classified as IARC class 1 and 2A. **Conclusions:** Despite the limited number of studies reviewed, the hypothesis of occupational risk for CCA was supported.

Occupational health and safety measures may decrease exposure to these carcinogens, and surveillance in high-risk occupations or industries is urgently needed to prevent and control CCA.

**Seeherunwong et al. 2022.**

**Asian Pacific Journal of Cancer Prevention, vol. 23, no. 6.**

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**Keywords:** Occupational exposure; bile duct neoplasms; cholangiocarcinoma; occupational disease.

**Evidence Level:** 1A

**Link:** <http://journal.waocp.org/?sid=Entrez:PubMed&id=pmid:35763622&key=2022.23.6.1837>

### **Occupational exposure to radiofrequency electromagnetic fields**

**Background:** High exposures to radiofrequency electromagnetic fields (RF EMF) are possible in workplaces involving sources used for broadcasting, telecommunication, security and identification, remote sensing and the heating and drying of goods. A systematic literature review of occupational RF EMF exposure measurements could help to clarify where more attention to occupational safety may be needed. This review identifies specific sources of occupational RF EMF exposure and compares the published maximum exposures to occupational exposure limits. **Methods:** A systematic search for peer-reviewed publications was conducted via PubMed and Scopus. Relevant grey literature was collected via web searches. For each publication, the highest measured electric field strength, magnetic flux density or power density was extracted. **Results and Discussion:** Maximum exposures exceeding the limits were reported for dielectric heating, scanners for security and radiofrequency identification, plasma devices and broadcasting and telecommunication transmitters. Occupational exposure exceeding the limits was rare for microwave heating and radar applications. Some publications concerned cases studies of occupational accidents followed by a medical investigation of thermal health effects. These were found for broadcasting antennas, radar installations and a microwave oven and often involved maintenance personnel. New sources of occupational exposure such as those in fifth generation telecommunication systems or energy transition will require further assessment.

**Stam 2022.**

**Industrial Health, vol. 60, no. 3.**

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**Keywords:** Electromagnetic fields; exposure; occupational; radiofrequency; regulation.

**Evidence Level:** 1A

**Link:** [https://www.jstage.jst.go.jp/article/jndhealth/60/3/60\\_2021-0129/article](https://www.jstage.jst.go.jp/article/jndhealth/60/3/60_2021-0129/article)

### **Occupational cold exposure and symptoms of carpal tunnel syndrome - A population-based study**

**Background:** Cold exposure is an underrecognized occupational hazard that may increase the risk of peripheral nerve entrapment. The aim of this study was to determine if self-reported occupational exposure to contact and ambient cooling was associated with symptoms of carpal tunnel syndrome (CTS). **Methods:** In this mainly cross-sectional study, surveys were conducted on a population-based sample of men and women between 18 and 70 years of age, living in northern Sweden. Cold exposure and presence of symptoms suggestive of CTS were subjectively reported. Associations between exposure and outcome were evaluated using logistic regression. **Results:** The study included 2,703 women and 2,314 men, with a median age of 60 years (interquartile range 19). Symptoms of CTS were reported by 453 (9.2%). Being highly occupationally exposed (almost always) to contact cooling of the hands was associated with reporting CTS (OR 3.20; 95% CI 1.62-6.33), as was ambient cooling (OR 2.00; 95% CI 1.03-3.88) and severe ambient cooling (OR 4.02 95% CI 2.09-7.71), after adjusting for age, gender, body mass index, current daily smoking, diabetes mellitus, joint disease, and hand-arm vibration exposure. The point estimates increased with longer daily exposure duration. For workers exposed to severe ambient cooling for more than half of their working hours, in addition to performing heavy manual handling every day, the OR for reporting CTS was 7.25 (95% CI 3.88-13.53), with a positive additive interaction effect (expressed as relative excess risk due to interaction) of 4.67. **Conclusions:** Self-reported occupational exposure to contact and ambient cooling was associated with symptoms suggestive of CTS. There were statistically significant positive ex

posture-response patterns for time spent exposed to contact and ambient cooling at work in relation to reporting symptoms of CTS. Positive additive interaction effects between cold exposure and heavy manual handling were also found. Since there was important potential uncontrolled confounding regarding repetitive wrist movements and forceful gripping, the results need to be confirmed by other studies, preferably with longitudinal design and more detailed exposure assessment.

**Stjernbrandt et al. 2022.**

**BMC Musculoskeletal Disorders, vol. 23, no. 1.**

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**Keywords:** Carpal Tunnel Syndrome; cold exposure; cold injury; ergonomics; lifting; occupational exposure; occupational health; paresthesia; sweden; vibration.

**Evidence Level:** 4B

**Link:** <https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-022-05555-8>

### **Evaluation of healthcare personnel exposures to patients with severe acute respiratory coronavirus virus 2 (SARS-CoV-2) associated with personal protective equipment**

**Background:** Personal protective equipment (PPE) is a critical aspect of preventing the transmission of severe acute respiratory coronavirus virus 2 (SARS-CoV-2) in healthcare settings. We aimed to identify factors related to lapses in PPE use that may influence transmission of SARS-CoV-2 from patients to healthcare personnel (HCP). **Design:** Retrospective cohort study. **Setting:** Tertiary-care medical center in Minnesota. **Participants:** In total, 345 HCP who sustained a significant occupational exposure to a patient with coronavirus disease 2019 (COVID-19) from May 13, 2020, through November 30, 2020, were evaluated.

**Results:** Overall, 8 HCP (2.3%) were found to have SARS-CoV-2 infection during their 14-day postexposure quarantine. A lack of eye protection during the care of a patient with COVID-19 was associated with HCP testing positive for SARS-CoV-2 by reverse-transcriptase polymerase chain reaction (RT-PCR) during the postexposure quarantine (relative risk [RR], 10.25; 95% confidence interval [CI], 1.28-82.39;  $P = .009$ ). Overall, the most common reason for a significant exposure was the use of a surgical face mask instead of a respirator during an aerosol-generating procedure (55.9%). However, this was not associated with HCP testing positive for SARS-CoV-2 during the postexposure quarantine (RR, 0.99; 95% CI, 0.96-1;  $P = 1$ ). Notably, transmission primarily occurred in units that did not regularly care for patients with COVID-19.

**Conclusions:** The use of universal eye protection is a critical aspect of PPE to prevent patient-to-HCP transmission of SARS-CoV-2.

**Shah et al. 2022.**

**Infection Control and Hospital Epidemiology, vol. 43, no. 6.**

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

**Keywords:** Coronavirus; severe acute respiratory; healthcare; exposures.

**Evidence Level:** 4B

**Link:** <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/abs/evaluation-of-healthcare-personnel-exposures-to-patients-with-severe-acute-respiratory-coronavirus-virus-2-sarscov2-associated-with-personal-protective-equipment/3905A958247A2A76502312C7B47B3D0A>

### **Global occupational exposure to blood and body fluids among healthcare workers: Systematic review and meta-analysis**

**Background:** Occupational exposure to blood and body fluids has become a serious public health problem for healthcare workers and is a major risk for the transmission of various infections such as human immune-deficiency virus, hepatitis B virus, and hepatitis C virus. This systematic review and meta-analysis aims to determine the career time and previous one-year global pooled prevalence of occupational exposure to blood and body fluids among healthcare workers. **Methods:** For the review, the articles published in English were searched using the electronic databases (SCOPUS/Science Direct, PubMed, Web of Science, Google Scholar, CINAHL, MEDLINE, Cochrane Library, DOAJ, and MedNar) with a combination of Boolean logic operators (AND, OR, and NOT), Medical Subject Headings (MeSH), and keywords. A quality assessment was conducted to determine the relevance of the articles using JBI critical appraisal tools.

Furthermore, several steps of assessment and evaluation were taken to select and analyze the relevant articles. **Results:** Of the 3912 articles identified through the electronic database search, 33 that met the inclusion criteria were included in the final analysis. The current study found that the global pooled prevalence of blood and body fluids among healthcare workers during career time and in the previous one year accounted for 56.6% (95% CI: 47.3, 65.4) and 39.0% (95% CI: 32.7, 45.7), respectively. Based on subgroup analysis by publication year, survey year, and World Health Organization regions, the highest prevalence of blood and body fluid exposure in the last 12 months was observed among articles published between 2004 and 2008 (66.3%), conducted between 2003 and 2008 (66.6%), and conducted in the Southeast Asia Region (46.9%). The highest career time prevalence was 60.6%, 71.0%, and 68.4% for articles published between 2015 and 2020, conducted between 2015 and 2019, and reported in the African region, respectively. **Conclusion:** The current study revealed a high prevalence of occupational exposure to blood and body fluids among healthcare workers and suggests the need to improve occupational health and safety services in healthcare systems globally.

**Mengistu et al. 2022.**

**Canadian Journal of Infectious Diseases and Medical Microbiology, vol. 3.**

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**Keywords:** Blood; bodily fluids; exposure; healthcare workers.

**Evidence Level:** 1A

**Link:** <https://www.hindawi.com/journals/cjidmm/2022/5732046/>

### **Protection of workers exposed to radiofrequency electromagnetic fields: A perspective on open questions in the context of the new ICNIRP 2020 guidelines**

**Background:** Workers in occupational settings are usually exposed to numerous sources of electromagnetic fields (EMF) and to different physical agents. Risk assessment for industrial workplaces concerning EMF is not only relevant to operators of devices or machinery emitting EMF, but also to support-workers, bystanders, service and maintenance personnel, and even visitors. Radiofrequency EMF guidelines published in 2020 by the International Commission on Non-Ionizing Radiation Protection (ICNIRP) may also be indirectly applied to assess risks emerging from EMF sources at workplaces by technical standards or legislation. **Methods:** To review the applicability and adequacy to assess exposure to EMF in occupational settings in the European Union, the most current ICNIRP guidelines on radiofrequency EMF are reviewed. Relevant ICNIRP fundamentals and principles are introduced, followed by practical aspects of exposure assessment. To conclude, open questions are formulated pointing out gaps between the guidelines' principles and occupational practice, such as the impact of hot and humid environments and physical activity or controversies around ICNIRP's reduction factors in view of assessment uncertainty in general.

**Discussion:** Thus, the article aims to provide scientific policy advisors, labor inspectors, or experts developing standards with a profound understanding about ICNIRP guidelines' applicability to assess hazards related to radiofrequency EMF in occupational settings.

**Jeschke et al. 2022.**

**Frontiers in Public Health, vol. 2, no. 10.**

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**Keywords:** EMF Directive 2013/35/EU; ICNIRP 2020 RF Guidelines; electric field; magnetic field; occupational exposure; reduction factors; uncertainty.

**Evidence Level:** 6A

**Link:** <https://www.frontiersin.org/articles/10.3389/fpubh.2022.875946/full>

### **Short-term exposure to ambient air pollution and onset of work incapacity related to mental health conditions**

**Background:** The OECD estimates that greater work absenteeism is one of the main drivers behind the impact of air pollution on gross domestic product loss, but research linking air pollution with work absenteeism is scarce. With air pollution increasingly being linked to poor mental health, and poor mental health having become one of the main reasons for work absenteeism, we examined whether the onset of work incapacity related to mental health conditions is associated with short-term fluctuations in ambient black carbon (BC), nitrogen dioxide (NO<sub>2</sub>), ozone (O<sub>3</sub>), and particulate matter 2.5 (PM<sub>2.5</sub>), estimating the

contributions of these pollutants jointly, while accounting for relative humidity, total solar radiation and temperature. **Methods:** We conducted a bidirectional time-stratified case-crossover study with daily air pollution estimates by municipality linked with 12 270 events of work incapacity related to mental health conditions in 2019 in Belgium. We ran single- and multi-pollutant conditional logistic regression models for three different exposure windows (lag 0, 0-1 and 0-2), considering potential confounding by relative humidity and total solar radiation. **Results:** We observed positive associations between work incapacity related to mental health conditions and BC, NO<sub>2</sub>, and O<sub>3</sub> exposure, but findings for PM<sub>2.5</sub> were inconsistent. Results from multi-pollutant models showed a 12% higher risk of work incapacity for an IQR increase in NO<sub>2</sub> and O<sub>3</sub> at the day of the event (lag 0), with estimates increasing to about 26% for average concentrations up to two days before the event (lag 0-2). We found evidence for effect modification by age and season in the association with NO<sub>2</sub>, with highest effect estimates in the age group 40-49 years and in spring and summer. For O<sub>3</sub>, we observed effect modification by type of mental health problem. **Discussion:** This country-wide study suggests that air pollution aggravates within 48 h a likely existing propensity to enter work incapacity because of mental health conditions.

**Bruyneel et al. 2022.**

**Environment International, vol. 164.**

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**Keywords:** Absenteeism; adults; air pollutants; case-crossover studies; mental health; occupational diseases.

**Evidence Level:** 5B

**Link:** <https://www.sciencedirect.com/science/article/pii/S0160412022001714?via%3Dihub>

#### **The association between wood dust exposure and respiratory disorders and oxidative stress among furniture workers**

**Background and Methods:** This study explored the effect of wood dust on the respiratory system in 45 furniture workers compared to 45 office workers as a control **Results and Discussion:** This study identified a link between exposure to wood dust and respiratory disorders and oxidative stress.

**Kargar-Shouroki et al. 2022.**

**Wiener klinische Wochenschrift, vol. 21, no. 1-9.**

**Keywords:** Antioxidant defence; spirometry; wood workers.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s00508-022-02048-5>

#### **Acute lung injury in a worker after inhalation of ethylene phosphorodifluoridite**

**Background:** Ethylene phosphorodifluoridite (C<sub>2</sub>H<sub>4</sub>F<sub>4</sub>O<sub>2</sub>P<sub>2</sub>) (CAS No. 3965-00-2) is a colorless corrosive fuming liquid that is used as a stabilizer in the electrolyte of rechargeable batteries. There are no previous reports of toxic effects following exposure to this compound. **Method and Results:** A 28-year-old male complained of respiratory distress after accidental inhalation of ethylene phosphorodifluoridite for 30 min. The patient developed acute lung injury with noncardiogenic pulmonary edema and was treated with supportive management. The patient fully recovered and was discharged after 7 days without any significant sequelae. The patient's symptoms were attributed to non-cardiogenic pulmonary edema caused by ethylene phosphorodifluoridite exposure. **Discussion:** The case study showed that ethylene phosphorodifluoridite should be added to the list of chemicals that can cause acute lung injury.

**Ra et al. 2022.**

**International Journal of Occupational Medicine and Environmental Health, vol. 35, no. 3.**

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**Keywords:** Acute; ethylene phosphorodifluoridite; exposure; inhalation; lung injury; pulmonary edema.

**Evidence Level:** 5B

**Link:** <http://ijomeh.eu/Acute-lung-injury-in-a-worker-after-inhalation-of-ethylene-phosphorodifluoridite,144020,0,2.html>

### **UVR exposure and prevention of street construction workers in Colombia and Germany**

**Background:** (1) Solar ultraviolet radiation (UVR) poses a major risk factor for developing skin cancer after years of chronic exposure. The irradiation is strongly dependent upon the activity or occupation carried out, but also on the climate conditions at the workplace. **Methods:** Knowledge of both has been tested within the occupational group of road construction workers in Colombia and Germany. (2) The GENESIS-UV measurement system has been used at both locations for consistency. A number of workers in both countries wore an electronic data logging dosimeter for several months to deliver detailed information on UVR exposure. (3) **Results:** It was found that in a tropical climate, UVR exposure remains constant throughout the year, while in a temperate climate seasonal effects are visible, superimposed by behavioural aspects e.g., in springtime. The daily distribution of the radiation shows a distinct dip, especially in the Colombian data. Derived data show the high fraction of working days exceeding a threshold set by the skin type. (4) Road construction work involves high UVR exposure. **Discussion:** In both countries, preventive measures are required to reduce the personal exposure to a minimum. Exceedance of the minimal erythema dose (MED) suggests a possible enhancing effect, especially in fair skinned people. Intercomparison of UVR exposure at workplaces is possible between countries and climate zones, emphasizing efforts for global action against skin cancer.

**Calvache Ruales et al. 2022.**

**International Journal of Environmental Research Public Health, vol. 19, no. 12.**

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**Keywords:** Occupational health; occupational health prevention; outdoor work; personal dosimetry; risk assessment; ultraviolet radiation.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/19/12/7259>

### **Chronic pesticide exposure in farm workers is associated with the epigenetic modulation of hsa-miR-199a-5p**

**Background:** The increasing use of pesticides in intensive agriculture has had a negative impact on human health. It was widely demonstrated how pesticides can induce different genetic and epigenetic alterations associated with the development of different diseases, including tumors and neurological disorders. Therefore, the identification of effective indicators for the prediction of harmful pesticide exposure is mandatory. **Methods:** In this context, the aim of the study was to evaluate the modification of hsa-miR-199a-5p expression levels in liquid biopsy samples obtained from healthy donors and farm workers with chronic exposure to pesticides. For this purpose, the high-sensitive droplet digital PCR assay (ddPCR) was used to detect variation in the expression levels of the selected microRNA (miRNA). **Results and Discussion:** The ddPCR analyses revealed a significant down-regulation of hsa-miR-199a-5p observed in individuals exposed to pesticides compared to control samples highlighting the good predictive value of this miRNA as demonstrated by statistical analyses. Overall, the obtained results encourage the analysis of miRNAs as predictive biomarkers of chronic pesticide exposure thus improving the current strategies for the monitoring of harmful pesticide exposure.

**Gattuso et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 12.**

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**Keywords:** ddPCR; epigenetics; hsa-miR-199a-5p; liquid biopsy; microRNAs; pesticide exposure.

**Evidence Level:** 5B

**Link:** <https://www.mdpi.com/1660-4601/19/12/7018>

### **Hearing status of people occupationally exposed to ultrasonic noise**

**Background:** The aim of the study was to evaluate the hearing status of operators of low-frequency ultrasonic devices compared to employees exposed to audible noise at a similar A-weighted sound pressure level (SPL) but without ultrasonic components. **Material and methods:** Standard pure-tone audiometry, extended high-frequency audiometry (EHFA), transient-evoked otoacoustic emissions (TEOAE), and distortion-product otoacoustic emissions (DPOAE), as well as questionnaire surveys were conducted among 148 subjects, aged 43.1±10.8 years, working as ultrasonic device operators for 18.7±10.6 years. Their

exposure to noise within the ultrasonic and audible frequency range was also evaluated. The control group comprised 168 workers, adjusted according to gender, age ( $\pm 2$  years), tenure ( $\pm 2$  years), and the 8-hour daily noise exposure level ( $L_{EX,8h}$ ) of  $\pm 2$  dB. **Results:** The ultrasonic device operators and the control group were exposed to audible noise at  $L_{EX,8h}$  of  $80.8 \pm 3.9$  dB and  $79.1 \pm 3.4$ , respectively. The Polish maximum admissible intensity (MAI) values for audible noise were exceeded in 16.8% of the ultrasonic device operators, while 91.2% of them were exposed to ultrasonic noise at  $SPL > MAI$  values. There were no significant differences between the groups in terms of the hearing threshold levels (HTLs) up to 3 kHz, while the ultrasonic device operators exhibited significantly higher (worse) HTLs, as compared to the control group, in the range of 4-14 kHz. The results of the DPOAE and TEOAE testing also indicated worse hearing among the ultrasonic device operators. However, the differences between the groups were more pronounced in the case of EHFA and DPOAEs. **Conclusions:** The outcomes of all hearing tests consistently indicated worse hearing among the ultrasonic device operators as compared to the control group. Both EHFA and DPOAE seem to be useful tools for recognizing early signs of hearing loss among ultrasonic device operators. *Int J Occup Med Environ Health.* 2022;35(3):309-25.

**Dudarewicz et al. 2022.**

**International Journal of Occupational Medicine and Environmental Health, vol. 35, no. 3.**

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**Keywords:** Extended high-frequency audiometry; noise; noise-induced hearing loss; otoacoustic emissions; pure-tone audiometry; ultrasonic noise.

**Evidence Level:** 4B

**Link:** <http://ijomeh.eu/Hearing-status-of-people-occupationally-exposed-to-ultrasonic-noise,143587,0,2.html>

### **Reported exposures among in-person workers with SARS-CoV-2 infection in 6 states, September 2020-June 2021**

**Background:** There is currently limited data on occupational exposure from workers infected with Covid-19

**Methods:** This study explored the demographic, medical, occupational characteristics, and work- and non-work-related risk factors for Covid-19 infection. **Results:** Of 1,111 cases, 19.4% reported occupational exposure, 23.4% reported exposure outside of work, and 57.2% reported no known exposure.

**Conclusions:** Exposure to Covid-19 at work was common. Differences were noted across different occupational groups

**Free et al. 2022.**

**Clinical Infectious Diseases, vol. 19.**

**Keywords:** COVID-19 surveillance; SARS-CoV-2 infection; occupational exposure.

**Evidence Level:** 4B

**Link:** <https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciac486/6611490?login=true>

### **An evaluation of the occupational health hazards of peptide couplers**

**Background:** Peptide couplers (also known as amide bond-forming reagents or coupling reagents) are broadly used in organic chemical syntheses, especially in the pharmaceutical industry. Yet, occupational health hazards associated with this chemical class are largely unexplored, which is disconcerting given the intrinsic reactivity of these compounds. Several case studies involving occupational exposures reported adverse respiratory and dermal health effects, providing initial evidence of chemical sensitization.

**Methods:** To address the paucity of toxicological data, a pharmaceutical cross-industry task force was formed to evaluate and assess the potential of these compounds to cause eye and dermal irritation as well as corrosivity and dermal sensitization. The goal of our work was to inform health and safety professionals as well as pharmaceutical and organic chemists of the occupational health hazards associated with this chemical class. To that end, 25 of the most commonly used peptide couplers and five hydrolysis products were selected for *in vivo*, *in vitro*, and *in silico* testing. **Results:** Our findings confirmed that dermal sensitization is a concern for this chemical class with 21/25 peptide couplers testing positive for dermal sensitization and 15 of these being strong/extreme sensitizers. We also found that dermal corrosion and irritation (8/25) as well as eye irritation (9/25) were health hazards associated with peptide couplers and their hydrolysis products (4/5 were dermal irritants or corrosive and 4/5 were eye irritants). Resulting



outcomes were synthesized to inform decision making in peptide coupler selection and enable data-driven hazard communication to workers. The latter includes harmonized hazard classifications, appropriate handling recommendations, and accurate safety data sheets, which support the industrial hygiene hierarchy of control strategies and risk assessment. **Discussion:** Our study demonstrates the merits of an integrated, *in vivo* -*in silico* analysis, applied here to the skin sensitization endpoint using the Computer-Aided Discovery and REdesign (CADRE) and Derek Nexus programs. We show that experimental data can improve predictive models by filling existing data gaps while, concurrently, providing computational insights into key initiating events and elucidating the chemical structural features contributing to adverse health effects. This interactive, interdisciplinary approach is consistent with Green Chemistry principles that seek to improve the selection and design of less hazardous reagents in industrial processes and applications.

**Graham et al. 2022.**

**Chemical Research in Toxicology, vol. 35, no. 6.**

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**Keywords:** Peptide couplers; occupational health; pharmaceutical industry.

**Evidence Level:** 5A

**Link:** <https://pubs.acs.org/doi/10.1021/acs.chemrestox.2c00031>

### **Time trends in occupational exposure to chemicals in Sweden: proportion exposed, distribution across demographic and labor market strata, and exposure levels**

**Background:** This study investigated time trends in occupational exposure to various chemicals in Sweden and the distribution across demographic and labor market sectors. **Methods:** Exposure to six chemicals was investigated from 1980 to 2013 by application of a job exposure matrix to national population registers. Respirable crystalline silica (RCS), diesel engine exhaust, welding fumes, wood dust, chlorinated hydrocarbon solvents, and lead were selected to represent different groups of chemicals. Trends in exposure prevalence were investigated by linear regression and compared to the occupationally active population. Confidence intervals for the rate of change over time were obtained by bootstrapping.

**Results:** The proportion of workers born outside the Nordic countries increased over time in those exposed to RCS, diesel exhaust and wood dust. There was a shift of exposed jobs to small companies (<50 employees), especially for RCS, welding fumes, wood dust, and chlorinated hydrocarbon solvents. For RCS and welding fumes, there was a marked drop in exposure levels from 1980 to 1990 but small changes thereafter. Exposure to lead diminished, both in terms of prevalence and intensity. **Conclusions:** Over time, several exposures tended to shift to small companies, the construction sector, and migrant workers, all factors being indicative of less well-controlled working conditions. Occupational exposure to chlorinated organic solvents and lead diminished, while exposure levels to RCS and welding fumes have changed little since 1990. In view of the serious and well-established negative health effects, increased efforts to reduce exposure to RCS and welding fumes are needed.

**Gustavsson et al. 2022.**

**Scandinavian Journal of Work, Environment and Health, vol. 13.**

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**Keywords:** Chemicals; occupational exposure; Sweden.

**Evidence Level:** 5B

**Link:** <https://www.sjweh.fi/article/4040>

### **Sedentary Practices**

#### **Metabolic profile in women differs between high versus low energy spenders during a low intensity exercise on a cycle-desk**

**Background:** Active-desks are emerging strategies aiming at reducing sedentary time while working. A large inter-individual variability in energy expenditure (EE) profile has been identified and has to be explored to better optimize and individualize those strategies. **Methods:** Thus the present study aimed at comparing the metabolic and physical profile of individuals characterized as high spenders (H-Spenders) versus low

spenders (L-Spenders) based on EE during a cycle-desk low intensity exercise. **Results:** 28 healthy women working in administrative positions were enrolled. Anthropometric, body composition and fasting metabolic profile parameters were assessed. EE was determined by indirect calorimetry, at rest and during a 30-min cycle-desk use. Participants were categorized as H-Spenders and L-Spenders using the median of the difference between EE at rest and during the 30-min exercise. H-Spenders had higher mean EE ( $p < 0.001$ ) and carbohydrate oxidation ( $p = 0.009$ ) during exercise. H-Spenders displayed higher values for fasting plasma insulin ( $p = 0.002$ ) and HOMA-IR ( $p = 0.002$ ) and lower values for HDL-cholesterol ( $p = 0.014$ ) than L-Spenders. The percentage of body fat mass was significantly higher in H-Spenders ( $p = 0.034$ ).

**Discussion:** Individuals expending more energy during a low intensity cycling exercise presented a less healthy metabolic profile compared with L-Spenders. Future studies will have to explore whether the chronic use of cycle-desks during work time can improve energy profile regarding metabolic parameters.

**Guirado et al. 2022.**

**Scientific Reports, vol. 12, no. 1.**

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**Keywords:** Energy; women; metabolic; sedentary time; active desks.

**Evidence Level:** 5A

**Link:** <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9200836/>

## Physical Activity

*This month we explore the relationship between physical activity and prevention and rehabilitation of low back pain and the perception of musculoskeletal symptoms in computer workers during Covid-19 related lockdowns.*

### **Physical activity advice for prevention and rehabilitation of low back pain- same or different? A study on device-measured physical activity and register-based sickness absence**

**Background:** We lack knowledge on whether the advice of "being physically active" should be the same for prevention and rehabilitation of low back pain (LBP). Sickness absence is a key outcome for LBP prevention and rehabilitation. We investigated the associations between physical activity and long-term sickness absence (LTSA) among employees with and without LBP. **Methods** Between 2011 and 2013, 925 Danish employees wore a Actigraph GTX3 accelerometer for 1-5 workdays to measure physical activity and reported LBP in past 7 days. Employees were followed for 4 years to determine their first register-based LTSA event ( $\geq 6$  consecutive weeks). **Results** Among employees with LBP, increasing moderate-to-vigorous-intensity physical activity at work by 20 min and decreasing the remaining behaviors at work (ie., sitting, standing and light-intensity activity) by 20 min was associated with 38% (95% CI 17%; 63%) higher LTSA risk. Increasing light-intensity activity at work by 20 min and decreasing 20 min from the remaining behaviors was associated with 18% (95% CI 4%; 30%) lower risk. During leisure, increasing moderate-to-vigorous-intensity activity by 20 min or standing by 40 min was associated with 26% (95% CI 3%; 43%) lower and 37% (95% CI 0%; 87%) higher risk, respectively. Among employees without LBP, we found no such associations. **Conclusions** The physical activity advice ought to be different for LBP prevention and rehabilitation to reduce LTSA risk, and specified by domain and activity intensity. At work, employees with LBP should be advised to spend time on light-intensity physical activity and limit their time on moderate-to-vigorous-intensity physical activity. During leisure, employees should spend time on moderate-to-vigorous-intensity physical activity.

**Gupta et al. 2022.**

**Journal of Occupational Rehabilitation, vol. 32, no. 2.**

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**Keywords:** Accelerometry; blue-collar workers; compositional data analysis.

**Evidence Level:** 4B

**Link:** <https://link.springer.com/article/10.1007/s10926-021-10005-8>

### **The effects of COVID-19 lockdown on the perception of physical activity and on the perception of musculoskeletal symptoms in computer workers: Comparative longitudinal study design**

**Background:** Lockdown resulting from the pandemic led to a change in the health habits of the computer workers community. Sedentary work, together with less active lifestyles, aggravated by the COVID-19 pandemic leads to impacts on physical activity (PA) and can contribute to the development of musculoskeletal symptoms (MSS). **Aim(s):** Understand the effects of lockdown on the perception of physical activity levels and on the perception of frequency of musculoskeletal symptoms, over periods of 12 months and 7 days, in computer workers. **Methods:** Longitudinal comparative study between 2019 (M1) and 2021 (M2), over 18 months, in 40 volunteer participants. The inclusion criteria were full-time workers aged between 18 and 65 and the exclusion criteria included diagnosis of non-work-related medical conditions. In addition to a socio-demographic questionnaire, the Nordic musculoskeletal questionnaire (NMQ) was used to evaluate the MSS and the International Physical Activity Questionnaire (IPAQ), was used to analyse the perception of the level of PA. These questionnaires were used in two assessment stages (M1 and M2). McNemar test and Wilcoxon paired test were used to evaluate the effect of lockdown on the perception of PA, and on the perception of frequency of musculoskeletal symptoms. **Results:** The MSS prevalence in the previous 12 months increased significantly in the neck (M1: 45.0%, M2: 62.5%,  $p = 0.046$ ), in the shoulders (M1: 37.5%, M2: 55.0%,  $p = 0.033$ ), and in the hands/wrists (M1: 25.0%, M2: 45.0%,  $p = 0.019$ ). The mean pain score increased in the shoulders ( $1.43 \pm 2.24$ ,  $2.35 \pm 2.55$ ,  $p = 0.003$ ) and in the elbows ( $0.18 \pm 0.59$ ,  $0.60 \pm 1.34$ ,  $p = 0.015$ ). No differences were found in the PA between M1 and M2, but the weekly mean sitting time increased from  $4.75 \pm 2.26$  to  $6.26 \pm 2.65$  ( $p < 0.001$ ). **Conclusion:** After 18 months it became clear that MSS perception increased mainly in the neck, shoulders and hands/wrists with a significant increase in pain intensity in the shoulder and elbow regions. The weekly sitting time increased significantly. Further studies are needed in order to determine the impact of teleworking in a pandemic context. But multifactor behind these results should be taken into account by health institutions and those responsible for the Prevention of Occupational Risks in Computer Workers in order to adopt educational strategies for the promotion of Physical activity (PA), in these workers.

**Moreira et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 12.**

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**Keywords:** Computer workers; homeworking; musculoskeletal symptoms; occupational health; physical activity level.

**Evidence Level:** 4A

**Link:** <https://www.mdpi.com/1660-4601/19/12/7311>

## **Musculoskeletal Health**

*This month we explore musculoskeletal health issues associated with working from home and occupational driving.*

### **Musculoskeletal pain trajectories of employees working from home during the COVID-19 pandemic**

**Background:** In March 2020, the COVID-19 pandemic necessitated a rapid public health response which included mandatory working from home (WFH) for many employees. This study aimed to identify different trajectories of multisite musculoskeletal pain (MSP) amongst employees WFH during the COVID-19 pandemic and examined the influence of work and non-work factors. **Methods:** Data from 488 participants (113 males, 372 females and 3 other) involved in the Employees Working from Home (EWFH) study, collected in October 2020, April and November 2021 were analysed. Age was categorised as 18-35 years ( $n = 121$ ), 36-55 years ( $n = 289$ ) and 56 years and over ( $n = 78$ ). Growth Mixture Modelling (GMM) was used to identify latent classes with different growth trajectories of MSP. Age, gender, working hours, domestic living arrangements, workstation comfort and location, and psychosocial working conditions were considered predictors of MSP. Multivariate multinomial logistic regression was used to identify work and non-work variables associated with group membership. **Results:** Four trajectories of MSP emerged: high stable (36.5%), mid-decrease (29.7%), low stable (22.3%) and rapid increase (11.5%). Decreased

workstation comfort (OR 1.98, CI 1.02, 3.85), quantitative demands (OR 1.68, CI 1.09, 2.58), and influence over work (OR 0.78, CI 0.54, 0.98) was associated with being in the high stable trajectory group compared to low stable. Workstation location (OR 3.86, CI 1.19, 12.52) and quantitative work demands (OR 1.44, CI 1.01, 2.47) was associated with the rapid increase group. **Conclusions:** Findings from this study offer insights into considerations for reducing MSP in employees WFH. Key considerations include the need for a dedicated workstation, attention to workstation comfort, quantitative work demands, and ensuring employees have influence over their work.

**Oakman et al. 2022.**

**International Archives of Occupational and Environmental Health, vol. 8, no. 1-11.**

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**Keywords:** COVID-19; influence; musculoskeletal pain; quantitative demands; trajectory analysis; working at home; workstation.

**Evidence Level:** 4A

**Link:** <https://link.springer.com/article/10.1007/s00420-022-01885-1>

### **Musculoskeletal disorders associated with occupational driving: A systematic review spanning 2006-2021**

**Background:** Several occupations require workers to spend long periods of time driving road vehicles. This occupational task is associated with musculoskeletal disorders. The purpose of this review was to collate, synthesize, and analyze research reporting on musculoskeletal disorders associated with occupational driving, in order to develop a volume of evidence to inform occupational disorder mitigation strategies.

**Methods:** A systematic search of academic databases (PubMed, EBSCO host, CINAHL, SPORTDiscus, and Web of Science) was performed using key search terms. Eligible studies were critically appraised using the Joanna Briggs Institute critical appraisal checklists. A Cohen's kappa analysis was used to determine interrater agreement between appraisers. **Results and Discussion:** Of the 18,254 identified studies, 25 studies were selected and appraised. The mean critical appraisal score is 69% (range 38-100%), with a fair level of agreement ( $k = 0.332$ ). The studies report that musculoskeletal disorders, most commonly lower back pain, is of concern in this population, particularly in truck, bus, and taxi drivers. Risk factors for these occupations include long hours in a sitting position, years in the profession, vehicle ergonomics, and vibration.

**Pickard et al. 2022.**

**International Journal of Environmental Research and Public Health, vol. 19, no. 11.**

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**Keywords:** Bus; lower back pain; posture; taxi; truck; vehicle ergonomics; vibration.

**Evidence Level:** 1A

**Link:** <https://www.mdpi.com/1660-4601/19/11/6837>