



This Workplace Research Monthly includes the latest peer-reviewed articles, reports and evidence on a range of workplace health and safety, prevention, recovery at work and return to work topics that were published in April 2023 only.

Contents

Description of Evidence Levels Definitions Used in this Review	2
Enabling Healthy and Safe Workplaces	3
Health and Wellbeing	3
Risk Assessment.....	6
Chronic Health Issues	6
Occupational Exposure	9
Physical Activity	13
Musculoskeletal Health	14
Guiding and Supporting Mental Health and Wellbeing	14
Mental Health.....	14
Bullying, Harassment and Occupational violence	16
Psychosocial Issues	17
Fostering Work Participation.....	18
Return to Work.....	18
Presenteeism and Absenteeism	20
Workers' compensation	20
Working Hours.....	21
Wellness Programs	21
Organisational Issues.....	22
Shift Work.....	22
Management and Leadership.....	23
Work Ability	24
Adapting to the Future of Work	25
Technology	25
Work environment	26

Description of Evidence Levels Definitions Used in this Review

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

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

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

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

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Enabling Healthy and Safe Workplaces

Health and Wellbeing

This month we explore health and wellbeing issues associated with physiological stress and positive affect in teachers, and sleep debt in workers. We also explore issues associated with creating healthy workplaces, and the risk of lung and breast cancer by occupation. In covid related research we explore the OHS lessons learnt from the COVID-19 pandemic and the post-COVID-19 condition in the working population.

Estimating 10-year risk of lung and breast cancer by occupation in Switzerland

Background: Lung and breast cancer are important in the working-age population both in terms of incidence and costs. The study aims were to estimate the 10-year risk of lung and breast cancer by occupation and smoking status and to create easy to use age-, and sex-specific 10-year risk charts.

Methods: New lung and breast cancer cases between 2010 and 2014 from all 5 cancer registries of Western Switzerland, matched with the Swiss National Cohort were used. The 10-year risks of lung and breast cancer by occupational category were estimated. For lung cancer, estimates were additionally stratified by smoking status using data on smoking prevalence from the 2007 Swiss Health Survey.

Results: The risks of lung and breast cancer increased with age and were the highest for current smokers. Men in elementary professions had a higher 10-year risk of developing lung cancer compared to men in intermediate and managerial professions. Women in intermediate professions had a higher 10-year risk of developing lung cancer compared to elementary and managerial professions. However, women in managerial professions had the highest risk of developing breast cancer. **Discussion:** The 10-year risk of lung and breast cancer differs substantially between occupational categories. Smoking creates greater changes in 10-year risk than occupation for both sexes. The 10-year risk is interesting for both patients and professionals to inform choices related to cancer risk, such as screening and health behaviors. The risk charts can also be used as public health indicators and to inform policies to protect workers.

van der Linden et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: Switzerland; breast cancer; lung cancer; occupation; risk communication.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1137820/full>

Creating healthy workplaces in healthcare: Are we delaying progress by focusing on what we can do rather than what we should do?

Background: All the available evidence points to the fact that healthcare is under considerable stress, and while change is urgently needed there is no quick fix; systemic and sustained changes in organizational cultures within healthcare are required. Moreover, the fragility of healthcare systems globally has been starkly exposed by the Coronavirus 2019 pandemic. **Methods:** We have gathered enough evidence to know what is driving poor wellbeing, and how these processes impact on quality of care and patient safety.

Indeed, we have a good idea of what we need to do to improve the situation. Therefore, this begs a simpler question; If we know how to create healthy workplaces, why is it so difficult to achieve this in healthcare?

Results: In the following perspective paper, we will argue that we can do better if we address the following three issues: (1) we are ignoring the real problems, (2) limited successes that we are achieving are moving us further from tackling the real problems, (3) culture change is accepted as crucial, but we are not accepting what the evidence is telling us about healthcare culture. **Conclusions:** Tackling burnout is useful and necessary, but we must increase dignity among healthcare employees. Moreover, we need to train line managers to recognize and facilitate the need of employees to feel competent and be appreciated by others, while helping them set wellbeing boundaries.

Montgomery et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: Burnout; healthcare; healthy workplaces; mental health of employees; patient safety.

Evidence Level: 6A

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1105009/full>

Post-COVID-19 condition in the German working population: A cross-sectional study of 200,000 registered stem cell donors

Background: The SARS-CoV-2 pandemic has strained health systems worldwide, and infection numbers continue to rise. While previous data have already shown that many patients suffer from symptoms for months after an acute infection, data on risk factors and long-term outcomes are incomplete, particularly for the working population. **Objectives:** We aimed to provide information on the prevalence of post-COVID-19 conditions in a subset of the German working-age population (18-61 years old) and to analyze risk factors. **Methods:** We conducted an online survey with a health questionnaire among registered potential stem cell donors with or without a self-reported history of polymerase chain reaction (PCR)-confirmed SARS-CoV-2 infection. Logistic regression models were used to examine the risks of severity of acute infection, sex, age, body mass index, diabetes mellitus, and arterial hypertension medication on post-COVID-19 symptoms. **Results:** A total of 199,377 donors reported evaluable survey questionnaires-12,609 cases had a history of SARS-CoV-2 infection and 186,768 controls had none. Overall, cases reported physical, cognitive, and psychological complaints more frequently compared to controls. Increased rates of complaints persisted throughout 15 months postinfection, for example, 28.4%/19.3% of cases/controls reported fatigue ($p < 0.0001$) and 9.5%/3.6% of cases/controls reported loss of concentration ($p < 0.0001$). No significant differences were observed in the frequency of reported symptoms between 3 and 15 months postinfection. Multivariate analysis revealed a strong influence of the severity of the acute SARS-CoV-2 infection episode and age on the risk for post-COVID-19 conditions. **Conclusion:** We report the prevalence of post-COVID-19 conditions in mainly unvaccinated individuals with SARS-CoV-2 infections between February 2020 and August 2021. The severity of the acute course and age were major risk factors. Vaccinations may reduce the risk of post-COVID-19 conditions by reducing the risk of severe infections.

Bernas et al. 2023.

Journal of Internal Medicine, vol. 293, no. 3.

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Keywords: COVID-19; SARS-CoV-2; long COVID; post-COVID-19 condition; survey.

Evidence Level: 4B

Link: <https://onlinelibrary.wiley.com/doi/10.1111/joim.13587>

Teachers' daily physiological stress and positive affect in relation to their general occupational well-being

Background: Teachers' stress, affect and general occupational well-being influence their teaching and their students. However, how teachers' daily physiological stress and positive affect are related in the classroom is unknown. To reduce teachers' stress and enhance their positive affect, it is crucial to understand how occupational well-being relates to stress and affect. **Aim:** The aim of the study was to examine the relationships between teachers' daily physiological stress and positive affect in authentic classroom settings and the roles played by teachers' self-efficacy beliefs, perceptions of school climate and burnout symptoms in daily stress and affect. **Sample:** The sample consisted of 45 classroom teachers. **Method:** Daily physiological stress was assessed by measuring salivary cortisol levels three times in two days. Positive affect was reported by experience sampling at the same time that cortisol was collected. Questionnaires were used to assess self-efficacy beliefs, perceptions of school climate and burnout symptoms. Three-level modelling with random intercepts and slopes was used to analyse the relationships between daily stress and affect and the effect of teachers' general occupational well-being on stress and affect. **Results:** No relationships were evident between teachers' physiological stress and positive affect or between daily changes of stress and affect. Self-efficacy beliefs were related to lower stress and higher affect in the middle of the school day. Having sufficient school resources were related to higher positive affect. Teachers' burnout symptoms were associated with lower positive affect. **Conclusions:** We emphasize the potential for self-efficacy and perceptions of school resources as targets for intervening in teachers' stress and affect.

Jögi et al. 2023.

British Journal of Educational Psychology, vol. 93, no. 1.

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Keywords: Classroom teachers; daily assessment; occupational well-being; physiological stress; positive affect.

Evidence Level: 5B

Link: <https://bpspsychub.onlinelibrary.wiley.com/doi/10.1111/bjep.12561>

Lessons learned from the COVID-19 pandemic: What Occupational Safety and Health can bring to Public Health

Background: We strive to increase public (PH) and occupational health (OSH) inter-linkages by building a collaborative framework. Besides Covid-19 pandemic, recent approaches such as Human Exposome and Total Worker Health TM, have led to a shift to improving health of working population and consequently the total population. These health objectives can be best realised through primary care actors in specific contexts. Work, school, home and leisure are the four multi-stakeholder contexts in which health and healthcare (goal-oriented care) objectives needs to be set and defined. PH policy makers need to establish a shared decision-making process involving employees, employers and OSH representatives to set PH goals and align with OSH goals. **Conclusions:** The policy making process in OSH can serve as a potential way forward, as the decisions and policies are being decided centrally in consultation with social partners and governments. This process can then be mirrored on company level to adopt and implement.

Godderis et al. 2023.

Journal of Public Health Policy, vol. 44, no. 1.

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Keywords: Collaboration; occupational health; policy; prevention; public health.

Evidence Level: 6B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9842192/>

Sleep debt mediates the relationship between work-related social factors, presenteeism, and well-being in Japanese workers

Background: Sleep debt is associated with presenteeism and mental health; however, the association of sleep debt with presenteeism and well-being in the context of work-related social factors (commuting time, workdays, and working hours) has not been fully elucidated. **Methods:** This study aimed to examine whether work-related social factors are associated with presenteeism and well-being via sleep debt.

Results: The participant group comprised 872 full-time and 526 part-time workers (mean age: 44.65 ± 12.37 and 48.47 ± 12.93 years, respectively). For both the full-time and part-time workers, increased sleep debt was significantly associated with presenteeism ($\beta = -0.171$; $\beta = -0.160$) and low well-being ($\beta = -0.135$; $\beta = -0.153$). Notably, commuting time was significantly associated with increased sleep debt in full-time workers ($\beta = 0.09$). In contrast, the number of workdays was significantly associated with increased sleep debt in part-time workers ($\beta = -0.102$). Working hours were not significantly associated with sleep debt for both full- and part-time workers. **Conclusions:** These results reveal that sleep debt might lead to various risks among workers, elucidating the work-related social factors related to sleep debt. They also highlight the importance of considering work-related social factors when addressing sleep debt.

Takano et al. 2023.

International Journal of Environmental Research and Public Health, vol. 20, no. 7.

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Keywords: Commute; employee; psychological well-being; sleep; work productivity.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/20/7/5310>

Risk Assessment

Examining the effect of safety climate on accident risk through job stress: A path analysis

Background: Job stress is a probable mediator of the relationship between safety climate and accident occurrence. To demonstrate this, this study investigates the relationship between safety climate, job stress, and accident risk using a large number of surveys. The study will use structural equation modeling (SEM) to analyze the data collected from the surveys to examine the effect of safety climate on accident risk through job stress. **Methods:** The study is a cross-sectional study that was conducted on 1,530 male workers of a petrochemical company. The subjects were asked to complete several questionnaires during rest periods, which included demographic information, the Nordic safety climate questionnaire (NOSACQ-50), and the generic job stress questionnaire (GJSQ). Additionally, data on the frequency and intensity of accidents among participants were gathered from the health unit of the company. Path analysis was conducted by structural equation modeling (SEM) in Analysis of Moment Structures (AMOS) software. **Results:** The results revealed that the latent variable of safety climate with an effect coefficient of - 0.112 did not have a direct effect on accident risk ($P = 0.343$). However, safety climate with an effect coefficient of - 0.633 had an indirect effect on accident risk through job stress ($P < 0.001$). The total score of job stress had a significant direct effect (0.649) on accident risk ($P < 0.001$). Among the dimensions of safety climate, the variables of management's safety priority, commitment, and competence (- 0.108) and workers' safety commitment (- 0.107) had the highest indirect effect coefficients on accident risk. Among the dimensions of job stress, the highest indirect effects belonged to the variables of conflict at work (0.636), physical environment (0.631), and workload and responsibility (0.631), respectively. **Conclusion:** The results of the study revealed that job stress mediates the relationship between safety climate and accident risk. This finding suggests that organizations can potentially decrease accidents in industries by addressing and managing job stress in the workplace.

Khoshakhlagh et al. 2023.

BMC Psychology, vol. 11, no. 1.

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Keywords: Accident risk; job stress; safety climate; structural equation modeling; workplace.

Evidence Level: 4B

Link: <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-023-01133-2>

Chronic Health Issues

This month we explore the workplace issues for individuals with intellectual or developmental disabilities, young workers with acute, chronic and disabling pain, workers with arthritis, hearing loss and childhood brain tumours and the risks for occupational contact dermatitis.

Association between employment status and quality of life for individuals with intellectual or developmental disability

Background: The current study examined how employment conditions (competitive employment, work center employment, unemployment) are associated with the quality of life (QoL) for individuals with intellectual or developmental disabilities. **Methods:** Using the Comprehensive Quality of Life Scale - Intellectual/Cognitive Disability (5th Edition; ComQoL-I5; Cummins, 1997a) to measure objective QoL factors, and the PWI-ID (Personal Wellbeing Index - Intellectual Disability, 3rd Edition; Cummins & Lau, 2005b) to measure subjective well-being, participants answered self-reporting questions regarding the seven QoL domains. Kruskal-Wallis H for Oneway Analysis of Variance was used to determine statistical significance between comparison work conditions. **Results and Conclusions:** Results indicate significant findings in the objective QoL domains of Material Well-Being, Productivity, and Safety between the work conditions for individuals with intellectual and developmental disabilities, with participants in the competitive-employment group reporting the highest QoL objective scores in these areas. Implications of these findings for practice and research are discussed.

Randall et al. 2023.

Journal of Applied Research in Intellectual Disabilities, vol. 36, no. 2.

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

Keywords: Competitive employment; intellectual or developmental disability; quality of life; work center.

Evidence Level: 5B

Link: <https://onlinelibrary.wiley.com/doi/10.1111/jar.13053>

Life-course socioeconomic circumstances in acute, chronic and disabling pain among young employees: A double suffering

Background: Pain is known to be socioeconomically patterned and associated with disability. However, knowledge is scarce concerning life-course socioeconomic circumstances and pain among young adults. Our aim was to examine the associations of childhood and current socioeconomic circumstances with acute pain and chronic pain with low and high disability levels among young Finnish municipal employees.

Methods: We analysed questionnaire data retrieved from the Young Helsinki Health Study ($n=4683$) covering 18-39-year-old employees of the City of Helsinki, Finland. We included multiple indicators of childhood and current socioeconomic circumstances and examined their associations with acute pain and with chronic pain with low and high disability levels. The level of chronic pain-related disability was assessed by the chronic pain grade questionnaire. Multinomial logistic regression analyses were conducted with stepwise adjustments for sociodemographic, socioeconomic and health-related covariates.

Results: Childhood and current socioeconomic disadvantage were associated with acute and chronic pain, particularly with chronic pain with high disability level. The strongest associations after adjustments for covariates remained between chronic pain with high disability level and low educational level (odds ratio (OR) 3.38, 95% confidence interval (CI) 2.18-5.24), manual occupation (OR 3.75, 95% CI 1.92-7.34) and experiencing frequent economic difficulties (OR 3.07, 95% CI 2.00-4.70). **Conclusions:** Pain is a common complaint that contributes to disability among young employees, particularly the most socioeconomically vulnerable. There is a socioeconomic gradient in both pain chronicity and the level of chronic pain-related disability. Life-course socioeconomic factors should be considered in pain-preventing strategies and in clinical practice.

Fagerlund et al. 2023.

Scandinavian Journal of Public Health, vol. 51, no. 2.

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

Keywords: Pain; adverse childhood experiences; chronic pain; disabled persons; education; occupations; socioeconomic factors.

Evidence Level: 4B

Link: <https://journals.sagepub.com/doi/full/10.1177/14034948211062314>

How does arthritis affect employment? Longitudinal evidence on 18,000 British adults with arthritis compared to matched controls

Background: One in ten working age people in the UK live with arthritis or a similar condition affecting their joints. This impacts their quality of life, including through their work. But little is known about how arthritis affects labour market outcomes and the types of people most likely to be affected.

Methods: Data from three population-representative household panel surveys (BHPS, ELSA, UKHLS) collected in 2001-2019 was harmonised. Propensity score matching was used to match 18,014 UK adults aged 18-80 who have arthritis with comparable adults without arthritis. The relationship between arthritis and employment, and earnings and work hours conditional on employment, were assessed using multilevel regression modelling. Heterogeneity in these relationships were assessed by age, gender, degree-level education status, NS-SEC job classification and employer type. **Results:** On average, arthritis was associated with a 3 percentage point reduction in the probability of employment. The effect size varied over people's life course and was larger amongst females, people without a degree, and those in routine or intermediate occupations (when compared to those in professional occupations) or working for small private companies (when compared to large private companies and non-private employers). Our models predict, for instance, that arthritis is associated with an 11 percentage point reduction in the probability of employment among 50-year-old women without a degree. This contrasts with a 5 percentage point reduction among 50-year-

old men without a degree. If employed, men with a degree earned less if they had arthritis, whereas others (including women with a degree and men without a degree) had similar earnings regardless of their arthritis status. Those in professional occupations with arthritis also earned less, especially if they were women aged over 40, with indications that this was driven by reduced work hours. **Conclusion:** Policy interventions to support people with arthritis who wish to remain in work might be designed with people in routine work in mind, and targeted at those working in smaller private firms. More research on the cost-effectiveness of those interventions is needed.

Rajah et al. 2023.

Social Science and Medicine, vol. 321.

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Keywords: Arthritis; chronic illness; economics; employment; labour market outcomes; musculoskeletal conditions; panel data; retirement.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0277953622009121?via%3Dihub>

Factors associated with change in the need for recovery and subjective listening effort in employees with hearing loss receiving aural rehabilitation

Background: Compared to normally-hearing employees, those with hearing loss suffer from higher Need For Recovery (NFR) after work. The aims of this study are to assess the NFR of employees with hearing loss before and after aural rehabilitation and to examine to what extent change in the NFR can be explained by changes in subjective listening effort, personal adjustments, communication strategies, auditory work demands, and self-reported hearing ability. **Methods:** We included patients who received aural rehabilitation in two audiological centers in the Netherlands because of hearing complaints in their work situation. Outcomes were measured by questionnaires at baseline and 3 month follow-up. The NFR before and after the rehabilitation was compared with a t test. Hierarchical multiple analyses were performed.

Results: In total, 60 patients (aged 22-63, working hours ≥ 8 per week) participated in the study, of which 50 completed the follow-up questionnaires. The NFR was significantly lower after the aural rehabilitation ($M = 45.03$) compared to before the aural rehabilitation ($M = 51.89$), $t = -3.43$, $p < 0.01$). Change in NFR could best be explained by the change in personal adjustments ($R^2 = 0.45$, $B = -1.23$, $p < 0.01$).

Conclusion: The NFR of employees with hearing loss can be improved by aural rehabilitation, but this study shows that current practices reduce the NFR only in part of the employees. Therefore, improving current practices should be considered and evaluated, for example by applying a different combination of rehabilitation components. Especially, interventions that affect personal adjustments may be promising to further reduce the NFR in employees with hearing loss.

van der Hoek-Snieders et al. 2023.

International Archives of Occupational and Environmental Health, vol. 96, no. 2.

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Keywords: Aural rehabilitation; fatigue; hearing loss; listening effort; need for recovery; workers.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s00420-022-01920-1>

Occupational outcomes after high-grade or low-grade brain tumors in childhood: A Swedish, nationwide, registry-based study

Background: Survivors of pediatric brain tumors are at high risk of late complications that may affect their daily life in both short- and long-term perspectives. **Methods:** In this nationwide registry-based study we explored the occupational outcomes, including employment, sickness or activity compensation and parental leave, in 452 individuals in Sweden, born 1988-1996, and diagnosed with a brain tumor before their 15th birthday. Their results were compared with 2188 matched controls. **Results:** There were significant differences between cases and controls for all assessed variables. The cases had benefitted from sickness or activity compensation 11 times more often than controls (CI 7.90-15.83; $p < 0.001$) between 2005 and 2016. Controls were almost three times more likely to have an employment (OR 0.36; CI 0.28-0.47; $p < 0.001$) and nearly twice as likely to have been on parental leave (OR 0.56; CI 0.39-0.80; $p = 0.002$).

Although cases treated for high-grade tumours typically fared worse than those treated for low-grade tumours, significant differences for all assessed variables were also observed for cases treated for a low-grade tumour compared with controls. **Conclusions:** Our findings emphasize the need for follow-up programs for all brain tumour diagnoses, not only those known to be at most risk. This is evident, for example, from the high number of cases who received sickness or activity compensation.

Lönnerblad et al. 2023.

Cancer Medicine, vol. 12, no. 6.

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Keywords: High-grade tumors; low-grade tumors; occupational outcomes; pediatric brain tumors; registry-based study.

Evidence Level: 4B

Link: <https://onlinelibrary.wiley.com/doi/10.1002/cam4.5464>

Work-related and personal risk factors for occupational contact dermatitis: A systematic review of the literature with meta-analysis

Background: The objective of this review is to identify work-related and personal risk factors for contact dermatitis (CD), and assess their association with this frequently occurring occupational disease. **Methods:** A systematic review of the literature from 1990 to June 2, 2020, was conducted using Medline and Embase. Prospective cohort and case-control studies were included, and meta-analyses were conducted when feasible. Quality of evidence was assessed using the Grading of Recommendations, Assessment, Development, and Evaluation. **Results:** Twenty-nine studies were identified, comprising 26 study populations and with a total of 846 209 participants investigating 52 risk factors for CD. Meta-analyses were performed for five risk factors, all of them for irritant contact dermatitis (ICD). Moderate-quality evidence was found for associations between wet work and ICD (OR: 1.56, 95%CI: 1.21-2.01). High-quality evidence was found for the association between atopic dermatitis and ICD (OR: 2.44, 95%CI: 1.89-3.15). There was no evidence for an association between ICD and sex or history of hand dermatitis, respiratory and mucosal atopy. In conclusion, several work-related and personal risk factors associated with CD were identified. **Conclusions:** Our data emphasize the need for the assessment of both, work-related and personal, risk factors to prevent occupational CD.

Schütte et al. 2023.

Contact Dermatitis, vol. 88, no. 3.

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Keywords: Contact dermatitis; occupational disease; occupational exposure; personal risk factors; prevention.

Evidence Level: 1A

Link: <https://onlinelibrary.wiley.com/doi/10.1111/cod.14253>

Occupational Exposure

This month we explore issues associated with occupational exposure to particulate matter in construction workers, quartz and particle exposure, pesticides and smoking. We also explore silicosis amongst migrant workers and the effectiveness of dust control measures

Particulate matter exposure in construction sites is associated with health effects in workers

Background: Exposure to suspended particulate matters (PMs) at high concentrations, mainly observed in the construction workplace, is found to be a risk factor for major health outcomes. The present study was conducted to investigate the degree of exposure to suspended PMs in different stages of construction of the buildings and the health risk associated with the exposure in Lar, Fars, Iran. **Methods:** In this cross-sectional study, two construction sites were selected in Lar. Cancer and non-cancer health risks of exposure to PM_{2.5} and PM₁₀ were assessed using the US Environmental Protection Agency method in three-dimensions: inhalation, digestion, and dermal absorption. The hazard quotient (HQ) and total cancer risk (TCR) were considered as parameters for risk analysis. **Results:** The highest level of non-cancer risk for

workers in the concentrations of PM_{2.5} and PM₁₀ particles in the drilling process were determined to be 2.97×10^{-1} and 8.52×10^{-2} , respectively. In the cancer risk analysis, PM₁₀ concentrations were estimated to be at the highest level (1.7×10^{-7}) in the drilling process and the lowest level (4.29×10^{-8}) in the facilities process. For suspended PM_{2.5}, it was an unacceptable risk level in all processes, except for the implementation of facilities. **Conclusion:** These results show that the construction industry, especially in developing countries such as Iran, needs better management to maintain the health of construction workers.

Sekhavati et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: Cancer risk; construction industry; non-cancer risk; respiratory exposure; suspended particulate matters.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1130620/full>

Occupational quartz and particle exposure affect systemic levels of inflammatory markers related to inflammasome activation and cardiovascular disease

Background: The inflammatory responses are central components of diseases associated with particulate matter (PM) exposure, including systemic diseases such as cardiovascular diseases (CVDs). The aim of this study was to determine if exposure to PM, including respirable dust or quartz in the iron foundry environment mediates systemic inflammatory responses, focusing on the NLRP3 inflammasome and novel or established inflammatory markers of CVDs. **Methods:** The exposure to PM, including respirable dust, metals and quartz were determined in 40 foundry workers at two separate occasions per worker. In addition, blood samples were collected both pre-shift and post-shift and quantified for inflammatory markers. The respirable dust and quartz exposures were correlated to levels of inflammatory markers in blood using Pearson, Kendall τ and mixed model statistics. Analyzed inflammatory markers included: 1) general markers of inflammation, including interleukins, chemokines, acute phase proteins, and white blood cell counts, 2) novel or established inflammatory markers of CVD, such as growth/differentiation factor-15 (GDF-15), CD40 ligand, soluble suppressor of tumorigenesis 2 (sST2), intercellular/vascular adhesion molecule-1 (ICAM-1, VCAM-1), and myeloperoxidase (MPO), and 3) NLRP3 inflammasome-related markers, including interleukin (IL)-1 β , IL-18, IL-1 receptor antagonist (IL-1Ra), and caspase-1 activity.

Results: The average respirator adjusted exposure level to respirable dust and quartz for the 40 foundry workers included in the study was 0.65 and 0.020 mg/m³, respectively. Respirable quartz exposure correlated with several NLRP3 inflammasome-related markers, including plasma levels of IL-1 β and IL-18, and several caspase-1 activity measures in monocytes, demonstrating a reverse relationship. Respirable dust exposure mainly correlated with non-inflammasome related markers like CXCL8 and sST2.

Conclusions: The finding that NLRP3 inflammasome-related markers correlated with PM and quartz exposure suggest that this potent inflammatory cellular mechanism indeed is affected even at current exposure levels in Swedish iron foundries. The results highlight concerns regarding the safety of current exposure limits to respirable dust and quartz, and encourage continuous efforts to reduce exposure in dust and quartz exposed industries.

Hedbrant et al. 2023.

Environmental Health, vol. 22, no. 1.

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Keywords: CVD biomarkers; inflammation; NLRP3 inflammasome; occupational exposure; PM; silica.

Evidence Level: 5A

Link: <https://ehjournal.biomedcentral.com/articles/10.1186/s12940-023-00980-1>

Proximity to residential and workplace pesticides application and the risk of progression of Parkinson's diseases in Central California

Background: Pesticide exposure has consistently been associated with Parkinson's disease (PD) onset. Yet, fewer epidemiologic studies have examined whether pesticides influence PD motor and non-motor symptom progression. **Objectives:** Using a geographic information system tool that integrates agricultural

pesticide use reports and land use records to derive ambient exposures at residences and workplaces, we assessed associations between specific pesticides previously related to PD onset with PD symptom progression in two PD patient cohorts living in agricultural regions of California. **Methods:** We calculated the pounds of pesticide applied agriculturally near each participant's residential or occupational addresses from 1974 to the year of PD diagnosis, using a geographic information system tool that links the California Pesticide Use Reports database to land use data. We examined 53 pesticides selected a priori as they have previously been associated with PD onset. We longitudinally followed two PD patient cohorts (PEG1 N = 242, PEG2 N = 259) for an average of 5.0 years (SD \pm 3.5) and 2.7 years (SD \pm 1.6) respectively and assessed PD symptoms using the movement disorder specialist-administered Unified Parkinson's disease Rating Scale part III (UPDRS), Mini-Mental State Examination (MMSE), and Geriatric Depression Scale (GDS). Weighted time-to-event regression models were implemented to estimate effects. **Results:** Ten agricultural pesticides, including copper sulfate (pentahydrate), 2-methyl-4-chlorophenoxyacetic acid (MCPA) dimethylamine salt, tribufos, sodium cacodylate, methamidophos, ethephon, propargite, bromoxynil octanoate, monosodium methanearsonate (MSMA), and dicamba, were associated with faster symptom progression. Among these pesticides, residential or workplace proximity to higher amounts of copper sulfate (pentahydrate) and MCPA (dimethylamine salt) was associated with all three progression endpoints (copper sulfate: HRs = 1.22-1.36, 95 % CIs = 1.03-1.73; MCPA: HRs = 1.27-1.35, 95 % CIs = 1.02-1.70). **Conclusions:** Our findings suggest that pesticide exposure may not only be relevant for PD onset but also PD progression phenotypes. We have implicated ten specific pesticide active ingredients in faster PD motor and non-motor decline.

Li et al. 2023.

The Science of Total Environment, vol. 864.

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Keywords: Cognitive decline; depression; motor progression; Parkinson's disease; pesticide.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0048969722079542?via%3Dihub>

Ever smoking is not associated with performed spirometry while occupational exposure and respiratory symptoms are

Background: Despite recommendations, assessment using spirometry or peak expiratory flow is insufficient in the clinical evaluation of suspected obstructive pulmonary disease. The aim was to investigate factors associated with performing spirometry or peak flow expiratory flow assessment. **Methods:** Randomly selected subjects from the general population aged 50-65 completed a respiratory questionnaire with items about the history of previously performed spirometry or peak expiratory flow. The association between ever having had spirometry or peak expiratory flow performed was analyzed for smoking, age, sex, occupational exposures, dyspnea, wheeze, self-reported physician diagnosed asthma and COPD using multivariable logistic regression models. The results are presented as odds ratios (OR) with 95% confidence intervals (95% CIs). **Results:** Of the 1105 participants, 43.4% (n=479) had a history of previously performed spirometry or peak expiratory flow. Occupational exposure (OR 1.72, [95% CI] 1.30-2.27), wheeze (OR 2.29, 1.41-3.70), and dyspnea (OR 1.70, 1.11-2.60) were associated with previously performed spirometry. Compared to men, women had spirometry or peak expiratory flow performed less often (OR 0.67, 0.51-0.86). Neither current smoking (OR 0.83, 0.57-1.20) or former smoking (OR 1.27, 0.96-1.67) were associated with performed spirometry or peak expiratory flow. **Conclusion:** We found no relation between smoking status and a history of previously performed spirometry or peak expiratory flow in a population-based sample of middle-aged people. This is surprising regarding the strong guidelines which highlight the importance for spirometry surveillance on current smokers due to their increased risk of lung disease. Male sex, respiratory symptoms and occupational exposures to air pollution were associated with previously performed spirometry or peak expiratory flow. The association with occupational exposure may be an effect of pre-employment screening and workplace surveillance, and the findings indicate that females do not receive the same attention regarding spirometry or peak expiratory flow.

Carlsson et al. 2023.

International Journal of Chronic Obstructive Pulmonary Disease, vol. 18.

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Keywords: SCAPIS pilot; lung function test; occupational exposure; respiratory symptoms; smoking; spirometry and PEF.

Evidence Level: 4A

Link: <https://www.dovepress.com/ever-smoking-is-not-associated-with-performed-spirometry-while-occupat-peer-reviewed-fulltext-article-COPD>

Mining migrant worker recruitment policy and the production of a silicosis epidemic in late 20th-century Southern Africa

Background: Between the 1980s and 2000s, an epidemic of silicosis was identified in migrant black gold miners, many from neighbouring countries, who had worked in the South African gold mines. This study uses the newly available employment database of a large gold mining company to demonstrate how a sustained rise in employment duration in a new cohort of black migrant workers resulted from changes in recruitment policy, and it examines the implications for current surveillance and redress.

Methods: Contract data of 300,774 workers from the employment database of a multi-mine gold mining company were analysed for 1973-2018. Piecewise linear regression was applied to determine trends in cumulative employment, including South African versus cross-border miners. The proportions with cumulative employment of at least 10, 15, or 20 years, typical thresholds for chronic silicosis, were also calculated. **Results:** Five calendar phases were identified between 1973 and 2018. During the second phase, 1985-2013, mean cumulative duration of employment rose fivefold, from 4 to 20 years. Cumulative employment continued to rise, although more slowly, before peaking in 2014 at 23.5 years and falling thereafter to 20.1 years in 2018. Over most of the 1973-2018 period, miners from neighbouring countries had greater cumulative employment than South African miners. Overall, the proportion of miners exiting with at least 15 years of cumulative employment rose from 5% in 1988 to 75% in 2018. This report identifies a number of fundamental changes in labour recruitment policy in the gold mining industry in the 1970s which provide an explanation for the subsequent rise in cumulative exposure and associated silicosis risk. **Conclusions:** These new data support the hypothesis of a silicosis epidemic driven by increasing cumulative silica dust exposure in a new cohort of circular migrant workers from the 1970s. They inform current programmes to improve surveillance of this neglected population for silicosis and related disease and to provide medical examinations and compensation to a large number of former gold mines. The analysis highlights the lack of information on cumulative employment and silicosis risk among migrant miners in previous decades. The findings have global relevance to the plight of such migrant workers in hazardous occupations.

Ehrlich et al. 2023.

Annals of Global Health, vol. 89, no. 1.

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Keywords: South Africa; labour policy; migrants; mining; silicosis.

Evidence Level: 4B

Link: <https://annalsofglobalhealth.org/articles/10.5334/aogh.4059>

A systematic review of the effectiveness of dust control measures adopted to reduce workplace exposure

Background: The recent increase in silicosis cases in several countries casts doubt on dust control practices and their effectiveness in preventing respirable crystalline silica (RCS) exposure. Apart from silicosis, RCS may lead to other illnesses, health-related quality of life losses for workers and their families, and economic losses for companies. **Methods:** Thus, this systematic literature review examined the effectiveness of interventions employed to prevent exposure to RCS and increase the use of dust control measures. The review used keywords related to dust control interventions to search seven databases. Search results were screened and extracted for synthesis. **Results:** The narrative synthesis showed the extent of research investment in China. In several designs and combinations, the interventions utilized water, surfactant, foam, and air currents to reduce dust exposure. These interventions offer varying degrees of dust control effectiveness against RCS and respirable dust. Although evidence indicates that interventions significantly decrease dust concentration levels, the control measures in place may not effectively prevent workplace

overexposure to RCS. The review found that education and training interventions are employed to improve dust controls and respiratory protective equipment (RPE) use. Also, marketing strategies promote the use of RPE. **Conclusions:** These interventions can increase the frequency of use of RPE and the adoption of best practice dust control measures. Interventions increase knowledge, awareness, and attitudes about RPE usage and generate positive perceptions while reducing misconceptions. However, the benefits obtained from an intervention may diminish after its implementation, indicating that the interventions may not continually motivate workers to adopt control measures or use RPE.

Anlimah et al. 2023.

Environmental Science and Pollution Research, vol. 30, no. 19.

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

Keywords: Exposure prevention; PPE; personal protective equipment; RCS; Silicosis.

Evidence Level: 1A

Link: <https://link.springer.com/article/10.1007/s11356-023-26321-w>

Physical Activity

Daily accelerometer-measured physical activity patterns and associations with cardiometabolic health among Canadian working adults

Background: Previous studies examining the cardiometabolic risks associated with physical activity (PA) in workers have predominantly used self-reported measures. Little is known about workers' distinct daily PA patterns and whether these are linked with cardiometabolic risks. This study examined associations between patterns of workers' accelerometer-measured daily PA and four markers of cardiometabolic health. **Data and methods:** Working adults (N=8,229; 47% women; average age: 42 years; standard deviation = 0.3) were sampled from the Canadian Health Measures Survey (five cycles: 2007 to 2017). Accelerometer devices measured daily PA, and hierarchical cluster analysis identified distinct activity patterns. Multiple linear regression analyses examined associations between activity patterns and cardiometabolic risk markers (waist circumference, systolic and diastolic blood pressure, and non-high-density lipoprotein [HDL] cholesterol). **Results:** Workers were classified into six distinct activity patterns. On average, compared with workers classified in the "lowest activity" pattern, workers with the "moderate consistent activity," "fluctuating moderate activity," "high daytime activity" and "highest activity" patterns were associated with lower waist circumferences; workers with the "fluctuating moderate activity" and "highest activity" patterns were associated with lower systolic blood pressure; the "moderate evening activity" pattern was associated with lower diastolic blood pressure; and workers with the "fluctuating moderate activity," "high daytime activity" and "highest activity" patterns were associated with lower non-HDL cholesterol. "High daytime activity" was associated with lower waist circumference in women, compared with men, and the "moderate consistent activity" and "fluctuating moderate activity" patterns were associated with lower diastolic blood pressure in younger workers (40 years or younger). **Interpretation:** Workers with high daily PA levels tended to have the most optimal cardiometabolic health. Some evidence suggested that there are benefits to moderate levels of PA, particularly for lowering waist circumference and non-HDL cholesterol. Findings may assist in identifying workers for PA initiatives to promote cardiometabolic health benefits.

Biswas et al. 2023.

Health Reports, vol. 34, no. 3.

Keywords: Cardiovascular disease; chronic disease; epidemiology; exercise; occupation; physical activity; workers.

Evidence Level: 4B

Link: <https://www150.statcan.gc.ca/n1/pub/82-003-x/2023003/article/00002-eng.htm>

Musculoskeletal Health

Construction of a musculoskeletal discomfort scale for the lower limbs of workers: An analysis using the multigroup item response theory

Background: Musculoskeletal symptoms are a major occupational health problem in workers, and these can affect all professional occupations. Previous studies have proposed metrics capable of evaluating the musculoskeletal discomfort experienced by workers. However, no study has developed a metric that considers professional groups. Thus, this study aimed to develop a scale for musculoskeletal discomfort in the lower limbs to compare self-reported symptoms among education, health, and industry professionals.

Methods: The sample included 159 teachers, 167 health professionals, and 401 industrial operators who relayed their symptoms using a diagram of the hips, thighs, knees, lower legs, and feet. Factor and multigroup item response theory analyses were used to construct a musculoskeletal discomfort scale consisting of seven levels and to assess and compare the identified symptoms.

Results and Conclusions: The results showed that the progressive evolution of discomfort differed for each profession, demonstrating that each context and work environment affects workers differently, which may explain the different patterns of symptom responses among professional groups.

da Silva et al. 2023.

International Journal of Environmental Research and Public Health, vol. 20, no. 7.

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Keywords: Discomfort metric; lower limb; multiple professions; pain symptoms.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/20/7/5307>

Guiding and Supporting Mental Health and Wellbeing

Mental Health

This month we explore issues associated with mental health and employment trajectories, and workplace productivity. In COVID-19 related research we explore the association between burnout and COVID-19 prevention behaviours and mental health issues for teachers during the pandemic.

Employment trajectories and mental health-related disability in Belgium

Background: An individual's quality of employment over time has been highlighted as a potential determinant of mental health. With mental ill-health greatly contributing to work incapacities and disabilities in Belgium, the present study aims to explore whether mental health, as indicated by registered mental health-related disability, is structured along the lines of employment quality, whereby employment quality is assessed over time as part of individuals' labour market trajectories. **Methods:** Using administrative data from the Belgian Crossroads Bank for Social Security over 16 quarters between 2006 and 2009, transitions between waged jobs of varying quality (based on dimensions of income, working time, employment stability and multiple jobholding), self-employment, and unemployment are considered among individuals in the labour force aged 30-40 at baseline (n = 41,065 women and 45,667 men). With Multichannel Sequence Analysis and clustering, we constructed ideal types of employment trajectories. Fitting Cox regressions, we then evaluated individuals' hazard of experiencing a disability from a mental disorder between 2010 and 2016. **Results:** Our analysis highlights various gender-specific trajectories. Among both genders, individuals exposed to near-constant unemployment over the initial 4 years showed the highest hazard of subsequent mental health-related disability compared to a group characterised by stable full-time employment, single jobholding, and above-median income. Trajectories involving a higher probability of subsidised and non-standard employment and (potential) spells of unemployment and lower relative income were also strong predictors of cause-specific disabilities. Health selection and confounding might, however, be contributing factors. **Conclusions:** Our study shows a gradient of mental disorders resulting in a disability along trajectory types. Our findings highlight the predictive power of labour market trajectories and their employment quality for subsequent mental disorder-related disability. Future research should examine the mechanisms, including selection effects in this association.

Balogh et al. 2023.

International Archives of Occupational and Environmental Health, vol. 96, no. 2.

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Keywords: Belgium; disability; employment quality; employment trajectory; mental health; precarious employment.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s00420-022-01923-y>

Association between burnout and adherence with mask usage and additional COVID-19 prevention behaviours: Findings from a large-scale, demographically representative survey of US adults

Background: Studies have found associations between occupational burnout symptoms and reduced engagement with healthy behaviours. We sought to characterise demographic, employment and sleep characteristics associated with occupational burnout symptoms, and to evaluate their relationships with adherence to COVID-19 prevention behaviours (mask usage, hand hygiene, avoiding gatherings, physical distancing, obtaining COVID-19 tests if potentially infected). **Methods:** During December 2020, surveys were administered cross-sectionally to 5208 US adults (response rate=65.8%). Quota sampling and survey weighting were employed to improve sample representativeness of sex, age and race and ethnicity. Among 3026 employed respondents, logistic regression models examined associations between burnout symptoms and demographic, employment and sleep characteristics. Similar models were conducted to estimate associations between burnout and non-adherence with COVID-19 prevention behaviours. **Results:** Women, younger adults, unpaid caregivers, those working more on-site versus remotely and those with insufficient or impaired sleep had higher odds of occupational burnout symptoms. Burnout symptoms were associated with less frequent mask usage (adjusted odds ratio (aOR)=1.7, 95% CI 1.3-2.1), hand hygiene (aOR=2.1, 95% CI 1.7-2.7), physical distancing (aOR=1.3, 95% CI 1.1-1.6), avoiding gatherings (aOR=1.4, 95% CI 1.1-1.7) and obtaining COVID-19 tests (aOR=1.4, 95% CI 1.1-1.8). **Conclusions:** Disparities in occupational burnout symptoms exist by gender, age, caregiving, employment and sleep health. Employees experiencing occupational burnout symptoms might exhibit reduced adherence with COVID-19 prevention behaviours. Employers can support employee health by addressing the psychological syndrome of occupational burnout.

Czeisler et al. 2023.

BMJ Open, vol. 13, no. 3.

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Keywords: COVID-19; epidemiology; mental health; occupational & industrial medicine; public health; sleep medicine.

Evidence Level: 4B

Link: <https://bmjopen.bmj.com/content/13/3/e066226.long>

The role of mental health on workplace productivity: A critical review of the literature

Background: Mental health disorders in the workplace have been associated with impaired worker productivity. **Methods:** This systematic review explored the relationship between mental health and lost productivity. **Results:** Poor mental health (ie depression and/or anxiety) was associated with lost productivity (i.e., absenteeism and presenteeism). **Conclusions:** Despite consistent findings, more high-quality, longitudinal and causal inference studies are needed to provide clear policy recommendations. Moreover, future research should seek to understand how working conditions and work arrangements as well as workplace policies impact presenteeism.

de Oliveria et al. 2023.

Applied Health Economics and Health Policy, vol. 21, no. 2.

Keywords: Mental health; workplace; productivity; literature.

Evidence Level: 1B

Link: <https://link.springer.com/article/10.1007/s40258-022-00761-w>

Teachers at risk: Depressive symptoms, emotional intelligence, and burnout during COVID-19

Background: Previous studies indicated that depressive symptoms are common among teachers due to job stress and difficulty in managing emotions. The aim of this research was to determine the levels of depressive symptomatology in a sample of secondary school teachers who worked during the COVID-19 pandemic and to analyze the relationships with their levels of burnout and emotional intelligence.

Methods: The study involved 430 secondary school teachers residing in Madrid (Spain) who worked during the COVID-19 pandemic. Participants' age was between 25 and 60 ($M = 41.40$; $SD = 11.07$) and the gender distribution was 53.72% men and 46.28% women. We used the Spanish version of the Patient Health Questionnaire (PHQ-9), the Maslach Burnout Inventory Educators Survey (MBI-ES) and the Trait Meta-Mood Scale (TMMS-24). **Results:** The main results indicated that teachers presented high means of depressive symptomatology, with women obtaining higher scores than men. Significant relationships were also observed between the levels of depressive symptomatology and the dimensions of burnout and emotional intelligence. Finally, the three dimensions of emotional intelligence would contribute to the depressive symptomatology of teachers, while of the burnout dimensions only Emotional Exhaustion would make a contribution. **Conclusion:** The possible consequences of depressive symptomatology in teachers during the pandemic are discussed, as well as the need to enhance protective factors such as emotional intelligence and to study burnout levels.

Sánchez-Pujalte et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: COVID-19; burnout; depressive symptoms; emotional intelligence; teachers wellbeing.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1092839/full>

Bullying, Harassment and Occupational violence

This month we explore issues associated with workplace ostracism, and workplace violence.

Intensity, intent, and ambiguity: Appraisals of workplace ostracism and coping responses

Background and Methods: Using both correlational and experimental designs across four studies ($N = 1251$ working individuals), the current project aimed to contribute to the understanding of workplace ostracism by studying two research questions. First, we tested whether the subjective experience of targets reflects the current theorizing of ostracism. Second, drawing from the transactional theory of stress and coping, we investigated whether this subjective experience impacts targets' coping responses. **Results:** Findings based on exploratory and confirmatory factor analyses supported the current theorizing of workplace ostracism such that perceived intensity, intent, and ambiguity were reflected in how targets appraised being ostracized at work. The appraisals were also related to coping responses. Perceived intensity predicted more approach-oriented (e.g., confrontation) and less avoidance-oriented coping responses (e.g., minimization). While attributions of intent also predicted some coping responses (e.g., instrumental support seeking), the explanatory power of perceived ambiguity was lower than the other two appraisals. **Conclusions:** Although these researcher-defined dimensions may be reflective of targets' experience, we propose that predictions made based on these dimensions need further refinement. The theoretical and practical significance of these findings are discussed in relation to how workplace ostracism is typically studied in the literature.

Meral et al. 2023.

Aggressive Behavior, vol. 49, no. 2.

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Keywords: Ambiguity; appraisals; coping; intensity; intent; workplace ostracism.

Evidence Level: 5B

Link: <https://onlinelibrary.wiley.com/doi/10.1002/ab.22060>

Workplace violence and the mental health of public health workers during COVID-19

Background: During the recent pandemic, public health workers were at an increased risk for violence and harassment. **Methods:** A survey of state, local, and tribal public health workers with questions on workplace violence, demographics, workplace factors, and mental health symptoms. **Results:** Workplace violence was associated with an increased likelihood of reporting depression symptoms, anxiety, post-traumatic stress disorder, and suicidal ideation with a dose–response relationship. **Conclusions:** Violence targeted at the public health workforce is detrimental to workers and their communities. Ongoing training, workplace support, and increased communication after a workplace violence incident may be helpful. Efforts to strengthen public health capacities and support the public health workforce are also needed.

Tiesman et al. 2023.

American Journal of Preventative Medicine, vol. 64, no. 3.

Keywords: Violence; mental health; public health workers; COVID-19.

Evidence Level: 5B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S0749-3797\(22\)00507-4](https://linkinghub.elsevier.com/retrieve/pii/S0749-3797(22)00507-4)

Psychosocial Issues

This month we explore issues associated with job insecurity on knowledge hiding behaviour, the effect of a person-centred approach to job insecurity and the effect of a psychological caring climate at work on mental health, well-being, and work-related outcomes.

The effect of job insecurity on knowledge hiding behavior: The mediation of psychological safety and the moderation of servant leadership

Background: As the global economy deteriorates because of the great shocks such as COVID-19 pandemic and wars among nations, the business environment is suffered from uncertainty and risk. To deal with it, several firms have attempted to maximize its efficiency via downsizing and restructuring to diminish costs. Thus, the degree of anxiety is increased among employees who worry about the loss of their job. **Methods:** The current research hypothesizes that job insecurity increases employees' knowledge hiding behavior by diminishing the degree of their psychological safety. In other words, psychological safety functions as the underlying process (i.e., mediator) in the job insecurity-knowledge hiding behavior link. Furthermore, this paper tries to examine the boundary condition of how to decrease the detrimental influence of job insecurity, focusing on the moderating effect of servant leadership. **Results and Conclusions:** Utilizing a 3-wave time-lagged data from 365 Korean employees, we empirically demonstrated that employees who perceive job insecurity are less likely to perceive psychological safety, eventually increasing their knowledge hiding behavior. We also found that servant leadership functions as a positive moderator which buffers the negative impact of job insecurity on psychological safety. Theoretical and practical contributions are described.

Jeong et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: Job insecurity; knowledge hiding behavior; moderated mediation model; psychological safety; servant leadership.

Evidence Level: 5B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1108881/full>

A person-centered approach to job insecurity: Is there a reciprocal relationship between the quantitative and qualitative dimensions of job insecurity?

Background: Radical transformations in the current work model induce qualitative job insecurity (i.e., a threat to job characteristics) and strengthen quantitative job insecurity (i.e., a threat to job loss). Both dimensions are separate yet interdependent work stressors. Although organisational changes are often the core source for both types of job insecurity, it is predominantly a subjective experience-individual perception ultimately determines the risk and the consequences of these threats. So far, the between-person analysis suggests that the relationship between the two dimensions is in both directions. However, it is not clear whether these associations also reflect within-person processes. **Methods:** This study

proposes and tests the reciprocal relationship between quantitative and qualitative job insecurity at the within-person level. We employed a multiple indicator random-intercept cross-lagged panel model (RI-CLPM) to test these associations within-person while controlling for between-person differences. We used three-wave longitudinal data (6 months' time lag) collected from a Belgian working population (N = 3694). **Results:** The results suggest a unidirectional relationship (from quantitative to qualitative job insecurity). Furthermore, the results reveal significant within-person carry-over effects of quantitative job insecurity but not for qualitative job insecurity. Overall, these results suggest that a change in the experience of threats to job loss (i.e., higher-than-usual quantitative job insecurity) not only anticipates higher-than-usual threats to job loss (autoregressive paths) but also higher-than-usual threats to job characteristics (i.e., qualitative job insecurity), six months later. This study contributes to the ongoing discussion on how job insecurity dimensions influence each other. **Conclusions:** Given these results and the continuous changes to how we work, we call for further research to better understand the within-person processes of job insecurity development.

Nawrocka et al. 2023.

International Journal of Environmental Research and Public Health, vol. 20, no. 7.

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Keywords: Qualitative job insecurity; quantitative job insecurity; random-intercept cross-lagged panel model; reciprocity; within-person.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/20/7/5280>

Psychological caring climate at work, mental health, well-being, and work-related outcomes: Evidence from a longitudinal study and health insurance data

Background: Psychological climate for caring (PCC) is a psychosocial factor associated with individual work outcomes and employee well-being. Evidence on the impacts of various psychological climates at work is based mostly on self-reported health measures and cross-sectional data. **Methods:** We provide longitudinal evidence on the associations of PCC with subsequent diagnosed depression and anxiety, subjective well-being, and self-reported work outcomes. Employees of a US organization with a worker well-being program provided data for the analysis. Longitudinal survey data merged with data from personnel files and health insurance claims records comprising medical information on diagnosis of depression and anxiety were used to regress each outcome on PCC at baseline, adjusting for prior values of all outcomes and other covariates. **Results:** PCC was found to be associated with lower odds of subsequent diagnosed depression, an increase in overall well-being, mental health, physical health, social connectedness, and financial security, as well as a decrease in distraction at work, an increase in productivity/engagement and possibly in job satisfaction. There was little evidence of associations between PCC and subsequent diagnosed anxiety, character strengths, and work-family conflict. **Conclusions:** Work policies focused on improving PCC may create a promising pathway to promoting employee health and well-being as well as improving work-related outcomes.

Weziak-Bialowolska et al. 2023.

Social Science & Medicine, vol 323.

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Keywords: Anxiety; depression; distraction at work; job satisfaction; psychological climate for caring; well-being; work performance; work-family conflict.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0277953623001983?via%3Dihub>

Fostering Work Participation

Return to Work

This month we explore return to work issues associated with early intervention vocational rehabilitation programs for people following spinal cord injury. In COVID-19 related research we

explore the effects of return-to-office, public schools reopening, and vaccination mandates on cases.

Developing a conceptual framework for early intervention vocational rehabilitation for people following spinal cord injury

Purpose: Early intervention vocational rehabilitation (EIVR) can improve return to work (RTW) outcomes for people with spinal cord injury (SCI). However, mechanisms explaining how and why EIVR works are not well understood. This study aims to develop a conceptual framework describing key mechanisms of EIVR intervention effect following SCI. **Methods:** We synthesised data from a realist literature review with data from interviews of people with SCI (n = 30), a survey of people with SCI who had received EIVR (n = 37), a focus group of EIVR providers and a focus group of community vocational providers. We first synthesised the literature review and interviews to develop an initial programme theory describing the contexts in which mechanisms are activated to produce EIVR outcomes. Then we used data from the survey and focus groups to further refine the EIVR programme theory. Finally, a conceptual framework was developed to support knowledge dissemination. **Results:** By ensuring consistent messaging across the multi-disciplinary team, EIVR programmes establish and maintain hope that work is possible following injury. Conversations about work allow individuals to determine the priority of work following injury. These conversations can also improve self-efficacy by providing individualized support to envisage pathways toward RTW goals and maintain worker identity. The synthesised study findings highlight the contexts and resources required to trigger activation of these mechanisms. **Conclusions:** EIVR key mechanisms of effect are not specific to SCI as a health condition, therefore enabling this framework to be applied to other populations who face similar impairments and return to work barriers.

Dunn et al. 2023.

Journal of Occupational Rehabilitation, vol. 33, no. 1.

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Keywords: Return to work; spinal cord injury; vocational rehabilitation.

Evidence Level: 6A

Link: <https://link.springer.com/article/10.1007/s10926-022-10060-9>

Effects of return-to-office, public schools reopening, and vaccination mandates on COVID-19 cases among municipal employee residents of New York City

Background: On September 13, 2021, teleworking ended for New York City municipal employees, and Department of Education employees returned to reopened schools. On October 29, COVID-19 vaccination was mandated. We assessed these mandates' short-term effects on disease transmission. **Methods:** Using difference-in-difference analyses, we calculated COVID-19 incidence rate ratios (IRRs) among residents 18 to 64 years old by employment status before and after policy implementation. **Results:** IRRs after (September 23-October 28) versus before (July 5-September 12) the return-to-office mandate were similar between office-based City employees and non-City employees. Among Department of Education employees, the IRR after schools reopened was elevated by 28.4% (95% confidence interval, 17.3%-40.3%). Among City employees, the IRR after (October 29-November 30) versus before (September 23-October 28) the vaccination mandate was lowered by 20.1% (95% confidence interval, 13.7%-26.0%).

Conclusions: Workforce mandates influenced disease transmission, among other societal effects.

Greene et al. 2023.

Journal of Occupational and Environmental Medicine, vol. 65, no. 3.

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Keywords: Return to work; public schools; vaccination mandates; COVID-19; New York City.

Evidence Level: 4B

Link:

https://journals.lww.com/joem/Fulltext/2023/03000/Effects_of_Return_to_Office,_Public_Schools.1.aspx

Presenteeism and Absenteeism

Sick leave due to COVID-19 during the first pandemic wave in France, 2020

Background: To quantify the burden of COVID-19-related sick leave during the first pandemic wave in France, accounting for sick leaves due to symptomatic COVID-19 ('symptomatic sick leaves') and those due to close contact with COVID-19 cases ('contact sick leaves'). **Methods:** We combined data from a national demographic database, an occupational health survey, a social behaviour survey and a dynamic SARS-CoV-2 transmission model. Sick leave incidence from 1 March 2020 to 31 May 2020 was estimated by summing daily probabilities of symptomatic and contact sick leaves, stratified by age and administrative region.

Results: There were an estimated 1.70M COVID-19-related sick leaves among France's 40M working-age adults during the first pandemic wave, including 0.42M due to COVID-19 symptoms and 1.28M due to COVID-19 contacts. There was great geographical variation, with peak daily sick leave incidence ranging from 230 in Corse (Corsica) to 33 000 in Île-de-France (the greater Paris region), and greatest overall burden in regions of north-eastern France. Regional sick leave burden was generally proportional to local COVID-19 prevalence, but age-adjusted employment rates and contact behaviours also contributed. For instance, 37% of symptomatic infections occurred in Île-de-France, but 45% of sick leaves. Middle-aged workers bore disproportionately high sick leave burden, owing predominantly to greater incidence of contact sick leaves. **Conclusions:** France was heavily impacted by sick leave during the first pandemic wave, with COVID-19 contacts accounting for approximately three-quarters of COVID-19-related sick leaves. In the absence of representative sick leave registry data, local demography, employment patterns, epidemiological trends and contact behaviours can be synthesised to quantify sick leave burden and, in turn, predict economic consequences of infectious disease epidemics.

et al. 2023.

Occupational and Environmental Medicine, vol. 80, no. 5.

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Keywords: COVID-19; disease outbreaks; epidemiology; models, theoretical; sick leave.

Evidence Level: 4B

Link: <https://oem.bmj.com/content/80/5/268.long>

Workers' compensation

Impact of opioid use on duration of time loss after work-related lower limb injury

Background This study sought to determine patterns of opioid use among workers with a compensated lower limb injury, factors associated with opioid use, and how opioid use is associated with time loss duration. **Methods** Claims and medication data were provided by the workers' compensation regulator of Victoria, Australia, for claims lodged 2008-2018 from workers aged 15+ years with a lower limb injury. Descriptive statistics showed the number and prevalence of each opioid type (weak/strong) by demographic, claim and injury predictors. Binary and multinomial logistic regression determined the likelihood of any opioid use, and use of strong, weak or a combination of strong and weak opioids by predictors. Cox regression determined the effect of each opioid type on duration of time loss, controlling for predictors. **Results** There were 51,334 claims and of these 23.6% were dispensed opioids (9.2% for strong opioids only, 6.6% for weak opioids only and 7.8% for a combination). Weak opioids, on average, were dispensed 15 days earlier than strong opioids. Time loss claims and workers with fractures or hip injuries were most likely to be dispensed opioids. All opioids were associated with increased duration of time loss, with those dispensed both weak and strong opioids having the longest duration of time loss.

Conclusions Any opioid use was associated with longer time loss duration, with increasing opioid strength having a greater effect. Review of pain management methods should be undertaken to reduce opioid use, which may have a positive impact on duration of time loss and long-term function.

Szucw et al. 2023.

Journal of Occupational Rehabilitation, vol. 33, no. 1.

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Keywords: Injury; lower extremity; opioid; worker's compensation.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s10926-022-10048-5>

Working Hours

Employees' work breaks and their physical and mental health: Results from a representative German survey

Background: This study aimed to investigate the prevalence of three characteristics of work break organization, namely skipping work breaks, interruptions of work breaks, and meal break duration, and their relationships with physical and mental health. **Methods:** We used data from the BAuA-Working Time Survey 2017, a representative workforce survey in Germany, and restricted the sample to 5979 full-time employees. Logistic regression analyses were conducted with in total five health complaints as dependent variables: back pain and low back pain, pain in the neck and shoulder region, general tiredness, faintness, or fatigue, physical exhaustion, and emotional exhaustion. **Results:** Many employees often skipped their work breaks (29%) and experienced break interruptions (16%). Frequent skipping of work breaks was significantly positively, that is detrimentally, related to all five health complaints and frequent interruptions of work breaks also, except for neck and shoulder pain. **Conclusion:** Meal break duration was significantly negatively, that is beneficially, related to physical exhaustion.

Vieten et al. 2023.

Applied Ergonomics, vol. 110.

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Keywords: Exhaustion; musculoskeletal pain; rest break.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0003687023000364?via%3Dihub>

Wellness Programs

Efficacy of an online workplace mental health accommodations psychoeducational course: A randomized controlled trial

Background: Workplace accommodations can improve work functioning for employees with mental health concerns, yet few employees receive accommodations. The current study examined the benefits of providing education on workplace accommodations. **Methods:** In total, 89 participants with symptoms of depression and/or anxiety were randomized to an online psychoeducation course or wait-list control (WLC). The course provided education on symptoms, accommodations, tips for requesting accommodations and making disclosures, and coping strategies. Primary outcomes included the impact of the course on requesting and receiving accommodations, accommodation knowledge, self-stigma, and workplace relationships at 8 weeks post-randomization. Additional analyses examined the impact of the course on symptoms, absenteeism, presenteeism, and self-efficacy and whether supervisory leadership and organizational inclusivity impact disclosure and accommodation use. **Results:** Participants in the course reported improvements in accommodation knowledge, self-efficacy, and presenteeism compared to the WLC. Both groups reported reduced self-stigma and increased disclosures over time. Specifically, partial disclosures were associated with supportive organizations and supervisors. No group differences were found on accommodation use, symptoms, workplace relationships, or comfort with disclosure. Few participants made accommodation requests, therefore a statistical analysis on requesting or receiving accommodations was not performed. **Conclusions:** Overall, providing psychoeducation has the potential to assist individuals with depression and anxiety who may require workplace accommodations, but further research is required.

Faller et al. 2023.

International Journal of Environmental Research and Public Health, vol. 20, no. 7.

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Keywords: Online psychoeducation; workplace accommodations; workplace mental health.

Evidence Level: 2A

Link: <https://www.mdpi.com/1660-4601/20/7/5317>

Organisational Issues

Exploring the effect of emotional labor on turnover intention and the moderating role of perceived organizational support: Evidence from Korean firefighters

Background: Synthesizing the conservation of resource theory, proximal withdrawal state theory, and job demands-resources theory, the present study examined the relationships between two dimensions of emotional labor (i.e., surface and deep acting) and turnover intention, as well as the moderating role of perceived organizational support in these relationships, such as the context of Korean firefighters. **Methods and Results:** Using survey data drawn from fire organizations in Gyeonggi-do, the largest province of South Korea, we found that both surface and deep acting are positively related to firefighter turnover intentions. Further analysis indicates that the perceived organizational support of firefighters, vital for public health and safety, attenuates the positive relationship between surface acting and turnover intention but has no significant moderating effect on the relationship between deep acting and turnover intention.

Conclusions: Our results suggest that perceived organizational support acts through essential psychological resources to recover the loss of emotional resources and contributes to the retention of firefighter personnel who primarily perform challenging and stressful work, including firefighting and offering emergency medical services. Thus, this study examines a crucial tool to ensure firefighters' public mental health.

Lim et al. 2023.

International Journal of Environmental Research and Public Health, vol. 20, no. 5.

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Keywords: Emotional labor; firefighters; perceived organizational support; public mental health; turnover intention.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/20/5/4379>

Shift Work

This month we explore the issues associated with cardiometabolic function, and dietary patterns.

Cardiometabolic function in retired night shift workers and retired day workers

Background: Night shift work is associated with poor cardiometabolic outcomes, even post-retirement. However, the characteristics of cardiometabolic function in retired night shift workers (RNSW) compared to retired day workers (RDW) are not well-understood. Rigorous characterization of cardiometabolic dysfunction in RNSW and RDW will inform targeted risk stratification for RNSW. **Methods:** This observational study evaluated whether RNSW (n = 71) had poorer cardiometabolic function than RDW (n = 83). We conducted a multimodal assessment of cardiometabolic function including metabolic syndrome prevalence, brachial artery flow-mediated dilation, and carotid intima-media thickness. Main analyses tested overall group differences. Sex-stratified follow-up analyses tested group differences separately in men and women. **Results:** RNSW had 2.6-times higher odds of metabolic syndrome prevalence than RDW in unadjusted analyses (95% CI [1.1,6.3]); this association was not significant when adjusting for age, race and education. RNSW and RDW (Mage = 68.4; 55% female) did not differ in percent flow-mediated dilation or carotid intima-media thickness. In sex-stratified analyses, women RNSW had 3.3-times higher odds of having high body mass index than women RDW (95% CI [1.2,10.4]). Men RNSW had 3.9-times higher odds of having high triglycerides than men RDW (95% CI [1.1,14.2]). No other group differences were observed. **Conclusions:** We found mixed evidence that night shift work exposure was associated with cardiometabolic dysfunction in retirement, possibly in a sex-specific manner.

Chin et al. 2023.

Scientific Reports, vol. 13, no. 1.

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Keywords: Night shift; retired; cardiometabolic function.

Evidence Level: 4B

Link: <https://www.nature.com/articles/s41598-022-20743-1>

Dietary patterns under the influence of rotational shift work schedules: A systematic review and meta-analysis

Background: Workers employed in rotating shift schedules are at a higher metabolic risk compared with those in regular day and fixed shift schedules; however, the contribution of diet is unclear. **Methods:** This systematic review aimed to investigate how rotating shift work schedules affect dietary energy intake and dietary patterns compared with regular day and fixed shift schedules. In addition, intraperson energy intake and dietary pattern comparisons within rotating shift schedules were investigated. Database searches were conducted on MEDLINE, Cochrane, CINAHL, PSYCinfo, EMBASE, and Scopus, in addition to manual search of bibliographic references, to identify articles. Two separate meta-analyses compared dietary intake between day work and rotating shift work schedules and within the rotational shift work group (morning/day and night shifts). Differences in dietary patterns were synthesized narratively.

Results: Thirty-one studies (n = 18,196 participants) were included in the review, and meta-analyses were conducted with 24-hour mean energy intake data from 18 (n = 16,633 participants) and 7 (n = 327 participants) studies, respectively. The average 24-hour energy intake of rotating shift workers was significantly higher than that of workers in regular daytime schedules [weighted mean difference (WMD): 264 kJ; 95% confidence interval (CI): 70, 458 kJ; P < 0.008; I² = 63%]. However, the mean difference in 24-hour energy intake between morning/day shifts compared with night shifts within rotational shift schedules was not statistically significant (WMD: 101 kJ; 95% CI: -651, 852 kJ; P = 0.79; I² = 77%). Dietary patterns of rotating shift workers were different from those of day workers, showing irregular and more frequent meals, increased snacking/eating at night, consumption of fewer core foods, and more discretionary foods. **Conclusions:** This review highlights that dietary intake in rotational shift workers is potentially higher in calories and features different eating patterns as a consequence of rotating shift work schedules. This review was registered at PROSPERO as ID 182507.

Clark et al. 2023.

Advances in Nutrition, vol. 14, no. 2.

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Keywords: Dietary patterns; energy intake; nutrition; rotational shift work; systematic review.

Evidence Level: 1A

Link: [https://linkinghub.elsevier.com/retrieve/pii/S2161-8313\(23\)00006-6](https://linkinghub.elsevier.com/retrieve/pii/S2161-8313(23)00006-6)

Management and Leadership

This month we explore the role of coaching leadership on employee's turnover intention and good supervision on sustainable employability in employees with a work disability.

"I noticed that when I have a good supervisor, it can make a lot of difference." A qualitative study on guidance of employees with a work disability to improve sustainable employability

Background: For employees with a work disability adequate daily guidance from supervisors is key for sustainable employability. Supervisors often lack expertise to guide this group of employees. Mentorwijs (literal translation: Mentorwise) is a training for supervisors to improve the guidance of employees with a work disability. The aim of this study was to investigate the experiences of employees with a work disability regarding: (1) the guidance from their supervisors (who followed the Mentorwijs training), (2) which differences they notice in the guidance due to the Mentorwijs training, and (3) what kind of aspects they consider important in their guidance to achieve sustainable employability. **Methods:** A qualitative study was performed with semi-structured (group) interviews among twenty-one employees with a work disability. Thematic analysis was performed to analyze the data. **Results:** Themes that followed from the interviews were: (1) work tasks and conditions can facilitate or hinder sustainable employability; (2)

relationships among employees and with supervisors can affect sustainable employability; (3) a desire for new opportunities and challenges; and (4) a need for supervisor skills to facilitate sustainable employability, i.e. appreciation, availability of help, dealing with problems, listening, attitude and communication. According to employees, changes were mainly noticed in supervisor skills. **Conclusions:** Employees with a work disability were very satisfied with the guidance of supervisors who followed the Mentorwijs training. To improve sustainable employability, training of supervisors should focus more on adequate work conditions, providing employees opportunities to learn new work tasks and improving supervisors' skills regarding appreciation, attitude and communication.

Schaap et al. 2023.

Journal of Occupational Rehabilitation, vol. 33, no. 1.

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Keywords: Employees; qualitative study; supervisors; sustainable employability; work disability.

Evidence Level: 5A

Link: <https://link.springer.com/article/10.1007/s10926-022-10063-6>

The effect of unstable job on employee's turnover intention: The importance of coaching leadership

Background: Swift social and economic environmental changes such as COVID-19 pandemic have led to increased job insecurity. The current study examines the intermediating mechanism (i.e., mediator) and its contingent factor (i.e., moderator) in the association between job insecurity and employee's turnover intention, especially from the perspective of positive psychology. **Methods:** By establishing a moderated mediation model, this research hypothesizes that the degree of employee meaningfulness in work may mediate the relationship between job insecurity and turnover intention. In addition, coaching leadership may play a buffering role to positively moderate the harmful impact of job insecurity on meaningfulness of work. **Results:** With three-wave time-lagged data that was collected from 372 employees in South Korean organizations, the current study not only demonstrated that meaningfulness of work mediates the job insecurity-turnover intention relationship, but also that coaching leadership functions as a buffering factor in reducing the harmful influence of job insecurity on meaningfulness of work. **Conclusions:** The results of this research suggest that the level of meaningfulness of work (as a mediator) as well as coaching leadership (as a moderator) are the underlying processes and the contingent factor in the job insecurity-turnover intention link.

Jung et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: Coaching leadership; job insecurity; meaningfulness of work; moderated mediation model; turnover intention.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1068293/full>

Work Ability

A sensibility assessment of the Job Demands And Accommodation Planning Tool (JDAPT): A tool to help workers with an episodic disability plan workplace support

Background: Sensibility refers to a tool's comprehensiveness, understandability, relevance, feasibility, and length. It is used in the early development phase to begin assessing a new tool or intervention. This study examined the sensibility of the job demands and accommodation planning tool (JDAPT). The JDAPT identifies job demands related to physical, cognitive, interpersonal, and working conditions to better target strategies for workplace supports and accommodations aimed at assisting individuals with chronic health conditions. **Methods:** Workers with a chronic health condition and workplace representatives were recruited from health charities, workplaces, and newsletters using convenience sampling. Cognitive interviews assessed the JDAPT's sensibility. A 70% endorsement rate was the minimum level of acceptability for sensibility concepts. A short screening tool also was administered, and answers compared to the complete JDAPT. **Results:** Participants were 46 workers and 23 organizational representatives (n =

69). Endorsements highly exceeded the 70% cut-off for understandability, relevance, and length. Congruence between screening questions and the complete JDAPT suggested both workers and organizational representatives overlooked job demands when completing the screener. Participants provided additional examples and three new items to improve comprehensiveness. The JDAPT was rated highly relevant and useful, although not always easy to complete for someone with an episodic condition.

Conclusions: This study highlights the need for tools that facilitate accommodations for workers with episodic disabilities and provides early evidence for the sensibility of the JDAPT.

Gignac et al. 2023.

Journal of Occupational Rehabilitation, vol. 33, no. 1.

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Keywords: Accommodations; disability; employment; measurement; support.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s10926-022-10057-4>

Adapting to the Future of Work

Technology

This month we explore the development of a digital stress management intervention and the use of Channel State Information for construction worker fall detection.

Exploration of user needs and design requirements of a digital stress management intervention for software employees in Sri Lanka: A qualitative study

Background: Digital stress management interventions are considered promising additions to the spectrum of the programs companies use to support the well-being of their employees. However, a series of constraints are identified that hinder the potential benefits of such interventions. These constraints include a lack of user engagement and personalisation, poor adherence and high attrition. Understanding the specific user needs and requirements is essential to increase the likelihood of success in implementing ICT (Information and Communication Technology)-supported stress management interventions. Thus, following the findings from a previous quantitative study, the proposed study aimed to further explore the user needs and requirements for designing digital stress management interventions for software employees in Sri Lanka. **Methods:** The study used a qualitative approach based on three focus groups with 22 software employees in Sri Lanka. The focus group discussions were conducted online and recorded digitally. Inductive thematic analysis was used to analyse the collected data. The consolidated criteria for reporting qualitative studies (COREQ)-32 items were followed for reporting this study. **Results:** The analysis revealed three major themes: self-help in a personal space, social support in a collaborative space, and general design considerations for achieving success. The first theme revealed the users' preference for having a personal space where they could engage in individual activities without support from an external party. The second theme elaborated on the importance of adding a collaborative platform to seek help from peers and professionals. The final theme explored the user-desired design features that could increase user engagement and adherence. **Conclusions:** This study used a qualitative approach to further explore the findings of a previous quantitative study. The focus group discussions confirmed the results of the previous study and provided the opportunity to better understand user needs and yield new insights. Such insights revealed user preference for embedding personal and collaborative platforms in a single intervention, embedding gamified elements, the provision of passive content generation via sensory systems, and the need for personalisation. These empirical findings will feed into the design of ICT-supported interventions for occupational stress management among Sri Lankan software employees.

Weerasekara et al. 2023.

BMC Public Health, vol. 23, no. 1.

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Keywords: Design; focus group; ICT; occupational stress; system feature; user needs.

Evidence Level: 5B

Link: <https://bmcpublihealth.biomedcentral.com/articles/10.1186/s12889-023-15480-7>

Feasibility analysis of using Channel State Information (CSI) acquired from Wi-Fi routers for construction worker fall detection

Background: Accidental falls represent a major cause of fatal injuries for construction workers. Failure to seek medical attention after a fall can significantly increase the risk of death for construction workers. Wearable sensors, computer vision, and manual techniques are common modalities for detecting worker falls in the literature. However, they are severely constrained by issues such as cost, lighting, background, clutter, and privacy. **Methods:** To address the problems associated with the existing proposed methods, a new method has been conceived to identify construction worker falls by analyzing the CSI signals extracted from commercial Wi-Fi routers. In this research context, our study aimed to investigate the potential of using Channel State Information (CSI) to identify falls among construction workers. To achieve the aim of this study, CSI data corresponding to 360 sets of activities were collected from six construction workers on real construction sites. **Results:** The results indicate that (1) the behavior of construction workers is highly correlated with the magnitude of CSI, even in real construction sites, and (2) the CSI-based method for identifying construction worker falls has an accuracy of 99% and can also accurately distinguish between falls and fall-like actions. The present study makes a significant contribution to the field by demonstrating the feasibility of utilizing low-cost Wi-Fi routers for the continuous monitoring of fall incidents among construction workers. To the best of our knowledge, this is the first investigation to address the issue of fall detection using commercial Wi-Fi devices in real-world construction environments.

Conclusions: Considering the dynamic nature of construction sites, the new method developed in this study helps to detect falls at construction sites automatically and helps injured construction workers to seek medical attention on time.

Guo et al. 2023.

International Journal of Environmental Research and Public Health, vol. 20, no. 6.

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Keywords: Channel state information; commercial Wi-Fi router; construction safety; construction worker; fall detection.

Evidence Level: 5A

Link: <https://www.mdpi.com/1660-4601/20/6/4998>

Work environment

Work from home or office during the COVID-19 pandemic: The different chain mediation models of perceived organizational support to the job performance

Background: With the coronavirus pandemic in 2019 (COVID-19), work from home (WFH) has become a frequent way of responding to outbreaks. **Methods:** Across two studies, we examined how perceived organizational support influences job performance when employees work in office or work from home. In study 1, we conducted a questionnaire survey of 162 employees who work in office. In study 2, we conducted a questionnaire survey of 180 employees who work from home. **Results:** We found that perceived organizational support directly affected job performance when employees work in office. When employees work from home, perceived organizational support could not affect job performance directly. However, it could influence job performance indirectly through the separate mediating effects of job satisfaction and work engagement. **Conclusions:** These findings extend our understanding of the association of perceived organizational support and job performance and enlighten enterprises on improving employees' job performance during the COVID-19 pandemic.

Liu et al. 2023.

Frontiers in Public Health, vol. 11.

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Keywords: COVID-19; job performance; job satisfaction; perceived organizational support; work engagement; work from home.

Evidence Level: 5B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2023.1139013/full>