



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 were published in November and December 2022 only.

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Description of Evidence Levels Definitions Used in this Review

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

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

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

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

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Fostering Work Participation

Return to Work

This month we explore return to work issues related to cancer, including breast cancer and advanced cancers, following surgery for ulnar nerve compression at the elbow, from mental health related absences and following Covid-19. We also explore the effect of an initiative for a more inclusive working life and its effect on return-to-work after sickness absence.

An initiative for a more inclusive working life and its effect on return-to-work after sickness absence: a multistate longitudinal cohort study

Background: To reduce sickness absence (SA) and increase work participation, the tripartite Agreement for a More Inclusive Working Life (IA) was established in Norway in 2001. IA companies have had access to several measures to prevent and reduce SA. Our aim in this paper was to estimate the average effect of having access to IA at the time of entering a first SA on later return-to-work (RTW) and on time spent in other work-related states. A secondary objective was to study how effects varied between women and men, and individuals with SA due to either musculoskeletal or psychological diagnoses. **Design:** Population-based observational multistate longitudinal cohort study. **Setting:** Individual characteristics and detailed longitudinal records of SA, work and education between 1997-2011 were obtained from population-wide registries. **Participants:** Each individual born in Norway 1967-1976 who entered full-time SA during 2004-2011, with limited earlier SA, was included (n=187 930). **Primary and secondary outcome measures:** Individual multistate histories containing dated periods of work, graded SA, full-time SA, non-employment and education. **Methods:** Data were analysed in a multistate model with 500 days of follow-up. The effect of IA was assessed by estimating differences in state probabilities over time, adjusted for confounders, using inverse probability weighting. **Results:** IA increased the probability of work after SA, with the largest difference between groups after 29 days (3.4 percentage points higher (95% CI 2.5 to 4.3)). Differences in 1-year expected length of stay were 8.4 additional days (4.9 to 11.9) in work, 7.6 (4.8 to 10.3) fewer days in full-time SA and 1.6 (-0.2 to 3.4) fewer days in non-employment. Similar trends were found within subgroups by sex, musculoskeletal and psychological diagnoses. The robustness of the findings was studied in sensitivity analyses **Conclusion:** Measures to prevent and reduce SA, as given through IA, were found to improve individuals' RTW after entering SA.

Hoff et al. 2022.

BMJ Open, vol. 12, no. 11.

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Keywords: Health policy; occupational & industrial medicine; statistics & research methods.

Evidence Level: 4B

Link: <https://bmjopen.bmj.com/content/12/11/e062558.long>

Work resumption and retention in patients with advanced cancer: Experiences and perspectives of general and occupational health care professionals

Background: The objectives of this study were to explore the experiences and perspectives of general and occupational health care professionals regarding work resumption and work retention of patients with advanced cancer, and to identify barriers and facilitators these professionals may encounter. **Methods:** A qualitative design was applied, and individual semistructured interviews were conducted. General and occupational health care professionals were eligible to participate if they were involved in the work participation guidance of patients with advanced cancer, and were recruited through the network of the research team. Interview data were transcribed verbatim and analysed thematically via ATLAS.ti 9. **Results:** Interviewees (N = 17) had various occupational backgrounds, for example, occupational physician, reintegration consultant, and general practitioner. Four main themes emerged from the data: (1) Assumptions and hesitations, (2) Patient initiates stakeholder communication, (3) Role dispersion: who is in charge of what? and (4) Experience with legislation creates opportunities. **Conclusion:** Whereas most interviewees had positive experiences with, and/or optimistic expectations of, the work resumption and work retention of patients with advanced cancer, several barriers to the work participation guidance of

these patients were identified. Suggestions for improvement include creating widespread awareness of the possibility of work participation of patients with advanced cancer and developing reintegration guidelines for advanced cancer.

Zegers et al. 2022.

European Journal of Cancer Care, vol. 31, no. 6.

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Keywords: Advanced cancer; metastatic; palliative care; qualitative research; return to work.

Evidence Level: 5B

Link: <https://onlinelibrary.wiley.com/doi/10.1111/ecc.13714>

Return to work and mortality in breast cancer survivors: A 11-year longitudinal study

Background: Breast cancer is the most commonly occurring cancer in women, and it is a major cause of cancer death around the world. With the development of diagnostic methods and improvements in treatment methods, the incidence rate of breast cancer and the number of breast cancer survivors continue to simultaneously increase. **Methods:** We used national registry database to analyze the features that affect employment and return to work among breast cancer survivors. A total of 23,220 employees, who were newly diagnosed with breast cancer were recruited based on the Labor Insurance Database (LID), the Taiwan Cancer Registry (TCR), and National Health Insurance Research Database (NHIRD) during the period 2004-2015. The correlations between return to work (RTW) and independent confounding factors were examined using Cox proportional hazards model. Survival probability was analyzed using the Kaplan-Meier method. **Results:** After adjusting for confounding variables, cancer stage, chemotherapy and higher income were significantly negatively correlated with RTW. Among breast cancer survivors, RTW was found to be related to a lower risk of all-cause mortality in both the unadjusted and fully adjusted model. Patients who had RTW exhibited better survival in all stages. Work-, disease- and treatment-related factors influenced RTW among employees with breast cancer. RTW was associated with better breast cancer survival. **Conclusions:** Our study demonstrates the impact of RTW and the associated factors on breast cancer survivorship.

Yang et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: Breast cancer; return to work; survival outcome.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/21/14418>

The role of physical arm function and demographic disparities in breast cancer survivors' ability to return to work

Background: Ability to return to work (RTW) is an important aspect of breast cancer that is limited for many survivors. With 90% survivorship in the USA, it is imperative that focus shifts toward the improvement of physical arm function to improve survivors' ability to RTW. This narrative review discusses the role of physical arm function and demographic disparities in breast cancer survivor RTW.

Methods: Literature on physical function, arm function, and demographic disparities following breast cancer treatment and their implications for RTW is discussed. **Results:** The ability to RTW is a key component of recovery for breast cancer survivors, but challenges and inequalities persist. Treatment effects can induce and prolong functional disability, affecting survivors' ability to RTW. These effects may be compounded for survivors whose occupation requires physical arm function. The RTW landscape, including the occupations survivors have, the physical function required for job tasks, and availability of workplace accommodations, is also unclear. Additional demographic disparities (e.g., income, live in rural area) exist, but the extent to which these factors influence RTW is not well understood. More work is needed to understand the compounded impact of treatment effects, demographic disparities, and occupational factors on RTW. Multidisciplinary rehabilitation that includes occupational counselling and exercise is a promising approach, but widespread adoption in the US healthcare model presents an ongoing challenge. Areas for further research are highlighted. **Conclusion:** There is an incomplete understanding of

the effects of treatment on physical arm function and the role of demographic disparities on breast cancer survivor RTW.

Vidt et al. 2022.

Supportive Care in Cancer, vol. 30, no. 12.

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Keywords: Breast reconstruction; cancer survivors; mastectomy; physical endurance; return to work; treatment outcome.

Evidence Level: 6A

Link: <https://link.springer.com/article/10.1007/s00520-022-07449-w>

Factors influencing return to work after surgery for ulnar nerve compression at the elbow

Background: Ulnar nerve compression at the elbow (UNE) frequently affects people of working age. Surgically treated patients may not immediately return to work (RTW) postoperatively. In 2008, the Swedish Social Insurance Agency reformed the national insurance policy. **Methods:** We aimed to examine RTW postoperatively for UNE, variations among surgical methods, and potential risk factors for prolonged RTW (sick leave > 6 weeks). Surgically treated cases of UNE (n = 635) from two time periods (2004-2008 and 2009-2014) and two healthcare regions (Southern and South-eastern) were studied retrospectively regarding age, sex, comorbidities, occupation, type of surgery and time to RTW. **Results:** A sub-analysis of the exact number of weeks before RTW (n = 201) revealed longer RTW for unemployed cases compared to employed cases. Prolonged RTW was seen among younger, manual workers and after transposition or revision surgery. Prolonged RTW was approximately four times more likely after transposition than after simple decompression. **Conclusions:** Comparisons before and after 2008 showed occupational differences and differences in RTW, where cases operated before 2008 more often had permanent sickness benefit, but the reform of the social insurance system did not seem to influence RTW. In conclusion, unemployment, younger age at surgery, manual labour, transposition, and revision surgery were related to prolonged RTW.

Giöstad et al. 2022.

Scientific Reports, vol. 12, no. 1.

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Keywords: Ulnar nerve; compression; surgery; return to work.

Evidence Level: 4A

Link: <https://www.nature.com/articles/s41598-022-26363-z>

Work after mental-health-related absence: A qualitative study of perceived change after a combination of metacognitive therapy and work-focused interventions

Background: Sick leave caused by common mental health disorders (CMD) is becoming more prevalent. For most people, work is essential for good mental and physical health. It is necessary to provide treatments that facilitate return to work (RTW) and a reduction of symptoms. A qualitative study can contribute to an understanding of what makes an intervention successful. The aim of this study was to investigate how individuals who are on sick leave because of CMD perceive and handle their symptoms and their work, after completing metacognitive therapy and work-focused interventions. **Methods:** Semi-structured interviews were conducted with 23 participants after they had completed therapy. Thematic analysis was used to analyse the data. **Results:** Through both therapy and the process of RTW, the participants had gained increased awareness and understanding of their mental health problems and the relationship between those problems and work. Together with the sense that they were in charge of their own process of RTW, this helped to improve their self-confidence. An important part of the process was the change to new strategies and the rejection of older maladaptive ones, in relation to both mental health and work. Being open about their mental illness in the workplace could lead to support but also to the opposite, and therefore not an option for everyone. After treatment, most had returned to work and gained a more positive outlook on the future, but some had less confidence in their ability to deal with future symptoms and workplace issues. **Conclusions:** Achieving improved self-confidence and adopting new strategies, which enabled them to change how they related to their mental problems and how they addressed their problems at work, seemed to have increased their self-efficacy. Active involvement in therapy and at work

was also important, both for the process and as a way of increasing self-efficacy. This gave them renewed belief in themselves and in their ability to handle their work at present and in the future. Despite this being a manualized treatment, the participants' experience was that it was adapted to each individual, something they regarded as important.

Bjørndal et al. 2022.

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

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Keywords: Common mental health disorders; Qualitative study; Return to work; Sick leave.

Evidence Level: 5B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-022-14378-0>

Return to work after COVID-19: Experiences and expectations from the first wave of COVID-19 in Stockholm

Background: In Stockholm (Sweden) a substantial number of persons who were infected with SARS-CoV-2 during spring 2020, and received intensive care followed by rehabilitation due to COVID-19, were of working age. For this group, return to work (RTW) is an important part of the rehabilitation, however this is an area that thus far has received little scholarly attention. The Aim of this study was two-fold. First, to descriptively look at self-reported work ability over time using the Work Ability Index among working age adults who recovered from severe COVID-19, and secondly, to explore experiences and expectations concerning RTW among working age adults who recovered from severe COVID-19. **Methods:** Focus group interviews and qualitative thematic analyses were utilized. In addition, the study populations' self-reported work ability index was recorded over one year. **Findings:** Qualitative analysis of data resulted in 5 themes: a) Initial experiences after discharge from in-patient rehabilitation, b) Disparate first contact with work, c) Uncertainties about own role in RTW process, d) Working situation for those who had started getting back to work, and e) A need to reprioritize expectations for work in the context of everyday life. There were no statistical differences in work ability index scores between 18 and 52 weeks after discharge from an in-patient rehabilitation unit. **Conclusion:** RTW after COVID-19 can require systematic support for several months as well as be initiated earlier in the rehabilitation process. Further research in the area is needed.

Asaba et al. 2022.

PLoS One, vol. 17, no. 12.

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Keywords: COVID-19; return to work; expectations; Stockholm; work-ability.

Evidence Level: 5B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0279000>

Presenteeism and Absenteeism

This month we explore absenteeism issues related to occupational types, including the trade and retail industries and occupational stress. One study explores the relationship between depressive symptoms and presenteeism during the Covid-19 pandemic.

Utilizing a nordic crosswalk for occupational coding in an analysis on occupation-specific prolonged sickness absence among 7 million employees in Denmark, Finland, Norway and Sweden

Background: We identified occupations with a high incidence of prolonged sickness absence (SA) in Nordic employees and explored similarities and differences between the countries. **Methods:** Utilizing data from national registers on 25-59-year-old wage-earners from Denmark, Finland, Norway and Sweden, we estimated the gender- and occupation-specific age-adjusted cumulative incidence of SA due to any cause, musculoskeletal diseases and mental disorders. To increase the comparability of occupations between the countries, we developed a Nordic crosswalk for occupational codes. We ranked occupational groups with the incidence of SA being statistically significantly higher than the population average of the country in question and calculated excess fractions with the employee population being the reference group. **Results:** We observed considerable occupational differences in SA within and between the countries. Few

occupational groups had a high incidence in all countries, particularly for mental disorders among men. In each country, manual occupations typically had a high incidence of SA due to any cause and musculoskeletal diseases, while service occupations had a high incidence due to mental disorders.

Conclusion: Preventive measures targeted at specific occupational groups have a high potential to reduce work disability, especially due to musculoskeletal diseases. Particularly groups with excess SA in all Nordic countries could be at focus.

Solovieva et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 23.

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Keywords: Excess fraction; mental disorders; musculoskeletal diseases; register study; work disability.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/23/15674>

Sick leave due to stress, what are the costs for Dutch employers?

Background: Stress-related illnesses are prevalent in Western society, causing sick leave and putting a heavy economic burden on employers and society. For Dutch employers it is particularly relevant to have insight into the costs of absenteeism due to stress-related illness, as they are legally obligated to continue payment of wages. Therefore, this study assessed the duration and costs of an episode of sick leave due to stress-related illness for Dutch employers. **Methods:** Data on sick leave due to various stress-related illnesses were obtained from a nationwide occupational health service database. Stress-related illnesses included tension complaints, burn-out, overexertion, and other reactions to stress. The duration per sick leave episode was estimated in working days, after which the average cost per sick leave period was estimated using age- and gender-specific price weights. **Results:** During the study period, 16,676 employees took 17,338 episodes of sick leave due to stress-related illness. On average, one episode of sick leave lasted 101 working days, for which the costs for the employer were on average €19,151 per worker. Women were responsible for most episodes of sick leave and were on average 37 days more absent per episode compared to men. Moreover, of all kinds of stress-related illnesses, burn-out had the longest duration of sick leave with 313 calendar days and 163 working days, resulting in an average cost of €30,770.

Conclusions: Sick leave due to stress-related illness places a heavy burden on employers and thus society. Further research should be conducted on how to reduce this burden.

Wolvetang et al. 2022.

Journal of Occupational Rehabilitation, vol. 32, no. 4.

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Keywords: Burn-out; cost of illness; employer health costs; sick days; sick leave.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007/s10926-022-10042-x>

Sickness absence and disability pension in the trade and retail industry: A prospective cohort study of 192,000 white-collar workers in Sweden

Objective: This study aimed to investigate future sickness absence (SA) and disability pension (DP) among privately employed white-collar employees in the trade and retail industry. **Methods:** A prospective population-based cohort study of all 192,077 such workers in Sweden in 2012, using linked microdata from nationwide registers, was conducted. Descriptive statistics of annual SA/DP during 2010 to 2016 and logistic regression for SA/DP in 2016 were used. **Results:** Women had more mean SA/DP net days/person; however, there were no sex differences in the mean number of net days/person with SA/DP. The mean number of net days/person increased, especially with mental diagnoses. Sickness absence in 2012 was the strongest factor associated with SA/DP in 2016 (women: odds ratio, 3.28; 95% confidence interval, 3.09-3.47; men: odds ratio, 4.10; 95% confidence interval, 3.76-4.48). Work-related factors were weakly associated with future SA/DP. **Conclusions:** The number of SA/DP net days per person increased, especially SA/DP days due to mental diagnoses.

Farrants et al. 2022.

Journal of Occupational and Environmental Medicine, vol. 64, no. 11.

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

Keywords: Sickness; absence; disability pension; retail industry; trade; white-collar; Sweden.

Evidence Level: 4B

Link:

https://journals.lww.com/joem/Fulltext/2022/11000/Sickness_Absence_and_Disability_Pension_in_the.3.aspx

Association between sickness presenteeism and depressive symptoms in Korean workers during the COVID-19 pandemic: A cross-sectional study

Background: During the COVID-19 pandemic, Korean workers have reported various types of sickness presenteeism (SP: continuing to attend work during illness). Understanding SP through mental health perspectives will help to make practical strategy for better working conditions. We examined the association between SP and depression among Korean workers during the COVID-19 pandemic in relation with the socioeconomic and lifestyle factors. **Methods:** Data from the 2020 Korean Community Health Survey were used as a representative nationwide sample dataset. We surveyed the experience of depression in the last two weeks from individuals who worked more than a week recently. We investigated the associations between SP and depressive symptoms. Depressive symptoms were scored using the Patient Health Questionnaire-9 (PHQ-9). Logistic regression analysis was performed to examine the significance of the associations. **Results:** Analysis of the data obtained from 84,514 participants revealed that 1700 (2.2 %) participants reported experiencing depressive symptoms in 2020. Employees with SP showed higher association with depressive symptoms than employers or self-employed individuals (OR = 2.18, 95 % CI: 1.85, 2.56 among employees vs. OR = 1.76, 95 % CI: 1.29, 2.40 among employers or self-employed individuals). **Conclusion:** SP has become more prominent during the COVID-19 pandemic. A protective strategy against SP among vulnerable workers is necessary for a healthier and safer society. Lee et al. 2022.

Journal of Affective Disorders, vol. 319.

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

Keywords: COVID-19; depressive symptoms; sick leave; sickness presenteeism; worker.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0165032722010357?via%3Dihub>

Working Hours

This month we explore work hour issues related to work-related fatigue and occupational risks, and the physiological effects of associated short sleep durations in healthy middle-aged men.

Work-related fatigue: A hazard for workers experiencing disproportionate occupational risks

Background: Long working hours and fatigue are significant occupational safety and health (OSH) hazards for working populations who experience disproportionate risks of injury and illness. These groups include young or new workers, aging workers, contingent and temporary workers, immigrant and nonnative workers, female workers, minority workers, workers with low levels of education and lower socioeconomic status, and small business employees. An increasing focus on newer determinants of health in the workplace, such as health equity and work-life conflict, in worker populations at greater risk for injury or illness, provides an opportunity for researchers to address the causes and consequences of work-related fatigue in high-risk populations. **Methods:** Articles in the OSH literature that addressed fatigue in higher-risk workers were identified by the authors or recommended by subject matter experts in workplace fatigue as part of a Working Hours, Sleep and Fatigue Forum. Additional articles were identified by searching for a combination of specific at-risk worker group titles (e.g., female workers, temporary workers) with fatigue or working hours. **Results:** There remains a paucity of research specifically addressing working hours and fatigue among disproportionately at-risk worker populations. The literature reviewed in

this paper suggests that several of these populations are at increased risk of fatigue due to multiple factors, such as irregular shifts, lack of access to fatigue management resources, and socioeconomic barriers.

Conclusions: More research is needed to identify solutions to address fatigue in working populations who may be at greater risk for its consequences by virtue of adverse socioeconomic and related factors.

Interventions to address work-related fatigue in specific at-risk worker groups should also consider the multiple and overlapping categories of risk within these populations.

Cunningham et al. 2022.

American Journal of Industrial Medicine, vol. 65, no. 11.

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Keywords: At-risk populations; fatigue; health equity; occupational safety and health; working hours.

Evidence Level: 6B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9325913/>

Effects of short sleep duration on hemodynamic and psychological responses under long working hours in healthy middle-aged men: An experimental study

Background and Methods: This study examined the effects of short sleep duration (SSD) on hemodynamic and psychological responses under long working hours (LWH) in a laboratory experiment. Sixteen subjects participated in a crossover design experiment consisting of two conditions: normal (7-hours) sleep and short (5-hours) sleep. In each condition, participants engaged in simulated LWH (13 hours a day), comprising 12 task sessions. Hemodynamic and psychological responses were measured in each session.

Results: Results showed that there were significant main effects of condition and session but no interaction for hemodynamic and psychological responses. Systolic blood pressure and fatigue were higher in the later sessions than the first one. Stroke volume, sleepiness, fatigue, and stress were higher in the 5-hour than the 7-hour sleep condition (all $p < 0.05$). **Conclusions:** These results suggest that although the combined effect of LWH and SSD was not significant, both LWH and SSD caused a hemodynamic and psychological burden.

Ikeda et al. 2022.

Industrial Health, vol. 60, no. 6.

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

Keywords: Cardiovascular health; mental health; overtime work; sleep restriction; working long hours.

Evidence Level: 3B

Link: https://www.jstage.jst.go.jp/article/indhealth/60/6/60_2021-0184/article

Building Employer Capability

Organisational Issues

This month we explore the effect of organisational collectivity and individual perception on safety performance of construction workers, and the effect of unpredictability of work in the prison's health system.

Improving the safety performance of construction workers through individual perception and organizational collectivity: A contrastive research between Mainland China and Hong Kong

Background: Considering the increasing number in construction accidents in Mainland China and Hong Kong, research on improving the safety performance of construction personnel is important, given the essential role it plays in occupational safety development in industries. **Methods:** The present study aimed to assess the improving channels of safety performance through individual perception and organizational collectivity in a quantitative way by integrating safety motivation as the transition role between individual and organizational levels. The questionnaire survey was conducted with 180 participants from Hong Kong and 197 responses from Mainland China. Structural equation modeling was applied to investigate and compare the direct, indirect, and mediating effects among different safety constructs. **Results:** This study is

unique, as it firstly integrates the theories of personal cognition and group interaction together with the mechanism of safety performance development. **Conclusion:** Such integration can increase the effectiveness of reducing the unsafety of construction workers at both individual and organizational levels, thereby reducing the numbers of construction accidents, and promoting healthy occupational development of the personnel.

Meng et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 23.

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Keywords: Comparative study; individual perception; organizational collectivity; safety performance.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/21/14599>

Work precarization in the prison system's primary health care

Background and Methods: This paper analyzes how work precariousness is expressed in the daily life of a Prison Primary Care Team in the Brazilian South. This qualitative, exploratory research applied the focus group technique and relied on the participation of ten health professionals. **Results:** The results evidenced a substandard occupational relationship, objectified by the workforce's outsourcing, the poor proper management of work processes, and little provision for specific professional qualifications and actions consistent with the occupational reality.

Schultz et al. 2022.

Ciencia Saude Coletiva, vol. 27, no. 12.

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Keywords: Prison; primary health care.

Evidence Level: 5B

Link: <https://www.scielo.br/j/csc/a/Fy6xvBTNZ3Gq6x3ZqjDCjRN/?lang=en>

Shift Work

This month we explore shift work issues including the relationship between excessive daytime sleepiness and body mass index, waist circumference, and lipid profile, the relationship with the incidence of dementia, presence of cardiovascular risk factors, all-cause mortality and the effect of holidays on sleep length in shift work disorder.

Correlating excessive daytime sleepiness with body mass index, waist circumference, and lipid profile in shift workers

Background: To determine the correlation between excessive daytime sleepiness and body mass index, waist circumference, and lipid profile of shift workers at Dr. Moewardi General Hospital, Surakarta.

Methods: This cross-sectional study was carried out at the Dr. Moewardi Hospital, Surakarta, Indonesia between October 2018 and July 2019. The participants were recruited using purposive sampling. Multiple linear regression with backward elimination was performed to identify the odds ratios between Epworth Sleepiness Scale scores, anthropometric measurements, and lipid profiles. A p -value of <0.05 indicated statistically significant correlations. **Results:** Of the 150 included participants, 127 (84.67%) were women. Statistical analyses revealed odds ratios of 2.38 (95% confidence interval [CI] 1.14-4.89, $p=0.000$) for daytime sleepiness severity and total cholesterol levels, and 2.45 (95% CI 1.36-4.98, $p=0.020$) for daytime sleepiness severity and high-density lipoprotein levels. **Conclusion:** Increased total cholesterol and decreased high-density lipoprotein levels increase the risk of excessive daytime sleepiness in shift workers.

Mirawati et al. 2022.

Saudi Medical Journal, vol. 43, no. 11.

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Keywords: Epworth Sleepiness Scale; body mass index; excessive daytime sleepiness; lipid profile; waist circumference.

Evidence Level: 4B

Link: <https://smj.org.sa/content/smj/43/11/1234.full.pdf>

Do holidays change subjective sleep length or sleep debt in shift work disorder?

Background: In shift work disorder (SWD), disturbed sleep acutely impairs employees' recovery, but little attention has been paid to sleep during longer recovery periods. **Methods:** We examined how holidays affect self-estimated sleep length, sleep debt, and recovery in cases of SWD. Twenty-one shift workers with questionnaire-based SWD and nine reference cases without SWD symptoms completed a questionnaire on recovery and sleep need. They also reported sleep length on two separate occasions: during a work period and after ≥ 2 weeks of holidays. Sleep debt was calculated by subtracting sleep length from sleep need. We used parametric tests to compare the groups and the periods. **Results:** The groups reported shorter sleep on workdays than during holidays (median difference: SWD group 1.7 h, $p < 0.001$; reference group 1.5 h; $p < 0.05$). The SWD group's self-estimated sleep during holidays increased less above the sleep need (median 0.0 h) than the reference group's sleep (1.0 h, $p < 0.05$). In addition, the SWD group reported good recovery from irregular working hours less often (14%) than the reference group (100%, $p < 0.001$). **Conclusion:** Although holidays were generally associated with longer sleep estimates than workdays, employees with SWD experienced consistently less efficient recovery than those without SWD.

Vanttola et al. 2022.

Industrial Health, vol. 60, no. 6.

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Keywords: Circadian rhythm sleep-wake disorder; day off; excessive sleepiness; free day; insomnia; non-workday; shift work sleep disorder; vacation.

Evidence Level: 5B

Link: https://www.jstage.jst.go.jp/article/indhealth/60/6/60_2020-0215/_article

Association of shift work with incident dementia: A community-based cohort study

Background: Some observational studies had found that shift work would increase risks of metabolic disorders, cancers, and cardiovascular diseases, but there was no homogeneous evidence of such an association between shift work and incident dementia. This study aimed to investigate whether shift work would increase the risk of dementia in a general population. **Methods:** One hundred seventy thousand seven hundred twenty-two employed participants without cognitive impairment or dementia at baseline recruited between 2006 and 2010 were selected from the UK Biobank cohort study. Follow-up occurred through June 2021. Shift work status at baseline was self-reported by participants and they were categorized as non-shift workers or shift workers. Among shift workers, participants were further categorized as night shift workers or shift but non-night shift workers. The primary outcome was all-cause dementia in a time-to-event analysis, and the secondary outcomes were subtypes of dementia, including Alzheimer's disease, vascular dementia, and other types of dementia. **Results:** In total, 716 dementia cases were observed among 170,722 participants over a median follow-up period of 12.4 years. Shift workers had an increased risk of all-cause dementia as compared with non-shift workers after multivariable adjustment (hazard ratio [HR], 1.30, 95% confidence interval [CI], 1.08-1.58); however, among shift workers, night shift work was not associated with the risk of dementia (HR, 1.04, 95% CI, 0.73-1.47). We found no significant interaction between shift work and genetic predisposition to dementia on the primary outcome (P for interaction = 0.77). **Conclusions:** Shift work at baseline was associated with an increased risk of all-cause dementia. Among shift workers, there was no significant association between night shift work and the risk of dementia. The increased incidence of dementia in shift workers did not differ between participants in different genetic risk strata for dementia.

Liao et al. 2022.

BMC Medicine, vol. 20, no. 1.

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Keywords: Alzheimer's disease; Dementia; shift work; UK Biobank; Vascular dementia.

Evidence Level: 4B

Link: <https://bmcmmedicine.biomedcentral.com/articles/10.1186/s12916-022-02667-9>

What do we know about the effect of night-shift work on cardiovascular risk factors? An umbrella review

Background: To evaluate the existing evidence on the effect of night-shift work and its subtypes (permanent and rotating) on cardiovascular risk factors: diabetes, lipid disorders, being overweight, hypertension, smoking habits, sedentariness, and occupational psychosocial stressors. **Method:** A Web of Sciences and Cochrane review library search was conducted to identify systematic reviews with or without meta-analysis dealing with the quantification of the link between night-shift work and the studied cardiovascular risk factors in working populations. We used the AMSTAR 2 to evaluate the quality of each review. The main results of the included systematic reviews were compiled in a summary structured around the different cardiovascular risk factors. **Results:** After selection, 33 systematic reviews were included: nine for diabetes, four for lipid disorders, nine for being overweight, four for hypertension, two for smoking habits, three for occupational psychosocial stressors and two for sedentariness. The results confirmed an excess risk of diabetes of about 10% regardless of the type of night work. A stated excess risk of being overweight at around 25% was also highlighted for shift workers overall, which could reach 38% among night-shift workers. An increased risk of obesity, estimated at 5% for night-shift workers and at 18% for rotating shift workers, was observed. An excess risk of hypertension was estimated at around 30% when considering the broad definition of shift work and when night periods were included in rotating shifts. The literature provided inconsistent results for the link between lipid disorders and night-shift work. Shift workers appeared to be more likely to smoke. The link between shift work and occupational psychosocial stressors was scarcely explored in the available studies. Sedentariness was scarcely considered in systematic reviews, which prevents any firm conclusions. **Conclusion:** The consequences of night work in terms of diabetes, being overweight/obesity and hypertension are established. Monitoring of these cardiovascular risk factors for these night-shift workers could be implemented by practitioners. In contrast, the links with lipid disorders, sedentariness, smoking habits, and occupational psychosocial stressors warrant further investigation.

Boini et al. 2022.

Frontiers in Public Health, vol. 23, no. 10.

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

Keywords: Diabetes and hypertension; lipid disorders; night-shift work; overweight; psychosocial stressors at work; sedentariness; shift work; smoking.

Evidence Level: 1A

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1034195/full>

Exposure to environmental occupational constraints and all-cause mortality: Results for men and women from a 20-year follow-up prospective cohort, the VISAT study. Be aware of shift-night workers!

Background: To determine the predictive value of the large panel of occupational constraints (OC) on all-cause mortality with a 20-year follow-up, in general population of workers. **Methods:** In VISAT prospective cohort study, 3,138 workers (1,605 men; 1,533 women) were recruited during the periodic work health visits conducted by occupational physicians. OC (physical, organizational, psychological and employment categories) were collected through self-questionnaires. Exposure durations of each OC were divided by tertile distribution. Cox-regression models were performed to analyze the associations between all-cause mortality and each OC first separately and simultaneously in a single model. **Results:** The mortality rates were higher among exposed participants to most of OC compared to those unexposed. Being exposed and longer exposure increased the risks of all-cause mortality for exposures to carrying heavy loads, loud noise, working more than 48 h/week, starting its first job before 18 years old although these risks became non-significant after adjustments for cardiovascular risk factors. Shift work and night work confirmed a high risk of mortality whatever the adjustments and notably when the other occupational exposures were taking into account, with, respectively: HR: 1.38 (1.01-1.91) and 1.44 (1.06-1.95). After adjustments being exposed more than 13 years to a work requiring getting-up before 5:00 a.m. and more than 16 years in rotating shift work significantly increased the risk of mortality by one and a half. **Conclusion:** The links between each OC and all-cause mortality and the role of individual factors were stressed. For night-shift workers, it is urgent to implement preventive strategies at the workplace.

Esquirol et al. 2022.

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

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Keywords: Mortality; occupational exposed workers; occupational physical activity; organizational factors; psychological factor; shift work; work environment.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1014517/full>

Management and Leadership

This month we explore the effect of leadership on employee well-being and employee job crafting.

The impact of leadership on employee well-being: on-site compared to working from home

Background: The Covid-19 pandemic has brought significant changes to the way people work and there are several reasons to believe that working from home will become more common in the future. Yet more knowledge is needed on whether the effectiveness of leadership differs if the work is performed remotely compared to on-site work. **Purpose:** The aim of this study is to examine the place of work as a moderator for the effectiveness of leadership on employee well-being. **Method:** A survey was answered by 364 white-collar workers, employed by a larger Swedish municipality, who because of the covid-19-pandemic were offered to work from home. **Results:** The employees working in their regular office perceived having more sufficient work equipment. No other differences were found in the investigated variables. Supportive leadership was associated with all investigated well-being variables in the hypothesised directions. Place of work did not moderate the relationship between Support leadership and the investigated well-being outcomes (Job satisfaction, Stress, General well-being). **Conclusion:** This study shows that there are few differences between employees working from home or working on-site during the Covid-19 pandemic. The supportive leadership of the closest manager seem to be important for well-being regardless of the worksite.

Lundqvist et al. 2022.

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

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Keywords: Health; manager; moderation; subordinate; supervisor; telework.

Evidence Level: 5B

Link: <https://bmcpublikealth.biomedcentral.com/articles/10.1186/s189-022-14612-9>

<https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-022-14612-9>

Leader instigated task conflict and its effects on employee job crafting; The mediating role of employee attributions

Background: The role of leaders in conflict management remains the favorite area of researchers. This study aims to introduce a unique role of leaders in conflict named as leader instigated task conflict. We proposed that leader instigated task conflict promotes job crafting behaviors of employees by considering attributions regarding leader instigated conflict as mechanism for this relationship. **Methods:** Data were collected from 247 employees working in teams in marketing departments of different organizations across Pakistan. Data analyses was conducted through multilevel structural equation modeling. **Results:** Findings revealed that leader instigated task conflict is positively related to promotion-focused job crafting and negatively related to prevention-focused job crafting via the mediating role of constructive conflict instigation attribution and destructive conflict instigation attribution respectively. **Conclusions:** The current study contributes to the literature on conflict by suggesting that leaders can be a source of task based conflict to achieve its positive outcomes. However, employee attributions play a vital role in achieving the positive outcomes of leader instigated task conflict, hence leaders must be careful about shaping constructive attributions of followers regarding their conflict instigation behavior in order to promote constructive behavioral responses of employees.

Zakariya et al. 2022.

PLoS One, vol. 17, no. 12.

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Keywords: Conflict; employee; mediating; leadership.

Evidence Level: 5B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0278329>

Work Ability

This month we explore the relationship between work ability and increased mortality risk, psychological variables, physical workload and resuming work following advanced cancer.

Association of short poor work ability measure with increased mortality risk: A prospective multicohort study

Background: To examine whether a single-item measure of self-rated work ability predicts all-cause mortality in three large population-based samples collected in 1978-1980, 2000 and 2017. **Setting:** A representative sample of the population of Finland. **Participants:** The study population comprised 17 178 participants aged 18 to 65 from the population-based Mini-Finland, Health 2000 and FinHealth 2017 cohort studies, pooled together. In all cohorts, self-rated work ability was assessed at baseline (1978-80, 2000-2001 and 2017) using three response alternatives: completely fit (good work ability), partially disabled (limited work ability) and completely disabled (poor work ability) for work. **Primary and secondary outcome measures:** All-cause mortality from national registers. Cox proportional hazards models were adjusted for socioeconomic characteristics, lifestyle factors, self-rated health and mental health problems. **Results:** Of the participants, 2219 (13%) were classified as having limited and 991 (5.8%) poor work ability and 246 individuals died during the 4 year follow-up. The age- and sex-adjusted HR for mortality risk was 7.20 (95% CI 5.15 to 10.08) for participants with poor vs good work ability and 3.22 (95% CI 2.30 to 4.43) for participants with limited vs good work ability. The excess risk associated with poor work ability was seen in both genders, all age groups, across different educational levels, self-rated health levels and in those with and without mental health problems. The associations were robust to further adjustment for education, health behaviours, self-rated health and mental health problems. In the multivariable analyses, the HR for mortality among those with poor vs good work ability was 5.75 (95% CI 3.59 to 9.20). **Conclusions:** One-item poor self-rated work ability -measure is a strong predictor of increased risk of all-cause mortality and may be a useful survey-measure in predicting severe health outcomes in community-based surveys.

Elovainio et al. 2022.

BMJ Open, vol. 12, no. 12.

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Keywords: Epidemiology; occupational & industrial medicine; public health.

Evidence Level: 4B

Link: <https://bmjopen.bmj.com/content/12/12/e065672.long>

Work ability psychological variables in workers of the pharmaceutical industry

Background: Internal Marketing is also positively related to job satisfaction. However, there is a gap in the literature on the influence of Internal Marketing (IM) on Work Ability (WA) in the workers of the Pharmaceutical Industry. The aim of our study is to assess this interaction, demonstrating evidence that the Internal Marketing's five dimensions affect, positively or negatively the WA in workers of the Pharmaceutical Industry. **Methods:** We collected data (N = 150) from workers of Pharmaceutical Industry mean age of 37.86 years (SD=10.788), through internal advertisements at the university posted on information dissemination panels, e-mail databases and through the social LinkedIn network. The Statistical Package R-Studio program was used for statistical analysis. **Results:** We verified that the group with Poor WA had a lower average value of Perceived IM than the group with Good WA. **Conclusions:** This study seems to indicate that promoting IM protocols helps increase WA among pharmaceutical industry workers.

De Almeida et al. 2022.

Acta Biomedica, vol. 93, no. 6.

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Keywords: Work ability; pharmaceutical industry.

Evidence Level: 5B

Link: <https://mattioli1885journals.com/index.php/actabiomedica/article/view/13447>

Does a change to an occupation with a lower physical workload reduce the risk of disability pension? A cohort study of employed men and women in Sweden

Background: This study aimed to examine if a change to an occupation with a lower physical workload reduces the risk of all-cause disability pension (DP) and musculoskeletal DP (MDP). **Methods:** This study used a sample of 359 453 workers who were registered as living in Sweden in 2005 and aged 44-63 in 2010. Exposure to physical workload was measured from 2005-2010 by linking a mean value from a job exposure matrix to occupational codes. The mean values were then split into quartiles. All included participants had high exposure to physical workload (top quartile) from 2005-2007. A change in physical workload was measured as a change to (i) any lower quartile or (ii) medium-high or low quartiles from 2008-2010. DP cases were taken from register data from 2011-2016. Crude and multivariate Cox proportional-hazards regression models estimated sex-specific hazard ratios (HR) with 95% confidence intervals (CI).

Results: Compared to workers with consistently high physical workload, a change to any lower quartile of physical workload was associated with a decreased risk of all-cause DP (men: HR 0.59, 95% CI 0.46-0.77, women: HR 0.63, 95% CI 0.52-0.76) and MDP (men: HR 0.52, 95% CI 0.31-0.89, women: HR 0.61, 95% CI 0.44-0.84). Older workers had the largest decreased risk for MDP. Generally, changing from high to low physical workload was associated with a greater reduced risk of DP than changing from high to medium-high physical workload. **Conclusions:** Changing to an occupation with lower exposure to physical workload was associated with reduced risks of DP and MDP among both sexes.

Badarin et al. 2022.

Scandinavian Journal of Work, Environment and Health, vol. 48, no. 8.

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Keywords: Occupation; physical workload; disability pension; Sweden.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4053>

Experiences and perspectives of patients with advanced cancer regarding work resumption and work retention: A qualitative interview study

Background: Being able to work improves the quality of life of patients with cancer. Much is known about the return to work process of cancer survivors. Yet, studies focusing on the experiences of patients with advanced cancer who want to return to work or stay employed are scarce. Therefore, we aimed to explore the perceptions of patients with advanced cancer regarding work resumption and work retention and the barriers and facilitators they may experience. **Methods:** Semi-structured interviews were conducted.

Patients were included if they: (1) were diagnosed with advanced cancer, (2) worked in paid employment at time of diagnosis, and (3) were currently back in paid employment or had the intention to return to paid employment. Participants were recruited through clinicians and patient organizations. Interviews were transcribed and thematically analysed using ATLAS.ti. **Results:** Fifteen patients (87% female, mean age 52 (SD 4; range 41-64)) were individually interviewed. Four main themes emerged from the data: (1) holding on to normalcy, (2) high understanding and divergent expectations, (3) social discomfort calls for patient-initiated alignment, and (4) laws and regulations require patient empowerment. **Conclusion:** Paid employment can contribute to the quality of life of patients with advanced cancer. The findings of this study might correct erroneous preconceptions about the work ability and work intention of patients with advanced cancer. Tools already developed for employers to support reintegration of patients with cancer should be further explored and translated to patients with advanced cancer.

Beerda et al. 2022.

Supportive Care in Cancer, vol. 30, no. 12.

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Keywords: Advanced cancer; metastatic; palliative care; qualitative research; return to work.

Evidence Level: 5A

Link: <https://link.springer.com/article/10.1007/s00520-022-07436-1>

Adapting to the Future of Work

Ageing Workforce

This month we explore issues related to older workers and unpredictable work schedules, the relationship between work, health and job performance, their mental health following Covid-19 and accommodating their reduced work capacity to sustain productivity and well-being.

Older workers with unpredictable schedules: Implications for well-being and job retention

Background and objectives: A substantial portion of the service sector workforce is middle-aged or older, but little is known about the scheduling conditions of these older workers. This study describes the quality of work schedules in the service sector by age and tests associations of unpredictable schedules with well-being and job retention among workers ages 50-80. **Research design and methods:** The Shift Project collected survey data on detailed working conditions and health from 121,408 service sector workers, recruited in 2017-2020 using social media advertisements. Survey weights aligned sample demographics with the American Community Survey, and multiple imputation addressed missingness. Ordinary least squares regression models were used to examine associations between age and schedule stability, and ordinary least squares, ordinal logit, and logit regression models tested associations between schedule stability and well-being and job retention outcomes for older workers. **Results:** Scheduling conditions were more stable and predictable for older compared to younger workers; however, more than 80% of workers ages 50-80 experienced one or more types of routine schedule instability. Among workers ages 50-80, unpredictable schedules were associated with psychological distress, poor-quality sleep, work-family conflict, economic insecurity, job dissatisfaction, and intentions to look for a new job. Canceled and back-to-back closing and opening ("clopening") shifts were most strongly associated with negative outcomes. **Discussion and implications:** Policies aimed at improving scheduling conditions hold promise to benefit older service workers' well-being. As the population ages, improving work schedules in the years approaching retirement may be important to longer working lives.

Abrams et al. 2022.

The Gerontologist, vol. 62, no. 10.

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Keywords: Mental health; shifts; work; workforce issues; family conflict.

Evidence Level: 4B

Link: <https://academic.oup.com/gerontologist/article/62/10/1443/6588123?login=true>

The relationship between work, health and job performance for a sustainable working life: A case study on older manual employees in an Italian steel factory

Background: Supporting and retaining older workers has become a strategic management goal for companies, considering the ageing of the workforce and the prolongation of working lives. The relationship between health and work is especially crucial for older workers with manual tasks, considering the impact of long-standing health impairments in older age. Although different studies investigated the relationship between work ability and job performance, few studies have analysed the impact of workers' capability to balance between health and work demands, including managerial and organisational support (work-health balance). Considering health as a dynamic balance between work and health demands influenced by both individual and environmental factors, we assess the mediator role of work-health balance in the relation between work ability and job performance, both self-reported and assessed by the supervisor.

Methods: The study utilises data from a case study of 156 manual workers, who were 50 years old or older and employed in a steel company in Italy. Data were collected inside the company as an organisational initiative to support age diversity. **Results:** The findings show that work-health balance partially mediates the relationship between work ability and self-rated job performance, while it does not mediate the relationship with job performance as rated by the supervisor. Supervisor-rated job performance is positively associated with work ability, while it decreases with the increasing perceived incompatibility between work and health. **Conclusion:** A perceived balance between health and work is a strategic factor in increasing manual older workers' job performance. For older workers, not only the perceived capability to

work is important but also the organisational health climate and supervisor's support. More studies are needed to verify if managers overlook the importance of health climate and support, as strategic elements that can foster performance for older employees.

Previtali et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: Health; job performance; older workers; sustainability; work ability.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/19/21/14586>

Ageing workers' mental health during COVID-19: A multilevel observational study on the association with the work environment, perceived workplace safety and individual factors

Background: The stress and anxiety associated with the predisposition of ageing workers to severe COVID-19 illness, once occupationally infected, jeopardise their mental health. This study aimed to investigate the association between individual level, work environment exposure factors and perceived workplace safety with a decline in mental health of ageing workers from different industry sectors. **Design:** Observational study, prevalence assessment of survey added to longitudinal cohort data. **Setting:** The Survey of Health, Ageing and Retirement in Europe (SHARE) from 27 countries in Europe and Israel participating in the COVID-19 survey (summer 2020) and having prepandemic waves' SHARE data. **Participants:** Workers aged 50-70 (n=6449) who attended their workplaces at least partially after the pandemic broke out. **Primary outcome measure:** Perceived decline in mental health compared with preoutbreak status.

Results: Multilevel analyses demonstrated that 24.5% (95% CI 23.5% to 25.5%) of ageing workers in Europe experienced mental health decline associated with national-level self-reported COVID-19 burden.

Workplace safety perception was the strongest predictor, as each one-point increase in unsafe perception was associated with 60% of mental health decline (OR=1.6, 95% CI 1.47 to 1.74), explaining 30% of increased reported mental health symptoms of ageing workers. Safety perception mediates the mental health outcomes of the work environment, such as workplace contagion risk and work location. Female gender (OR=1.77, 95% CI 1.55 to 2.02), financial difficulties (OR=1.19, 95% CI 1.1 to 1.28), higher vulnerability index (comorbidities, age >60) (OR=1.11, 95% CI 1.05 to 1.18), pre-existing mental problems (OR=1.78, 95% CI 1.55 to 2.04) and increased national burden of COVID-19 (OR=1.01, 95% CI 1.0 to 1.02) were associated with declines in mental health, whereas exclusively working on-site was protective.

Conclusion: Vulnerable subgroups for mental health declines among ageing workers were revealed, which warrant their screening and employers' evaluation of workplace conditions of ageing workers to prevent mental health-related implications. Workplace interventions should aim to reduce work environment influences on infection risk and mental distress.

Rinsky-Halivni et al. 2022.

BMJ Open, vol. 12, no. 12.

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Keywords: COVID-19; mental health; occupational & industrial medicine; old age psychiatry; public health; social medicine.

Evidence Level: 4B

Link: <https://bmjopen.bmj.com/content/12/12/e064590.long>

Aging workforce with reduced work capacity: From organizational challenges to successful accommodations sustaining productivity and well-being

Background: Israel is experiencing accelerated workforce aging and increasing retirement age that began in the last two decades. Aging workers suffer from increased illness and impairment rates, challenging employing organizations with reduced work capacity. Occupational health practitioners often assist employers in accommodating these challenges. However, insufficient evidence on prognostic factors, organizational practices, and age management tools hamper successful accommodation. Research on the organizational perceptions of aging workers is also limited. **Methods:** Our study aims to (1) identify the domains in which the aging workforce challenges Israeli organizations according to a multi-level theoretical model we developed, and (2) assess the practices employed by organizations to address the declines in

work capacity from employers' and workers' perspectives. Our qualitative study employed semi-structured interviews of 26 employers and workers' representatives from eight Israeli organizations sampled by maximum variation according to organizational characteristics. Thematic framework analysis of organizational perceptions on challenges, facilitators, and practices in use, via aging workers' cases was utilized. **Results:** We identified organizational challenges on five levels: individual worker, work environment, interpersonal team relationships, organization, and community relationships, stemming from the aging workers' reduced capacity to meet job demands and conditions. Time adjustments, work environment changes, and job task changes were common accommodations practices used by the organizations. Successful accommodations from the employers' perspective preserved workers' and teams' productivity, and from the workers' perspective, those that lowered demand and improved job control without damaging earnings or job status. **Conclusion:** Taken together, organizations from all economic sectors should prepare for the increasing need to accommodate work conditions for aging workers with limitations to preserve their health and safety. Balancing employers' and workers' perspectives when accommodating workers with reduced work capacity is imperative to promote healthy aging at the workplace. Government intervention is advised to encourage continued job participation to reduce employment termination.

Rinsky-Halivni et al. 2022.

Social Science and Medicine, vol. 312.

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

Keywords: Accommodations; aging workers; Israel; occupational health; organization; qualitative; work capacity; work environment.

Evidence Level: 5B

Link: <https://www.sciencedirect.com/science/article/pii/S027795362200675X?via%3Dihub>

Guiding and Supporting Mental Health and Wellbeing

Mental Health

This month we explore the issues of suicide in Australian healthcare, construction, and transport industry workers. We also explore mental health issues of employed family caregivers, information technology workers, field police patrol officers and amongst employees following Covid-19. Other studies explore 'influence at work' as a factor for mental health, the effect of employment programs on common mental disorders and managers' understanding of the capacity to work in employees with common mental disorders.

Thoughts of suicide or self-harm among Australian healthcare workers during the COVID-19 pandemic

Objective: To identify the prevalence and predictors of (a) thoughts of suicide or self-harm among healthcare workers during the COVID-19 pandemic and (b) help-seeking among those healthcare workers with thoughts of suicide or self-harm. **Method:** Analysis of data from the Australian COVID-19 Frontline Healthcare Workers Study, an online survey of healthcare workers conducted during the second wave of the COVID-19 pandemic in Australia. Outcomes of interest were thoughts of suicide or self-harm as measured through the Patient Health Questionnaire for depression and help-seeking behaviours.

Results: Overall, 819 (10.5%) of 7795 healthcare workers reported thoughts of suicide or self-harm over a 2-week period. Healthcare workers with these thoughts experienced higher rates of depression, anxiety, post-traumatic stress disorder and burnout than their peers. In multivariable models, the odds of suicide or self-harm thoughts were higher among workers who had friends or family infected with COVID-19 (odds ratio = 1.24, 95% confidence interval = [1.06, 1.47]), were living alone (odds ratio = 1.32, 95% confidence interval = [1.06, 1.64]), younger (≤ 30 years cf. > 50 years; odds ratio = 1.70, 95% confidence interval = 1.36-2.13), male (odds ratio = 1.81, 95% confidence interval = [1.49, 2.20]), had increased alcohol use (odds ratio = 1.58, 95% confidence interval = [1.35, 1.86]), poor physical health (odds ratio = 1.62, 95% confidence interval = [1.36, 1.92]), increased income worries (odds ratio = 1.81, 95% confidence interval = [1.54, 2.12]) or prior mental illness (odds ratio = 3.27, 95% confidence interval = [2.80, 3.82]). Having dependent

children was protective (odds ratio = 0.75, 95% confidence interval = [0.61, 0.92]). Fewer than half (388/819) of the healthcare workers who reported thoughts of suicide or self-harm sought professional support. Healthcare workers with thoughts of suicide or self-harm were more likely to seek support if they were younger (≤ 30 years cf. >50 years; odds ratio = 1.78, 95% confidence interval = [1.13, 2.82]) or had prior mental health concerns (odds ratio = 4.47, 95% confidence interval = [3.25, 6.14]). **Conclusion:** One in 10 Australian healthcare workers reported thoughts of suicide or self-harm during the pandemic, with certain groups being more vulnerable. Most healthcare workers with thoughts of suicide or self-harm did not seek professional help. Strong and sustained action to protect the safety of healthcare workers, and provide meaningful support, is urgently needed.

Bismark et al. 2022.

The Australian and New Zealand Journal of Psychiatry, vol. 56, no. 12.

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Keywords: COVID-19; suicide; health practitioners; patient safety; self-harm.

Evidence Level: 4A

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9679314/>

Suicide trends among Australian construction workers during years 2001-2019

Background: In many Western countries, including Australia, construction workers have been identified as being at elevated risk of suicide compared to other workers. A variety of suicide prevention initiatives have been implemented and expanded to reduce suicide in this occupational group; however, the net effect of these is unknown. **Methods:** Using 19 years of national suicide data, this study examined the suicide mortality of Australian male construction workers relative to all other working males, and compared suicide rates over time between the two groups. Age-standardized suicide rates were calculated for construction workers and those employed in other occupations. 2001-2019 trends in age-standardized rates of suicide mortality were analyzed by joinpoint regression analysis. The annual average percentage change (AAPC) measure was calculated for both groups to quantify change over time within each group, complemented by a pair-wise AAPC comparison of changes in trends between the two groups over the 2001-2019 period.

Results: Australian male construction workers' overall age-standardized suicide rate was 26.6 per 100,000 persons compared to 13.2 per 100,000 for male workers employed in other occupations (pooled over the entire 2001-2019 period). Over time, the suicide mortality rate declined in both construction workers and those working in other occupations; however, the decline in suicide mortality was greater in construction workers (AAPC: -3.0; 95%CI -4.0, -2.0) compared to other workers (AAPC: 1.5; 95%CI -2.1, -1.0). The AAPC pair-wise comparison showed a significant difference between the rate of decline among construction versus other workers over the 19-year study period (AAPC: -1.4; 95%CI 0.4, 2.5), confirming a rapid decline among construction versus other male workers. **Conclusions:** This study provides evidence of a decline in suicide rates among Australian construction workers over the last two decades. This decline may be attributable to the combined effects of population-wide, male-specific, and sector-specific suicide prevention efforts over this same period, suggesting that the continuation or expansion of such efforts may lead to further declines.

Maheen et al. 2022.

Scientific Reports, vol. 12, no. 1.

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Keywords: Suicide; Australia; construction; risk; suicide prevention.

Evidence Level: 4A

Link: <https://www.nature.com/articles/s41598-022-24575-x>

Suicide among transport industry workers: A systematic review and meta-analysis

Background: Working in high-stress and male-dominated occupations is associated with an elevated risk of suicide. The current study sought to conduct the first systematic literature review and meta-analysis aimed at determining suicide risk across the diverse, high pressure and male-dominated transport industry (commercial aviation, merchant seafaring, transit/driving) as compared to the general/employed population. **Methods:** Searches of PubMed/Medline, Scopus and PsycINFO databases were conducted without date restriction until March 2021. Studies were included if they were written in English, were peer

reviewed, and presented primary observational research data. Studies referring exclusively to suicidal ideation, suicide attempts, self-harm, and/or accidents were excluded. **Results:** Following deletion of duplicates and non-English titles, a total of 4201 titles/abstracts were screened and 92 full-texts were read against inclusion/exclusion criteria. The final included sample consisted of 23 articles (16 used for meta-analysis). Results from the meta-analysis indicated that transport workers had a significantly elevated risk for suicide as compared to the general/employed population. Results were consistent across sensitivity analyses, and there was some variation across subgroup analyses. **Conclusions:** Overall, we found transport workers had a significantly higher risk for suicide than the general/employed population, and this appeared to be driven by the association for those working in merchant seafaring/maritime occupations. The findings are discussed in relation to an identified need for the development, implementation, and evaluation of tailored workplace suicide prevention strategies for transport industry workers.

Mathieu et al. 2022.

Scandinavian Journal of Work, Environment and Health, vol. 48, no. 8.

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Keywords: Suicide; high-stress; risk factor; transport industry.

Evidence Level: 1A

Link: <https://www.sjweh.fi/article/4059>

Occupational stress and associated risk factors among 13,867 industrial workers in China

Background: Occupational stress is a critical global public health problem. We aimed to evaluate the prevalence of occupational stress among the workers in the electricity, heat, gas, water production and supply (EHGWPS), manufacturing, and transportation industries in Beijing, China. We explored the demographic differences in occupational stress status among workers in industrial enterprises. **Methods:** A cross-sectional study was conducted on 13,867 workers. The self-administered New Brief Job Stress Questionnaire was used to evaluate high occupational stress status, which includes four sub-dimensions (job stressors, stress response, social support, job stressors & social support). Multiple regression and logistic regression models were used to estimate the association between high occupational stress and the four occupational stress sub-dimensions with risk factors. **Results:** A total of 13,867 workers were included. The prevalence of high occupational stress was 3.3% in the EHGWPS industries, 10.3% in manufacturing, and 5.8% in transportation. The prevalence of high occupational stress was higher than in the other two categories ($p < 0.05$) in manufacturing industries. Logistic regression analysis showed that male workers with lower educational status, more job experience, and working in manufacturing were vulnerable to high occupational stress. Further analysis of the four occupational stress sub-dimensions showed that male workers, older adult workers, workers with lower educational levels, and longer working time were associated with higher scores in job stressors, stress response, social support, and job stress & social support (all $p < 0.05$). Moreover, divorced or widowed workers had higher occupational stress scores. **Conclusion:** Male workers with lower educational levels and longer working time may have an increased risk of occupational stress.

Yan et al. 2022.

Frontiers in Public Health, vol. 17.

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Keywords: Industrial enterprises; occupational stress; risk factors; the new brief job stress questionnaire; workers.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.945902/full>

Mental health of employed family caregivers in Canada: A gender-based analysis on the role of workplace support

Background: This study examines the effect of gender differences in mental health outcomes among employed family caregivers, focusing on the role of workplace support in balancing work and caregiving. **Methods:** Guided by the social role theory, this study analyzes nationally representative data from the 2012 Canada General Social Survey, with a sample of 2,426 participants. **Results:** Women experience worse mental health outcomes than men when they require employment adjustment to fulfill their caregiving

responsibilities. Workplace support could offset the negative effects of employment adjustment on mental health either directly or indirectly through family-work conflict, but gender difference is apparent in terms of the effect of workplace support. In general, women require more supportive workplace than men.

Conclusion: Further study of the effects of various types of workplace support on the mental health among women who are employed family caregivers, and on more tailored support, is recommended.

Li et al. 2022.

The International Journal of Aging and Human Development, vol. 95, no. 4.

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

Keywords: Family caregiving; psychological wellbeing; work-life balance.

Evidence Level: 4B

Link: <https://journals.sagepub.com/doi/10.1177/00914150221077948>

Comparing anxiety and depression in information technology workers with others in employment: A UK biobank cohort study

Background: Despite reported psychological hazards of information technology (IT) work, studies of diagnosed mental health conditions in IT workers are lacking. We investigated self-reported mental health outcomes and incident anxiety/depression in IT workers compared to others in employment in a large population-based cohort. **Methods:** We evaluated self-reported mental health outcomes in the UK Biobank cohort and incident diagnosed anxiety/depression through health record linkage. We used logistic regression and Cox models to compare the risks of prevalent and incident anxiety/depression among IT workers with all other employed participants. Furthermore, we compared outcomes within IT worker subgroups, and between these subgroups and other similar occupations within their major Standard Occupational Classification (SOC) group. **Results:** Of 112 399 participants analyzed, 4093 (3.6%) were IT workers. At baseline, IT workers had a reduced odds (OR = 0.66, 95%CI: 0.52-0.85) of anxiety/depression symptoms and were less likely (OR = 0.87, 95%CI: 0.83-0.91) to have ever attended their GP for anxiety/depression, compared to all other employed participants, after adjustment for confounders. The IT technician subgroup were more likely (OR = 1.22, 95%CI: 1.07-1.40) to have previously seen their GP or a psychiatrist (OR = 1.31, 95%CI: 1.06-1.62) for anxiety/depression than their SOC counterparts. IT workers had lower incident anxiety/depression (HR = 0.84, 95%CI 0.77-0.93) compared to all other employed participants, after adjustment for confounders. **Conclusions:** Our findings from this, the first longitudinal study of IT worker mental health, set the benchmark in our understanding of the mental health of this growing workforce and identification of high-risk groups. This will have important implications for targeting mental health workplace interventions.

Laloo et al. 2022.

Annals of Work Exposures and Health, vol. 66, no. 9.

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Keywords: UK Biobank; anxiety/depression; computer professionals; information technology workers; mental health.

Evidence Level: 4B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9664232/>

Prevalence and factors associated with post traumatic stress disorder among field police patrol officers serving in Kampala Metropolitan region

Background: Occupation groups like police officers and fire fighters are exposed to a number of traumatic events which put them at a risk of developing post-traumatic stress disorder (PTSD). Previous studies have found the prevalence of PTSD in police officers to vary between 7 and 19%. However, most of these studies have been undertaken in western setting with little research having been undertaken in sub-Saharan Africa including Uganda. **Objective:** To determine the prevalence and factors associated with post-traumatic stress disorder among field police patrol officers serving in Kampala Metropolitan Police (KMP) North Region. **Methods:** This was a cross sectional study that was conducted on 392 field police patrol officers serving in KMP North Region. Diagnosis of PTSD was undertaken using the Clinician Administered PTSD

Scale for DSM-5. In order to assess for psychiatric comorbidities, the study used the Mini International Neuropsychiatric Interview (M.I.N.I.) RESULTS: In this study, the prevalence of PTSD was 7.4%. An additional 62.5% had sub-threshold PTSD, which was defined as, the presence of at least one PTSD symptom but not meeting full criteria for PTSD diagnosis. The factors found to be significantly associated with PTSD were all related to the presence of psychiatric comorbidities, namely the presence of: a current major depressive episode (aOR = 4.7; 95% CI: 1.5- 14.8; p = .009); an alcohol use disorder (aOR = 5.1; 95% CI: 2.0-13.0; p = .001); and presence of dissociation symptoms (aOR = 6.7; 95% CI: 2.0-22.2; p = .002).

Conclusion: PTSD is one of the common psychiatric disorders experienced by serving police officers in Uganda. The tendency of PTSD in this group to co-occur with other psychiatric disorders means that any treatment program to address it should be part of a comprehensive multi-disorder mental health treatment programme in the police office.

Isabirye et al. 2022.

BMC Psychiatry, vol. 22, no. 1.

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Keywords: Africa; CAPS; field work; police; trauma.

Evidence Level: 4B

Link: <https://bmcp psychiatry.biomedcentral.com/articles/10.1186/s12888-022-04317-z>

Swedish managers' experience-based understanding of the Capacity to work in employees with Common Mental Disorders: A focus group study

Background: Understanding of the capacity to work among employees with common mental disorders (CMDs) is important, but contemporary knowledge on this issue lacks the managers' perspective. The aim of this study was to explore and describe managers' experience-based understanding of capacity to work in employees with CMD. **Methods:** A qualitative focus group study was designed. Managers with experience in supporting employees with CMD were recruited via organizations and networks. Eight focus group interviews with 31 participants took place. **Results:** The analysis resulted in five categories. (1) Capacity to mentally focus on work tasks decreases or disappears, with negative consequences for work output. (2) Capacity to commit to continuous and coherent task changes, making tasks that span longer periods of time difficult. (3) Capacity to independently adapt to the needs of the situation decreases, and employees need more guidance and instructions than usual. (4) Capacity to keep up professional appearances is reduced, and the employees struggle with the professional role. (5) Ability to interact socially and professionally decreases, which potentially causes conflicts at the workplace. **Conclusions:** This study adds managers' perspective to the increasing knowledge on how capacity to work is influenced by CMDs. Managers understand CMDs in employees as changed, reducing the capacities needed for occupational functioning. A deeper understanding of reduced capacity to work is needed to adapt workplaces, and our findings can facilitate work accommodations for employees with CMDs.

Tengelin et al. 2022.

Journal of Occupational Rehabilitation, vol. 32, no. 4.

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Keywords: Focus groups; occupational health; psychiatry; qualitative research; work performance.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s10926-022-10029-8>

Influence at work is a key factor for mental health - but what do contemporary employees in knowledge and relational work mean by "influence at work"?

Background: Common mental health problems are a substantial burden in many western countries. Studies have pointed out that work related factors can both increase and decrease the risk of developing mental health problems. Influence at work is a key factor relating the psychosocial work environment to employees mental health. However, little is known regarding how contemporary employees experience and understand influence at work. The purpose of this study is to explore this in depth. **Methods:** We conducted semi-structured interviews with 59 employees in knowledge and relational work and analysed the data using principles from Interpretative Phenomenological Analysis (IPA). **Findings:** We identified three themes each consisting of two interrelated parts, where the second part describes the consequences

of the identified type of influence for employees: 1) work tasks and performance, 2) relations and belonging, 3) identity and becoming. **Conclusions:** The interviewed employees had a multifaceted understanding of influence at work and that influence at work mattered to them in different but important ways. Our hope is that managers, employees and consultants will be inspired by the three themes when designing work tasks, organizations and interventions in order to increase the level of influence and thereby help enhance the mental well-being of employees.

Andersen et al. 2022.

International Journal of Qualitative Studies on Health and Well-being, vol. 17, no. 1.

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Keywords: Influence; job-strain; organization; stress; well-being; work.

Evidence Level: 5A

Link: <https://www.tandfonline.com/doi/full/10.1080/17482631.2022.2054513>

The impact of employment programs on common mental disorders: A systematic review

Background: While employment programs were not created with the intent to improve common mental disorders (CMDs), they may have a positive impact on the prevalence, incidence, and severity of CMD by reducing poverty and increasing access to economic mobility. **Aim:** To examine and synthesize the available quantitative evidence of the impact of employment programs on outcomes of CMD. **Methods:** Embase, Econlit, Global Health, MEDLINE, APA PsychINFO, and Social Policy and Practice were searched for experimental and quasi-experimental studies which investigated the impact of employment programs on primary and secondary outcomes of a CMD. A narrative synthesis according to Popay was conducted. The methodological quality of studies was assessed with the Cochrane Risk of Bias tool and the Newcastle-Ottawa Assessment Scale. **Results:** Of the 1,327 studies retrieved, two randomized controlled trials, one retrospective cohort, one pilot study with a non-randomized experimental design, and one randomized field experiment were included in the final review. Employment programs generally included multiple components such as skills-based training, and hands-on placements. Depression and anxiety were the CMDs measured as primary or secondary outcomes within included studies. Findings regarding the impact of employment programs on CMD were mixed with two studies reporting significantly positive effects, two reporting no effects, and one reporting mixed effects. The quality among included studies was good overall with some concerns regarding internal validity. **Conclusion:** Employment programs may support a decrease in the prevalence, incidence, and severity of CMDs. However, there is high heterogeneity among study effects, designs, and contexts. More research is needed to gain further insight into the nature of this association and the mechanisms of impact. This review highlights the potential for employment programs and other poverty-reduction interventions to be utilized and integrated into the wider care, prevention, and treatment of common-mental disorders.

Evans et al. 2022.

The International Journal of Social Psychiatry, vol. 68, no. 7.

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Keywords: Employment programs; anxiety; common mental disorders; depression; mental health; poverty; systematic review.

Evidence Level: 1A

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9548920/>

Mental wellbeing among Danish employees during the COVID-19 pandemic: Results from a longitudinal study on the role of industry and working environment

Background: The COVID-19 pandemic has had a profound impact on working life. Previous studies have primarily focused on the mental health and wellbeing of healthcare workers and are mostly based on cross-sectional data from non-representative samples. The aim of this study was to investigate mental wellbeing trajectories among employees from different industries, and to longitudinally identify factors that affect mental wellbeing during the COVID-19 pandemic, including job insecurity, fear of COVID-19, working from home or being discharged with wage compensation and management quality. **Methods:** Baseline data were obtained from the Danish Health and Wellbeing Survey in 2019 (September-December), with follow-up in September-November 2020. We included 1995 respondents, who completed the questionnaire in

both waves and were employed in 2020 and measured mental wellbeing using the Short Warwick-Edinburgh Mental Well-Being Scale. **Results:** Mental wellbeing declined among employees in all industries. Employees working from home and employees unsatisfied with management experienced a greater decline in mental wellbeing. We found no differences in mental wellbeing trajectories in relation to fear of infecting others or contracting COVID-19, job insecurity and being discharged with wage compensation. **Conclusions:** Mental wellbeing declined among employees in all industries with no difference between industries. Employees working from home may have been particularly vulnerable, and the analyses show that managers play a key role in mitigating the negative consequences of the pandemic by ensuring adequate information and involvement of employees.

Nielsen et al. 2022.

European Journal of Public Health, vol. 32, no. 6.

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Keywords: Mental wellbeing; Danish; COVID-19; pandemic; working environment.

Evidence Level: 4B

Link: <https://academic.oup.com/eurpub/article/32/6/871/6760677?login=true>

Bullying and Harassment

This month we explore issues related to workplace cyberbullying and leadership, workplace incivility as a risk factor for workplace bullying and psychological well-being, risk factors for workplace bullying during the Covid-19 pandemic and working with a psychopath.

The indirect role of passive-avoidant and transformational leadership through job and team level stressors on workplace cyberbullying

Background: Research on workplace cyberbullying (WCB) is still scarce and needs verification. This study addressed the indirect influence of positive and negative leadership on WCB via perceived role stressors and negative team climate. **Methods:** The main goal is to test the applicability of the work environment hypothesis and job demands-resources model for WCB on a cross-sectional sample of n = 583 workers in Germany (n = 334) and Spain (n = 249). **Results:** We tested multiple mediation models, and findings revealed that negative (passive-avoidant) leadership increased role and team stressors and thereby WCB exposure, whereas positive (transformational) leadership decreased the same stressors and thereby reduced WCB exposure. No cross-cultural differences were found, indicating portability of the results. **Conclusions:** This study highlights the explanatory factors for WCB at individual and team level and emphasizes the role of managers as shapers of the work environmental antecedents of WCB in the emergent digitalized working world. Theoretical implications and future research avenues are discussed.

Czakert et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 23.

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Keywords: Job demands–resources model; passive-avoidant leadership; stress; transformational leadership; work environment hypothesis; workplace cyberbullying.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/23/15984>

Risk factors for workplace bullying, severe psychological distress and suicidal ideation during the COVID-19 pandemic among the general working population in Japan: A large-scale cross-sectional study

Background: To investigate the risk factors for workplace bullying and mental health outcomes among workers during the COVID-19 pandemic. **Design:** A cross-sectional study. **Setting:** A nationwide online survey was conducted from August to September 2020 in Japan. **Participants:** 16 384 workers (men: n=9565; women: n=6789). **Main outcome variables:** Workplace bullying was measured by one item from the Brief Job Stress Questionnaire; severe psychological distress according to the Kessler Psychological Distress Scale (≥ 13) and suicidal ideation by one item. Prevalence ratios were calculated by modified

Poisson regression analyses adjusting for potential confounders such as gender, age, occupational characteristics and a prior history of depression. **Results:** Overall, 15% of workers experienced workplace bullying, 9% had severe psychological distress and 12% had suicidal ideation during the second and third wave of the COVID-19 pandemic in Japan. The results of this study showed men, executives, managers and permanent employees had a higher risk of bullying than women or part-time workers. Increased physical and psychological demands were common risk factors for bullying, severe psychological distress and suicidal ideation. Starting to work from home was a significant predictor for adverse mental health outcomes but a preventive factor against workplace bullying. **Conclusions:** The results of this study showed different high-risk groups for bullying or mental health during the pandemic. Any intervention to decrease workplace bullying or mental health problems should focus not only on previously reported vulnerable workers but also workers who have experienced a change in work style or job demands.

Tsuno et al. 2022.

BMJ Open, vol. 12, no. 11.

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

Evidence Level: 4B

Link: <https://bmjopen.bmj.com/content/12/11/e059860.long>

Workplace incivility as a risk factor for workplace bullying and psychological well-being: A longitudinal study of targets and bystanders in a sample of Swedish engineers

Background: The aim of the present study is to explore whether (experienced and witnessed) workplace incivility is a risk factor for (experienced and witnessed) workplace bullying. An additional aim is to explore whether experienced workplace incivility is associated with psychological well-being above and beyond the influence of (experienced and witnessed) workplace bullying on well-being. **Methods:** A survey was distributed via e-mail to a panel of Swedish engineers. The survey was administered at three time points over one year. In total, N = 1005 engineers responded to the survey. Of these, N = 341 responded to more than one survey, providing longitudinal data. N = 111 responded to all three surveys. **Results:** The results showed that the likelihood of being targeted by workplace bullying was higher for those who had previously experienced incivility, even when taking previous bullying exposure into account. There was also partial support for a higher likelihood of witnessing bullying at a later time point for those that had previously witnessed incivility. Additionally, the results showed that experienced workplace incivility was negatively related to psychological well-being over time, even when controlling for previous levels of experienced and witnessed workplace bullying and well-being. However, this result was only found over one of the two time lags. **Conclusion:** The findings of the present study suggests that workplace incivility can be a risk factor for future bullying. In addition, the findings suggest that experienced workplace incivility exerts a unique negative effect on psychological well-being, even when accounting for exposure to workplace bullying.

Holm et al. 2022.

BMC Psychology, vol. 10, no. 1.

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Keywords: Bystander; psychological well-being; target; workplace bullying; workplace incivility.

Evidence Level: 4B

Link: <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-022-00996-1>

Working with a psychopath: Is there light at the end of the tunnel?

Background: Having a supervisor with psychopathic characteristics is related to being bullied, poorer job satisfaction, work/family life conflict, financial instability, and distress. To date, all research on corporate psychopathy victims considers how they are negatively impacted rather than potential positive outcomes. In response, this study examined how working with a psychopath impacts posttraumatic growth (PTG).

Methods: Utilizing a mixed-methods approach, this study draws upon the experiences of 285 individuals who have worked with a colleague or supervisor with alleged psychopathic characteristics. **Results:** Results indicated that approach coping and psychopathic characteristics predicted PTG. Qualitative analyses revealed that the majority of participants used various coping strategies (e.g., emotion-focused), received

support (e.g., emotional), and underwent post-experiential growth or learning (e.g., positive personal growth); not all growth/learning was positive, however (e.g., less trusting). **Conclusion:** Results suggest that cultivating approach-focused coping strategies may enhance PTG following a traumatic event.

Stewart et al. 2022.

International Journal of Offender Therapy and Comparative Criminology, vol. 66, no. 15.

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Keywords: Corporate psychopathy; posttraumatic growth; psychopathy; resiliency; victimization.

Evidence Level: 5B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9527350/>

Psychosocial Issues

This month we explore issues related to perceptions of job insecurity and performance, the impact of job demands on employee learning, the relationship between workplace psychosocial resources and risk of cardiovascular disease, and the loneliness in young adult workers. In covid-19 related research we explore the role of job ambiguity and workers' creativity, the factors affecting work engagement, including the effect of telework on home-work and work-home relationships, and the effect on work-life balance.

Employees perceptions of job insecurity and performance: A qualitative approach

Background: The purpose of this article is to understand the experience of workers' perceptions of job insecurity and its relation to performance. **Methods:** To this end, we conducted semi-structured interviews with 38 workers in the retail, services, education, financial, construction, and pharmaceutical industries in Chile. **Results:** Using content analysis based on workers' accounts of their own experience, we identified two main categories: (a) the experience of job insecurity viewed in relation to the context of the COVID-19 pandemic and emotional aspects of job insecurity, and (b) the relation between job insecurity and performance. **Conclusion:** The possibility of job loss expresses itself in experiences and emotions that are related to the performance of workers in different ways. These findings are discussed in terms of stress theory and the motivation to preserve jobs.

Muñoz Medina et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 24.

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Keywords: COVID-19; content analysis; emotions; experience; interview study.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/19/24/16665>

Impact of job demands on employee learning: The moderating role of human-machine cooperation relationship

Background: New artificial intelligence (AI) technologies are applied to work scenarios, which may change job demands and affect employees' learning. **Methods:** Based on the resource conservation theory, the impact of job demands on employee learning was evaluated in the context of AI. The study further explores the moderating effect of the human-machine cooperation relationship between them. By collecting 500 valid questionnaires, a hierarchical regression for the test was performed. **Results:** Results indicate that, in the AI application scenario, a U-shaped relationship exists between job demands and employee learning. Second, the human-machine cooperation relationship moderates the U-shaped curvilinear relationship between job demands and employees' learning. **Conclusion:** In this study, AI is introduced into the field of employee psychology and behavior, enriching the research into the relationship between job demands and employee learning.

Sen et al. 2022.

Computational Intelligence and Neuroscience, vol. 6.

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

Keywords: Artificial intelligence; job demands; employees; human-machine cooperation.

Evidence Level: 5B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9747302/>

The relationship of work engagement with job experience, marital status and having children among flexible workers after the COVID-19 pandemic

Background: The COVID-19 pandemic has brought about serious consequences in business world practices. Among these, flexible working policies have increased to a great extent. This has resulted in serious problems in the work-life balance. In this context, conditions such as having children and marital status have been important factors that can affect work engagement among flexible workers in the post pandemic era. **Methods:** Therefore, this study investigates the relationship of marital status, job experience and having children with work engagement among white-collar workers who work in flexible hours. Data is collected through surveys from 199 flexible working employees. ANOVA and T-tests were employed to analyze the data. **Results:** The results indicate that only one of the sub-dimensions of work engagement- namely absorption- changes according to their marital status, and yet, the work engagement is not related to having children. In addition, it is seen that there is a significant relationship between job experience and work engagement.

Çemberci et al. 2022.

PLoS One, vol. 17, no. 11.

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Keywords: COVID-19; work engagement; marital status; flexible workers; pandemic.

Evidence Level: 4B

Link: <https://dx.plos.org/10.1371/journal.pone.0276784>

Towards work-life balance or away? The impact of work from home factors on work-life balance among software engineers during Covid-19 pandemic

Background: The paradigm shifts of conventional office spaces for virtual workspaces which practiced Work from Home (WFH) due to Covid-19, created a serious change in the lifestyles of employees, due to the overlap of 'work' and 'life' domains in one's life. Since software engineers have a possibility of permanently adapting into WFH, the objective of this study is to unveil factors which would have a significant impact on the work-life balance of software engineers in Sri Lanka, while WFH. Only a very limited researches have shed light on this context, thereby this study would contribute to fill the empirical gap. **Methods:** The study undertook a quantitative approach by collecting primary data through a questionnaire from 384 participants, based on simple random sampling, and analyzing collected data based on Partial Least Squares Structural Equation Modelling (PLS-SEM), using Smart PLS 3.3.9 software. **Results and Conclusions:** Study results revealed that 'supervisor's trust and support' and the 'individual workspace,' have a significant impact on work-life balance, while 'working conditions,' 'possibility to access the organization's networks' and 'number of children' have no such significant impact. Thereby the study infers that, sound support and trust extended by supervisors and a designated distraction-free workspace; as measures to demarcate the boundary of work and life. Distinctive findings of this study would primarily be fruitful for software engineers to dive into a balanced state of work and life not only during Covid-19 but in future too. Study findings will also contribute to software industry personnel and policymakers in Sri Lanka as well as other developing countries, to establish effective strategies in favor of software engineers who WFH. Further, considering IT industry's significant contribution towards Sri Lanka's economic growth amidst Covid-19, results of this study would be high-yielding to indirectly succor IT-services-supported economic growth amidst the pandemic-driven hardships in Sri Lanka.

Weerathna et al. 2022.

PLoS One, vol. 17, no. 12.

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Keywords: Work-life balance; work from home; software engineers; COVID-19; pandemic.

Evidence Level: 4B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9750026/>

Workplace psychosocial resources and risk of cardiovascular disease among employees: A multi-cohort study of 135 669 participants

Background: In terms of prevention, it is important to determine effects on cardiovascular disease (CVD) when some workplace psychosocial resources are high while others are low. The aim of the study was to assess the prospective relationship between clustering of workplace psychosocial resources and risk of CVD among employees. **Methods:** We pooled data from three cohort studies of 135 669 employees (65% women, age 18-65 years and free of CVD) from Denmark, Finland and Sweden. Baseline horizontal resources (culture of collaboration and support from colleagues) and vertical resources (leadership quality and procedural justice) were measured using standard questionnaire items. Incident CVD, including coronary heart and cerebrovascular disease, was ascertained using linked electronic health records. We used latent class analysis to assess clustering (latent classes) of workplace psychosocial resources. Cox proportional hazard models were used to examine the association between these clusters and risk of CVD, adjusting for demographic and employment-related factors and pre-existing physical and mental disorders. **Results:** We identified five clusters of workplace psychosocial resources from low on both vertical and horizontal resources (13%) to generally high resources (28%). High horizontal resources were combined with either intermediate [hazard ratio (HR) 0.84, 95% confidence interval (CI) 0.74-0.95] or high (HR 0.88, 95% CI 0.78-1.00) vertical resources were associated with lower risks of CVD compared to those with generally low resources. The association was most prominent for cerebrovascular disease (eg, general high resources: HR 0.80, 95% CI 0.67-0.96). **Conclusions:** Individuals with high levels of workplace psychosocial resources across horizontal and vertical dimensions have a lower risk of CVD, particularly cerebrovascular disease.

Xu et al. 2022.

Scandinavian Journal of Work, Environment and Health, vol. 48, no. 8.

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Keywords: Cardiovascular disease; employees; psychosocial resources.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4042>

Evaluation of work mode and its importance for home-work and work-home relationships: The role of resilience, coping with stress, and passion for work

Background: The COVID-19 pandemic necessitated and facilitated the introduction of telework in organizations. This has also impacted the workers' relationship between work and private life. The aim of the current study was to examine the links between resilience and mode of work (stationary vs. remote) and the work-home and home-work relationships, and whether they are mediated by passion for work and strategies of coping with stress. **Methods:** The study was carried out on a sample of 1251 participants from Great Britain, India, Latvia, Lithuania, Norway, Poland, Romania, Serbia, Slovakia, and Vietnam. The following measures were used: The Survey Work-Home Interaction, The Brief Resilience Coping Scale, The Passion Scale, and the Brief COPE. **Results:** Results showed that the more stationary the mode of work, the lower the intensity of the negative influence of personal life on work. Resilience was revealed to have a positive effect on worker functioning. The study also showed a relationship between education and gender and passion for work. **Conclusion:** Finally, the importance of furthering the knowledge on the home-work and work-home relationships among teleworkers is discussed.

Sygit-Kowalkowska et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: COVID-19; coping with stress; passion of work; resilience; telework; work-home relationship.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/21/14491>

Loneliness in young adult workers

Background: Loneliness is commonly associated with older people with the majority of research and interventions focusing on loneliness in aged and aging populations. However, loneliness seems to be on the rise for young adults more so than the elderly. **Methods:** Our research focusses on the experiences of

young workers who report feeling lonely at work. We explore individual and organisational factors that may be contributing to loneliness, and comment on the consequences of feeling lonely at work. **Results and Conclusions:** Qualitative data from 37 young adults from Western Europe suggest that these workers feel invisible at work, have a thwarted sense of belonging to their employing organisation, and often experience relational deficiencies due to automation and individualisation of work practices.

Wright et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: Belongingness; loneliness; social disconnection; social relationships at work; work practices; young adult workers.

Evidence Level: 5A

Link: <https://www.mdpi.com/1660-4601/19/21/14462>

The relationship between role ambiguity and workers' creativity during the COVID-19 pandemic in China

Background: Job role ambiguity is becoming more and more common due to the increase in telecommuting caused by the COVID-19 epidemic. **Methods:** In order to understand the internal mechanism of the association between role ambiguity and creativity, this study examined it in the context of the Demands-Resources-Individual Effects (DRIVE) model. Participants were employees from all walks of life in mainland China, with a total of 437 valid data. **Results:** The results showed that role ambiguity had no significant direct effect on creativity but exerted a negative effect on creativity through the chain mediating effect of affective rumination and perceived stress. A good relationship with a supervisor helped employees reduce their affective rumination when faced with the pressure of role ambiguity. **Conclusions:** The results show that how employees perceive role ambiguity plays an essential role in determining the potency of the after-effect of role ambiguity. Resources from supervisors can help reduce the negative perception of ambiguous roles.

Zhang et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: Demands–Resources–Individual Effects (DRIVE) model; creativity; role ambiguity; work-related rumination.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/23/15977>

Enabling Healthy and Safe Workplaces

Health and Wellbeing

This month we explore the relationship between food literacy and dietary intake, the prevalence and risk factors associated with poor sleep amongst firefighters, the relationship between lifestyle, type of work, and temporary disability and the effect of work on employee well-being.

Food literacy and dietary intake in German office workers: A longitudinal intervention study

Background: Widespread patterns of poor dietary behavior are a key factor causing the increasing prevalence of chronic diseases around the world. Research has provided initial insights into the potential of food literacy (FL) to empower individuals to improve their dietary behavior. However, studies on FL interventions in working adults are scarce. **Methods:** The intervention delivered in this study was a comprehensive 3-week full time education-based workplace health promotion program (WHPP) that provided the participants with in-depth knowledge and skills regarding nutrition and health. We aimed to investigate the short- and long-term effects of the WHPP on FL and dietary intake (DI) and to examine the association between FL and DI in a sample of 144 German office workers (30.0% female). **Results:** Using two random intercept mixed linear regression models, we found significant strong improvements for both FL ($\beta = 0.52$, $p < 0.0001$) and DI ($\beta = 0.63$, $p < 0.0001$) after the WHPP when compared to baseline. Significant long-term improvements at 18 months were strong for FL ($\beta = 0.55$, $p < 0.0001$) and weak for DI

($\beta = 0.10$, $p < 0.0001$). FL showed a significant moderate effect on DI across all measurement time points ($\beta = 0.24$, $p < 0.0001$). **Conclusions:** We conclude that well-designed WHPPs can induce long-term improvements in FL and DI, and that FL can be viewed as an asset to further expand food-related knowledge and skills and to enhance dietary behavior. Our study fills a gap of long-term findings regarding the role of FL in WHPPs and supports the idea of implementing FL in the development of comprehensive WHPPs to improve DI.

Meyn et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 24.

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Keywords: Dietary intake; food literacy; health literacy; health promotion; nutrition; office workers.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/24/16534>

Prevalence and risk factors associated with poor sleep among firefighters in Taiwan: An observational study

Background: Sleep quality is directly correlated with overall health and quality of life. Firefighters have a higher workload and injury rate than those in other occupations. This study investigated the prevalence of and risk factors for poor sleep quality among firefighters in Taiwan. **Methods:** This cross-sectional study was conducted between November 2019 and August 2020. Sociodemographic information of the study participants was collected using a structured self-administered questionnaire. The Chinese version of the Pittsburgh Sleep Quality Index (PSQI) was used to evaluate the subjective sleep quantity and quality of firefighters during the previous month. A t test for continuous variables and χ^2 test for categorical variables were performed for univariate analysis. Logistic regression analysis was conducted for multivariate analysis. **Results:** Eight hundred eighty-nine firefighters completed the questionnaire during the study period, with a response rate of 88.9%. Among them, 447 (50.3%) reported poor sleep quality. Logistic regression analysis showed that female sex, longer work duration (>5 years) for firefighters, on-call shift work, and no leisure-time physical activity (LTPA) was significantly correlated with an increased risk of poor sleep quality. Advanced analysis of partaking in LTPA revealed that high-intensity LTPA is significantly associated with higher rates of poor sleep quality. In contrast, adequate rest after LTPA correlated with lower rates of poor sleep quality. **Conclusion:** Firefighters are at higher risk of poor sleep quality. Emphasis should be placed on firefighters' regular LTPA, particularly when experiencing sleep problems.

Lin et al. 2022.

Medicine, vol. 101, no. 44.

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Keywords: Sleep; firefighters; health; risk factors.

Evidence Level: 4B

Link: https://journals.lww.com/md-journal/Fulltext/2022/11040/Prevalence_and_risk_factors_associated_with_poor.54.aspx

A three-way synergistic effect of work on employee well-being: Human sustainability perspective

Background: We explored the interaction of the United Nation's sustainable development goals to facilitate human sustainability using occupational health and sustainable HRM perspectives. **Methods:** In Study 1 ($n = 246$), we assessed the preconditions to empirically confirm the distinctiveness of the dimensions of health harm of work from other study constructs. Subsequently, we tested the hypotheses across two studies ($n = 332$, Study 2; $n = 255$, Study 3). **Results:** In alignment with the ceiling effect of human energy theory, the three-way interaction results across the samples consistently indicate that high supervisory political support (SPS) significantly strengthens the negative interactions of psychological health risk factors and high job tension as adverse working conditions (SDG-8) on working-condition-related well-being as the human sustainability dimension (SDG-3). Similarly, synergistic effects were found of the side effects of work on health, high job tension, and high SPS on well-being in sample 3. We discuss theoretical and future research for human sustainability from occupational health and sustainable HRM perspectives.

Mariappanadar et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 22.

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Keywords: Ceiling effect; health harm; job tension; supervisory support; sustainable HRM; well-being.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/19/22/14842>

Lifestyle, type of work, and temporary disability: An incidence study of the working population

Background: The objective of the study was to identify lifestyles associated with loss of health among workers. **Methods:** A retrospective longitudinal incidence study was carried out over a three-year period (2015, 2016, and 2017) among the working population. A total of 240 workers were analysed using information from occupational health assessments. The outcome variable was loss of health due to common illness or workplace injury, quantified by the number of days each episode lasted. Predictor variables were age, gender, type of work, tobacco use, alcohol consumption, physical activity (IPAQ), and adherence to the Mediterranean diet (AMD). An adjusted multiple linear regression was performed, determining the goodness of fit of the final model using the coefficient of determination adjusted r^2 .

Results: During the study, 104 men (58.8%) and 25 women (39.7%) suffered an episode of illness or workplace injury ($p < 0.05$). The overall incidence was 17.9% people/year 95% CI [15, 21.3]. 4.6% of the workers were sedentary or engaged in light physical activity, and 59.2% maintained an adequate AMD.

Conclusion: Workers who engaged in high levels of physical activity had an average of 36.3 days of temporary disability compared to 64.4 days for workers with low-moderate levels of physical activity ($p < 0.01$).

Jiménez-Mérida et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 22.

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Keywords: Mediterranean diet; health promotion; physical activity; sick leave; workplace.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/22/14932>

Work Health and Safety

This month we explore work health and safety issues such as need for occupational audiometric testing, trends of leukemia attributable to occupational risk, alcohol consumption in the workplace, occupation- and industry-specific cancer mortality, working in health and safety and expanding the focus of occupational safety and health. In construction industry focused research we explore construction workers' unsafe behaviors in hoisting operations and augmented hearing of auditory safety cues for construction workers. In Covid-19 related research we explore occupation, worker vulnerability, and Covid-19 vaccination uptake, the longitudinal changes in proportionate mortality due to Covid-19 by occupation, the characteristics of Covid-19 infection clusters, the health of frontline workers' and factors related to musculoskeletal problems and work performance in work from home.

Is it necessary to perform occupational audiometric testing at 6-months of employment?

Background: Current Brazilian legislation requires that all workers exposed to noise are to be given an audiogram upon hiring, after 6 months of employment (first periodic test), and annually after the first periodic test. In other countries, the regulations of hearing conservation programs do not include the requirement for audiometric testing at 6 months of employment, but only annually. There is no evidence that the periodicity adopted by Brazilian legislation is the most appropriate. **Objective:** The present study aimed to evaluate the first 3 occupational audiometric tests of workers exposed to noise.

Methods: Historical cohort study with cross-sectional analysis. Participants were all male metallurgy workers aged up to 40 years. The first 3 audiograms of each worker were analyzed: pre-employment audiometric test, periodic audiometric test 1, and periodic audiometric test 2. For each worker, mean

frequency thresholds were calculated at 3, 4, and 6 kHz in the left and right ears for each test. Statistical analysis was performed using the nonparametric Wilcoxon test.

Results: A total of 988 workers were included. There was a significant difference in auditory thresholds between the pre-employment test and the 2 subsequent periodic tests for the right and left ears. There was no significant difference between Test1 and Test2 in either ear. **Conclusion:** Given the lack of difference between the first 2 periodic tests, we believe that they could be merged into a single test, i.e., first periodic audiometric testing could be performed at 12 months of employment without compromising workers' health.

Silva et al. 2022.

Brazilian Journal of Otorhinolaryngology, vol. 88, no. 6.

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Keywords: Hearing loss; noise; noise-induced hearing loss; objective audiometry.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S1808869421000033?via%3Dihub>

Global disease burden and trends of leukemia attributable to occupational risk from 1990 to 2019: An observational trend study

Background: Leukemia caused by occupational risk is a problem that needs more attention and remains to be solved urgently, especially for acute lymphoid leukemia (ALL), acute myeloid leukemia (AML), and chronic lymphoid leukemia (CLL). However, there is a paucity of literature on this issue. We aimed to assess the global burden and trends of leukemia attributable to occupational risk from 1990 to 2019.

Methods: This observational trend study was based on the Global Burden of Disease (GBD) 2019 database, the global deaths, and disability-adjusted life years (DALYs), which were calculated to quantify the changing trend of leukemia attributable to occupational risk, were analyzed by age, year, geographical location, and socio-demographic index (SDI), and the corresponding estimated annual percentage change (EAPC) values were calculated. **Results:** Global age-standardized DALYs and death rates of leukemia attributable to occupational risk presented significantly decline trends with EAPC [-0.38% (95% CI: -0.58 to -0.18%) for DALYs and -0.30% (95% CI: -0.45 to -0.146%) for death]. However, it was significantly increased in people aged 65-69 years [0.42% (95% CI: 0.30-0.55%) for DALYs and 0.38% (95% CI: 0.26-0.51%) for death]. At the same time, the age-standardized DALYs and death rates of ALL, AML, and CLL were presented a significantly increased trend with EAPCs [0.78% (95% CI: 0.65-0.91%), 0.87% (95% CI: 0.81-0.93%), and 0.66% (95% CI: 0.51-0.81%) for DALYs, respectively, and 0.75% (95% CI: 0.68-0.82%), 0.96% (95% CI: 0.91-1.01%), and 0.55% (95% CI: 0.43-0.68%) for death], respectively. The ALL, AML, and CLL were shown an upward trend in almost all age groups. **Conclusion:** We observed a substantial reduction in leukemia due to occupational risks between 1990 and 2019. However, the people aged 65-69 years and burdens of ALL, AML, and CLL had a significantly increased trend in almost all age groups. Thus, there remains an urgent need to accelerate efforts to reduce leukemia attributable to occupational risk-related death burden in this population and specific causes.

Shi et al. 2022.

Frontiers in Public Health, vol. 14.

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Keywords: ALL; AML; death rate; global burden disease; leukemia.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1015861/full>

Characteristics of COVID-19 infection clusters occurring among workers in several Asia-Pacific countries

Background: The types of workplaces and occupations with coronavirus 2019 (COVID-19) clusters vary between countries and periods. We aimed to characterize major occupational groups with mass outbreaks of COVID-19 infections in several Asia-Pacific countries. **Methods:** Data on the major occupations or workplaces reporting COVID-19 cases in workplaces from January 2020 to July 2021 was collected from industrial hygiene professionals in nine countries. The proportion of workers accounted for 39.1 to 56.6% of the population in each country. The number of workers covered in the national statistics varies among nations based on their definition of a worker. None of the countries examined here have systematically

collected occupational data on COVID-19 illnesses and deaths classified by type of industry, occupation, or job. **Results:** Most countries experienced COVID-19 clusters among health and social care workers (HSCW) in hospitals or long-term care facilities. **Conclusion:** The types of occupations or workplaces with virus clusters in some participating countries included prisons, call centers, workplaces employing immigrants, garment facilities, grocery stores, and the military, which differed among countries, except for a few common occupations such as HSCW and those populated by immigrants. Further study is necessary in order to seek ways to control infection risks, including revisions to industrial-health-related laws.

Tejamaya et al. 2022.

Industrial Health, vol. 60, no. 6.

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Keywords: Asian Network of Occupational Hygiene (ANO); COVID-19; infection; occupation virus cluster; workplace.

Evidence Level: 4B

Link: https://www.jstage.jst.go.jp/article/indhealth/60/6/60_2021-0227/article

Analyzing construction workers' unsafe behaviors in hoisting operations of prefabricated buildings using HAZOP

Background: Along with the increasing number of prefabricated buildings being constructed in China each year, the incident rate of hoisting operations has been continuously rising. In order to improve construction safety in hoisting operations of prefabricated buildings, this paper analyzes the construction workers' unsafe behaviors using the Hazard and Operability (HAZOP) method. **Methods:** A questionnaire survey and a literature review were first performed to gather information on safety risks and influencing factors during each stage of hoisting operations, and the survey results were statistically analyzed using the SPSS software. Next, HAZOP was applied to identify the deviation and change of the unsafe behaviors as well as their causes, consequences, and countermeasures. Finally, a case study was presented to verify the effectiveness of the countermeasures through a comparison and evaluation method from experimental economics. **Results:** This paper demonstrates the use of HAZOP to analyze construction workers' unsafe behaviors in hoisting operations of prefabricated buildings, and effective countermeasures in each stage of hoisting operations are proposed to mitigate unsafe behaviors. **Conclusion:** This paper therefore provides an innovative method and a theoretical foundation for reducing unsafe behaviors in hoisting operations of prefabricated buildings and serves as a reference for decision-making for hoisting safety policies in prefabricated construction projects.

Zhu et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 22.

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Keywords: HAZOP; prefabricated buildings; unsafe behavior.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/22/15275>

Longitudinal changes in proportionate mortality due to COVID-19 by occupation in England and Wales

Background: This study aimed to understand whether the proportionate mortality of COVID-19 for various occupational groups has varied over the pandemic. **Methods:** We used the Office for National Statistics (ONS) mortality data for England and Wales. The deaths (20-64 years) were classified as either COVID-19-related using ICD-10 codes (U07.1, U07.2), or from other causes. Occupational data recorded at the time of death was coded using the SOC10 coding system into 13 groups. Three time periods (TP) were used: (i) January 2020 to September 2020; (ii) October 2020-May 2021; and (iii) June 2021-October 2021. We analyzed the data with logistic regression and compared odds of death by COVID-19 to other causes, adjusting for age, sex, deprivation, region, urban/rural and population density. **Results:** Healthcare professionals and associates had a higher proportionate odds of COVID-19 death in TP1 compared to non-essential workers but were not observed to have increased odds thereafter. Medical support staff had increased odds of death from COVID-19 during both TP1 and TP2, but this had reduced by TP3. This latter pattern was also seen for social care, food retail and distribution, and bus and coach drivers. Taxi and cab

drivers were the only group that had higher odds of death from COVID-19 compared to other causes throughout the whole period under study [TP1: odds ratio (OR) 2.42, 95% confidence interval (CI) 1.99-2.93; TP2: OR 3.15, 95% CI 2.63-3.78; TP3: OR 1.7, 95% CI 1.26-2.29]. **Conclusion:** Differences in the odds of death from COVID-19 between occupational groups has declined over the course of the pandemic, although some occupations have remained relatively high throughout.

Cherrie et al. 2022.

Scandinavian Journal of Work, Environment and Health, vol. 48, no. 8.

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Keywords: COVID-19; mortality; occupation; pandemic.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4048>

"I'm sick of being called a hero - I want to get paid like one": Filipino American frontline workers' health under conditions of COVID-19 and racial capitalism

Background: Although the era of COVID-19 has reaffirmed the vital role of frontline workers in maintaining a functional society, the ongoing pandemic has taken a devastating toll on their health and well-being. In the United States, Filipino American frontline workers in healthcare and service industries have endured threats to their health, safety, and economic livelihood throughout the pandemic and against the broader backdrop of racialized and xenophobic hate directed toward Asian Americans. **Methods:** Drawing on a qualitative approach, the current study explores work-related health risks and effects of the pandemic for Filipino American frontline workers. Data come from the qualitative arm of a larger mixed-methods study that used a community-based participatory research approach. The current analysis is based on focus group data with thirty-five Filipino American frontline workers, a majority of whom were migrants, that worked across healthcare, caregiving, education, childcare, food services, and retail industries. **Results:** Situated through the lens of racial capitalism, themes included: (1) work-related stress, tensions, and trauma, (2) anti-Asian racism and intersections with age- and gender-based violence, and (3) working while ill and distressed. **Conclusion:** Study findings can inform interventions and policies to improve health, occupational environments, and labor conditions in order to support minoritized communities disproportionately affected by COVID-19.

Sangalang 2022.

Frontiers in Public Health, vol. 23.

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Keywords: COVID-19; Filipino Americans; frontline workers; health; racial capitalism.

Evidence Level: 5B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.977955/full>

Working in health and safety at work: Reflections on the construction of an integrated policy

Background: Interventions in work environments, processes, and situations encompass the prevention of diseases and accidents and workers' health promotion. Historically, these actions were originally the responsibility of the Ministry of Labor, being extended to the Ministry of Health, and later to the Ministry of Labor. The aim of this study was to understand and give visibility to the work of the actors working in the different sectors and institutions involved in health and safety at work in the municipality of São Paulo and gain an insight into the barriers to intersectorality and the consequences of the lack of intersectoral collaboration for this area. **Methods:** Work reflection groups were created between 2017 and 2019 with professionals working in the abovementioned ministries and in the Labor Prosecution Office. The data were produced and analyzed drawing on the theoretical bases of the psychodynamics of work. **Results:** Despite having intrinsically linked objectives, these three bodies in São Paulo continue to encounter difficulties in consolidating intersectorality as envisioned in occupational health and safety policies. Despite sporadic partnerships, merging specific actions, recognizing and mutually respecting each other's expertise, avoiding overlaps, and building joint, cooperative, and collaborative practices remain challenges.

Lancman et al. 2022.

Ciencia e Saude Coletiva, vol. 27, no. 11.

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Keywords: Safety; health; work; work environments.

Evidence Level: 5B

Link: <https://www.scielo.br/j/csc/a/mQwVCd7CcBWsZTVBn7K8x4s/?lang=en>

Augmented hearing of auditory safety cues for construction workers: A systematic literature review

Background: Safety-critical sounds at job sites play an essential role in construction safety, but hearing capability is often declined due to the use of hearing protection and the complicated nature of construction noise. Thus, preserving or augmenting the auditory situational awareness of construction workers has become a critical need. To enable further advances in this area, it is necessary to synthesize the state-of-the-art auditory signal processing techniques and their implications for auditory situational awareness (ASA) and to identify future research needs. **Methods:** This paper presents a critical review of recent publications on acoustic signal processing techniques and suggests research gaps that merit further research for fully embracing construction workers' ASA of hazardous situations in construction. **Results:** The results from the content analysis show that research on ASA in the context of construction safety is still in its early stage, with inadequate AI-based sound sensing methods available. Little research has been undertaken to augment individual construction workers in recognizing important signals that may be blocked or mixed with complex ambient noise. **Conclusion:** Further research on auditory situational awareness technology is needed to support detecting and separating important acoustic safety cues from complex ambient sounds. More work is also needed to incorporate context information into sound-based hazard detection and to investigate human factors affecting the collaboration between workers and AI assistants in sensing the safety cues of hazards.

Elelu et al. 2022.

Sensors (Basel), vol. 22, no. 23.

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Keywords: Artificial Intelligence (AI); auditory signal processing; auditory situational awareness; construction safety; hazard detection.

Evidence Level: 1A

Link: <https://www.mdpi.com/1424-8220/22/23/9135>

Occupation- and industry-specific cancer mortality among Japanese women from 1980 to 2015

Background: The number of women in Japan who continue working after childbirth is on the rise. Over the past few years, Japan's cancer mortality rate has increased. About 50% of all cancer deaths among Japanese women aged 25-64 are caused by lung, gastric, pancreatic and colorectal cancers. This study aims to examine the difference in mortality risk for key cancers among women and explore the effect of the economic crisis in the mid-1990s separately for occupational and industrial categories. **Methods:** Data from 1980 to 2015 were gathered from the Japanese Population Census and National Vital Statistics conducted in the same year. A Poisson regression analysis was used to estimate mortality risk and mortality trends for lung, gastric, pancreatic and colorectal cancer among Japanese working women aged 25-64 years. **Results:** Across most industrial and occupational groups, the trends in age-standardised cancer mortality rate for women have declined. Workers in management, security and transportation have a higher cancer mortality risk than sales workers. The risk of death from all four cancers is higher for workers in the mining and electricity industries than for wholesale and retail workers. **Conclusion:** To improve the health and well-being of employed Japanese women, it is crucial to monitor cancer mortality trends. Using these population-level quantitative risk estimates, industry- and occupation-specific prevention programmes can be developed to target women at higher cancer risk and enable the early detection and treatment of cancer.

Dhungel et al. 2022.

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

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Keywords: Cancer; Japan; mortality; occupational mortality; women.

Evidence Level: 4B

Link: <https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-022-14304-4>

Computer and furniture affecting musculoskeletal problems and work performance in work from home during COVID-19 pandemic

Background: We surveyed how home-working conditions, specifically furniture and computer use, affected self-reported musculoskeletal problems and work performance. **Methods:** Questionnaires from 4112 homeworkers were analyzed. The relationship between subjective musculoskeletal problems or work performance and working conditions were determined by logistic regression analyses. **Results:** More than half the homeworkers used a work desk, work chair, and laptop computer. However, approximately 20% of homeworkers used a low table, floor chair/floor cushion, or other furniture that was different from the office setup. Using a table of disproportionate size and height, sofa, floor cushion, and floor chair were associated with neck/shoulder pain or low back pain. Disproportionate table and chair, floor cushion, and tablet computer were associated with poor work performance. **Conclusions:** Disproportionate desk and chair, floor cushion/chair, and computer with small screen may affect musculoskeletal problems and home-working performance.

Du et al. 2022.

Journal of Occupational and Environmental Medicine, vol. 64, no. 11.

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Keywords: Musculoskeletal problems; work performance; work from home; COVID-19; pandemic.

Evidence Level: 4A

Link:

https://journals.lww.com/joem/Fulltext/2022/11000/Computer_and_Furniture_Affecting_Musculoskeletal_9.aspx

Expanding the focus of occupational safety and health: Lessons from a series of linked scientific meetings

Background: There is widespread recognition that the world of work is changing, and agreement is growing that the occupational safety and health (OSH) field must change to contribute to the protection of workers now and in the future. Discourse on the evolution of OSH has been active for many decades, but formalized support of an expanded focus for OSH has greatly increased over the past 20 years. Development of approaches such as the National Institute for Occupational Safety and Health (NIOSH)'s Total Worker Health[®] concept and the World Health Organization (WHO)'s Healthy Workplace Framework are concrete examples of how OSH can incorporate a new focus with a wider view. In 2019, NIOSH initiated a multi-year effort to explore an expanded focus for OSH. **Methods:** This paper is a report on the outputs of a three-year cooperative agreement between NIOSH and The University of Texas School of Public Health, which led to subject matter expert workshops in 2020 and an international conference of global interest groups in 2021. **Results:** This article traces the background of these meetings and identifies and assesses the lessons learned. It also reviews ten thematic topics that emerged from the meetings: worker health inequalities; training new OSH professionals; future OSH research and practice; tools to measure well-being of workers; psychosocial hazards and adverse mental health effects; skilling, upskilling and improving job quality; socioeconomic influences; climate change; COVID-19 pandemic influences; and strategic foresight. **Conclusion:** Cross-cutting these themes is the need for systems and transdisciplinary thinking and operationalization of the concept of well-being to prepare the OSH field for the work of the future.

Schulte et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 22.

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Keywords: Climate; expanding occupational safety and health paradigm; future of work; inequality; mental health; occupational safety and health; pandemic; psychosocial; research methods; socioeconomic; strategic foresight; training and education; transdisciplinary; well-being.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/22/15381>

Occupation, worker vulnerability, and Covid-19 vaccination uptake: Analysis of the virus watch prospective cohort study

Background: Occupational disparities in COVID-19 vaccine uptake can impact the effectiveness of vaccination programmes and introduce particular risk for vulnerable workers and those with high workplace exposure. This study aimed to investigate COVID-19 vaccine uptake by occupation, including for vulnerable groups and by occupational exposure status. **Methods:** We used data from employed or self-employed adults who provided occupational information as part of the Virus Watch prospective cohort study (n = 19,595) and linked this to study-obtained information about vulnerability-relevant characteristics (age, medical conditions, obesity status) and work-related COVID-19 exposure based on the Job Exposure Matrix. Participant vaccination status for the first, second, and third dose of any COVID-19 vaccine was obtained based on linkage to national records and study records. We calculated proportions and Sison-Glaz multinomial 95% confidence intervals for vaccine uptake by occupation overall, by vulnerability-relevant characteristics, and by job exposure. **Findings:** Vaccination uptake across occupations ranged from 89-96% for the first dose, 87-94% for the second dose, and 75-86% for the third dose, with transport, trade, service and sales workers persistently demonstrating the lowest uptake. Vulnerable workers tended to demonstrate fewer between-occupational differences in uptake than non-vulnerable workers, although clinically vulnerable transport workers (76%-89% across doses) had lower uptake than several other occupational groups (maximum across doses 86%-96%). Workers with low SARS-CoV-2 exposure risk had higher vaccine uptake (86%-96% across doses) than those with elevated or high risk (81-94% across doses). **Interpretation:** Differential vaccination uptake by occupation, particularly amongst vulnerable and highly-exposed workers, is likely to worsen occupational and related socioeconomic inequalities in infection outcomes. Further investigation into occupational and non-occupational factors influencing differential uptake is required to inform relevant interventions for future COVID-19 booster rollouts and similar vaccination programmes.

Beale et al. 2022.

Vaccine, vol. 40, no. 52.

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Keywords: COVID-19; occupation; SARS-CoV-2; vaccination uptake.

Evidence Level: 4B

Link: <https://www.sciencedirect.com/science/article/pii/S0264410X22013627?via%3DIihub>

Alcohol consumption in the workplace: A comparison between European Union countries' policies

Background: Alcohol use is an ever-growing phenomenon in the population, consumption data indicate that 5-20% of the European working population have serious problems related to alcohol. The use of alcohol constitutes a risk to the health and safety of workers as well as to the safety of the general population. The present work aims to address the problem of alcohol intake in occupational settings by comparatively analyzing alcohol consumption behavior within the 27 countries of the European Union.

Methods: The purpose of this research is to analyze the differences between the 27 countries of the European Union in the application of measures to assess and manage the risk of alcohol intake in occupational settings. **Results:** An examination of the legislation and guidelines of the different countries reveals profound differences in the management of the problem of alcohol in the workplace. The discrepancy is very wide that it ranges from the complete absence of legislative restrictions on a national level in some countries to highly restrictive measures with severe sanctions in others. **Conclusions:** It would be appropriate-also for the purpose of ease of movement of workers within the European Community-to find shared management models useful for protecting the health and safety of workers and the general population.

Borrelli et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 24.

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Keywords: European countries; addiction; alcohol; health policy; occupational medicine.

Evidence Level: 6A

Link: <https://www.mdpi.com/1660-4601/19/24/16964>

Risk Assessment

This month we explore the ability to predict work-related risk factors among bus drivers using machine learning, and strategies for risk assessment of chemical toxicants in the workplace.

Prediction of work-related risk factors among bus drivers using machine learning

Background: A recent development in ergonomics research is using machine learning techniques for risk assessment and injury prevention. Bus drivers are more likely than other workers to suffer musculoskeletal diseases because of the nature of their jobs and their working conditions (WMSDs). The basic idea of this study is to forecast important work-related risk variables linked to WMSDs in bus drivers using machine learning approaches. **Methods:** A total of 400 full-time male bus drivers from the east and west zone depots of Bengaluru Metropolitan Transport Corporation (BMTC), which is based in Bengaluru, south India, took part in this study. In total, 92.5% of participants responded to the questionnaire. The Modified Nordic Musculoskeletal Questionnaire was used to gather data on symptoms of WMSD during the past 12 months (MNMQ). Machine learning techniques including decision tree, random forest, and naïve Bayes were used to forecast the important risk factors related to WMSDs. **Results:** It was discovered that WMSDs and work-related characteristics were statistically significant. In total, 66.75% of subjects reported having WMSDs. Various classifiers were used to derive the simulation results for the frequency of pain in the musculoskeletal systems throughout the last 12 months with the important risk variables. With 100% accuracy, decision tree and random forest algorithms produce the same results. Naïve Bayes yields 93.28% accuracy. In this study, through a questionnaire survey and data analysis, several health and work-related risk factors were identified among the bus drivers. Risk factors such as involvement in physical activities, frequent posture change, exposure to vibration, egress ingress, on-duty breaks, and seat adaptability issues have the highest influence on the frequency of pain due to WMSDs among bus drivers. **Conclusions:** From this study, it is recommended that drivers get involved in physical activities, adopt a healthy lifestyle, and maintain proper posture while driving. For any transport organization/company, it is recommended to design driver cabins ergonomically to mitigate the WMSDs among bus drivers.

Hanumegowda et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 22.

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Keywords: BMTC; decision tree; machine learning; naïve Bayes; random forest.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/22/15179>

Evaluation of strategies for the occupational health risk assessment of chemical toxicants in the workplace based on a quantitative analysis model

Background: The commonly used methods for the occupational health risk assessment (OHRA) of chemical toxicants cannot fully meet the needs of practical work. This study evaluated OHRA strategies for chemical toxicants in the workplace by establishing a quantitative analysis model. **Methods:** Five typical industries in China that implement OHRA using the six common models (the Environmental Protection Agency, Australian, Romanian, Singaporean, International Council on Mining and Metals, and the Control of Substances Hazardous to Health models) were selected as the research objects. We established a quantitative analysis model to compare the six models and applied it to compare the results obtained using each model and preliminarily analyze the advantages, limitations, and application scope of each method.

Results: The risk ratio (RR) values of the six methods decreased in the following order: $RR_{EPA} > RR_{COSHH} > RR_{ICMM} > RR_{Australia} > RR_{Singaporean} > RR_{Romanian}$ ($P < 0.05$). Among the six models, the Singaporean model had the strongest RR correlation with the other models ($P < 0.01$). The sequence of RRs obtained from the Singaporean, ICMM, Australian, and Romanian models in the five industries was consistent with the sequence of the three inherent risk levels in those industries. Only the Romanian model could distinguish between the RRs of all five industries. The EPA and Singaporean models could effectively distinguish the differences in inherent risk for four hazard factors (manganese and inorganic compounds, benzene, xylene, and ethyl acetate), with the assessment accuracy being relatively higher for the EPA model.

Conclusions: Among the six models, the EPA model had the relatively highest accuracy in assessing

chemical toxicants, followed by the Singaporean model. The EPA and Romanian models were strongest in differentiating the differences in toxicity risk. More studies on OHRA methodology are needed.

Xu et al. 2022.

Frontiers in Public Health, vol. 16.

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Keywords: Chemical toxicants; methodology; occupational health; risk assessment; workplace.

Evidence Level: 4B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1035065/full>

Chronic Health Issues

This month we explore the development of an intervention for work-related support in clinical care for patients with a chronic disease, chronic obstructive pulmonary disease mortality by industry and occupation, the relationship between nonalcoholic fatty liver disease and cardiac health, the role of the occupational disease consultant in interstitial lung diseases and the role of work for colorectal cancer survivors living with advanced cancer. In Covid-19 related research we explore the long-term self-reported health and disability after Covid-19 in public employees.

Work-related support in clinical care for patients with a chronic disease: Development of an intervention

Background: Patients with a chronic disease are more vulnerable in the labour market, and work-related support in clinical care would enhance the timely support greatly needed in each phase of their working life. This paper describes the development of a generic stay-at-work intervention to provide work-related support in clinical care to patients with a chronic disease. **Methods:** Steps 1-4 of Intervention Mapping (IM) were combined with action research principles. A needs assessment (Step 1) involved the project group formation, a literature review, qualitative studies with healthcare professionals (HCPs; n = 9) and patients (n = 10), consultation with financial staff and testing, and resulted in objectives (Step 2). Guided by methods and applications (Step 3), the intervention was developed, tested and finalized (Step 4).

Results: The needs assessment revealed the importance of behavioural change in HCPs, including changing attitude, self-efficacy, and social influence. For that purpose, a pathway and training sessions were developed. Testing these unveiled the need for practical tools and intervision. The final intervention comprises a care pathway as part of working routines, including screening, risk stratification, and tailored support. Practical tools, training sessions, and intervision for HCPs were developed.

Conclusions: Combining IM with action research principles resulted in a generic stay-at-work intervention in clinical care via behavioural change in HCPs. A generic care pathway, practical tools, training sessions, and intervision were developed. More specific alignment to specific patient groups is possible. To implement the intervention in another hospital, the local context, (financial) resources, and the national legislation should be considered.

Butink et al. 2022.

Journal of Occupational Rehabilitation, vol. 32, no. 4.

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Keywords: Chronic disease; clinical care; intervention.

Evidence Level: 6A

Link: <https://link.springer.com/article/10.1007/s10926-022-10032-z>

Nonalcoholic fatty liver disease is related to abnormal corrected qt interval and left ventricular hypertrophy in Chinese male steelworkers

Background: Nonalcoholic fatty liver disease (NAFLD) has been associated with an increased risks of corrected QT (QTc) prolongation and left ventricular hypertrophy (LVH), both of which are associated with the development of cardiovascular disease. Rotating night shift work and a higher risk of incident NAFLD have been reported in male steelworkers. This study aimed to investigate the association of the severity of NAFLD with a prolonged QTc interval and LVH in a large cohort of Chinese male steelworkers. **Methods:** We examined baseline data of 2998 male steel workers aged 26 to 71 years at two plants. All workers at both

plants received regular health assessments, including 12-lead ECG and echocardiography. Abdominal ultrasonography was performed to evaluate the severity of NAFLD. QTc prolongation was defined as follows: normal ≤ 430 ms, borderline 431-450 ms, and abnormal ≥ 451 ms. LVH was defined as a left ventricular mass index (LVMI) ≥ 131 g/m². Associations of NAFLD with an abnormal QTc interval and LVH were examined using univariate and multivariate analyses. **Results:** The QTc interval and the LVMI were significantly correlated with the NAFLD fibrosis score, and the severity of NAFLD was correlated with an abnormal QTc interval and LVH (p for trend < 0.05). Multivariate analysis showed that in comparison to the workers without NAFLD, the odds ratios of having an abnormal QTc interval and LVH were 2.54 (95% CI: 1.22-5.39, $p = 0.013$) times and 2.23 (95% CI: 1.02-5.01, $p = 0.044$) times higher in the workers with moderate/severe NAFLD. **Conclusions:** NAFLD may be closely associated with the risks of an abnormal QTc interval and LVH, suggesting that regular electrocardiogram and echocardiogram monitoring could be used to evaluate the risk of arrhythmia and LVH in male steelworkers with NAFLD.

Hung et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: Corrected QT prolongation; left ventricular hypertrophy; nonalcoholic fatty liver disease; steelworkers.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/19/21/14555>

Work: saviour or struggle? A qualitative study examining employment and finances in colorectal cancer survivors living with advanced cancer

Background: Continuing employment or returning to work (RTW) as a cancer survivor can be meaningful and financially necessary, yet challenging. However, there is a lack of qualitative research on RTW experiences and financial wellbeing of people with advanced colorectal cancer (CRC-A). This study aimed to fill this gap. **Methods:** Adults treated for CRC-A were recruited 0.5-2 years post-surgery (or post-diagnosis of CRC-A for palliative chemotherapy participants). Semi-structured telephone interviews, exploring RTW and finances, were subjected to framework analysis. Demographic, clinical, and quality of life data (FACT-C, Distress Thermometer, COST measure) were collected to characterise the sample and inform the framework analysis. **Results:** Analysis of 38 interviews revealed five overarching themes: work as a struggle, work as my identity, work as my saviour, work as a financial necessity, and employer and colleague response. Many survivors with CRC-A desired to, and had the capacity to, continue work or RTW, yet faced unique challenges from compounded stigma of both cancer and toileting issues. Inability to RTW negatively impacted financial and psychosocial wellbeing. Workplace support was an important facilitator of RTW.

Conclusion: For survivors with CRC-A, continuing or RTW is fraught with challenges, including physical functioning challenges, financial anxiety, and unsupportive workplace environments. Survivors require psychosocial, financial, and employer support to manage these difficulties. This paper recommends a multiprong approach, including education programmes (facilitated through workers' union groups, human resource institutions, and/or large consumer CRC groups) and policies, to support workers and for employers to understand the unique challenges of employees with CRC-A.

Lim et al. 2022.

Supportive Care in Cancer, vol. 30, no. 11.

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Keywords: Bowel cancer; cancer survivorship; financial wellbeing; qualitative interviews; return to work.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007/s00520-022-07307-9>

Chronic Obstructive Pulmonary Disease mortality by industry and occupation - United States, 2020

Background: Chronic obstructive pulmonary disease (COPD), a progressive lung disease, is characterized by long-term respiratory symptoms and airflow limitation (1). COPD accounts for most of the deaths from chronic lower respiratory diseases, the sixth leading cause of death in the United States in 2020.*

Workplace exposures and tobacco smoking are risk factors for COPD; however, one in four workers with COPD have never smoked (2-4). **Methods:** To describe COPD mortality among U.S. residents aged ≥ 15 years

categorized as ever-employed (i.e., with information on their usual industry and occupation), CDC analyzed the most recent 2020 multiple cause-of-death data† from 46 states and New York City.§ Among 3,077,127 decedents, 316,023 (10.3%) had COPD listed on the death certificate. **Results:** The highest age-adjusted COPD death rates per 100,000 ever-employed persons were for females (101.3), White persons (116.9), and non-Hispanic or Latino (non-Hispanic) persons (115.8). The highest proportionate mortality ratios (PMRs)†† were for workers employed in the mining industry (1.3) and in food preparation and serving related occupations (1.3). Elevated COPD mortality among workers in certain industries and occupations underscores the importance of targeted interventions (e.g., reduction or elimination of COPD-associated risk factors, engineering controls, and workplace smoke-free policies) to prevent COPD from developing and to intervene before illness becomes symptomatic or severe.

Syamlal et al. 2022.

Morbidity and Mortality Weekly Report, vol. 71, no. 49.

Keywords: Chronic Obstructive Pulmonary Disease; mortality; progressive lung disease.

Evidence Level: 4B

Link: https://www.cdc.gov/mmwr/volumes/71/wr/mm7149a3.htm?s_cid=mm7149a3_w

Long-term self-reported health and disability after COVID-19 in public employees

Background: Although the symptomatology has been assessed in multiple studies among persons recovering from coronavirus disease 2019 (COVID-19), less is known regarding long-term general health and disability. We aimed to assess long-term self-reported disability in public employees after predominantly mild COVID-19 in comparison with individuals who had negative COVID-19 polymerase chain reaction (PCR) test results. **Methods:** Public employees within Region Västra Götaland were offered tests to identify SARS-CoV-2 infection (n = 56,221) and were invited to complete an online survey that included the World Health Organization Disability Assessment Schedule. Questionnaires were sent out between January 26 and March 5, 2021. A total of 14,222 (25.3%) employees responded, of which 10,194 (18%) were included (women n = 8749, 85.8%). Of these, 7185 (70.5%) participants had a negative PCR test result (controls). A total of 1425 (14%) had a positive PCR result and were categorized in the sub-acute phase (4-12 weeks post COVID-19), and 1584 (15.5%) had a positive PCR test and were categorized in the post COVID-19 phase (> 12 weeks). **Results:** Fifty-two percent of controls rated disability of varying degrees, versus 73% and 64% of participants in the sub-acute and post COVID-19 phase, respectively. Being "emotionally affected" was the most frequently reported disability in the sub-acute phase, the post COVID-19 phase, as well as in controls. The proportion of participants reporting difficulties for 20-30 days was higher in the sub-acute phase than in the post COVID-19 phase (27.9% vs. 21.8%, p < 0.001) as well as in a comparison between participants in the post COVID-19 phase and controls (21.8% vs 14.2%, p < 0.001). Compared with controls, severe disability was more common in the post COVID-19 phase among both women (15.8% vs. 10.7%,) and men (9.8% vs. 6.8%). **Conclusions:** Disability was present in all groups; however, reported disability was greater in the sub-acute phase than in the post COVID-19 phase. The higher levels of disability reported in the COVID-19 patient population may indicate a persisting need for rehabilitation and recovery. In general, women reported a greater degree of disability than men in the sub-acute and post COVID-19 phases.

Kröönström et al. 2022.

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

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Keywords: COVID-19; disability; disability and health; international classification of functioning; post-acute COVID-19 syndrome; rehabilitation; SARS-CoV-2.

Evidence Level: 4B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-022-14820-3>

Role of the occupational disease consultant in the multidisciplinary discussion of interstitial lung diseases

Background: Diffuse interstitial lung diseases (ILD) constitute a heterogeneous group of conditions with complex etiological diagnoses requiring a multidisciplinary approach. Much is still unknown about them, particularly their relationship with occupational exposures. The primary objective of this study was to investigate the distribution of occupational exposures according to type of ILD. The secondary objectives

were to estimate the proportion of ILDs possibly related to occupational exposure and to evaluate the added value of the participation of an occupational disease consultant in ILD multidisciplinary discussions (MDD). **Methods:** From May to December 2020, all consecutive patients with ILD whose cases were reviewed during a MDD in a referral centre for ILD were prospectively offered a consultation with an occupational disease consultant. **Results:** Of the 156 patients with ILD whose cases were reviewed in MDD during the study period, 141 patients attended an occupational exposure consultation. Occupational exposure was identified in 97 patients. Occupational exposure to asbestos was found in 12/31 (38.7%) patients with idiopathic pulmonary fibrosis (IPF) and in 9/18 (50.0%) patients with unclassifiable fibrosis. Occupational exposure to metal dust was found in 13/31 (41.9%) patients with IPFs and 10/18 (55.6%) patients with unclassifiable fibrosis. Silica exposure was found in 12/50 (24.0%) patients with autoimmune ILD. The link between occupational exposure and ILD was confirmed for 41 patients after the specialist occupational consultation. The occupational origin had not been considered (n = 9) or had been excluded or neglected (n = 4) by the MDD before the specialised consultation. A total of 24 (17%) patients were advised to apply for occupational disease compensation, including 22 (15.6%) following the consultation. In addition, a diagnosis different from the one proposed by the MDD was proposed for 18/141 (12.8%) patients. **Conclusions:** In our study, we found a high prevalence of occupational respiratory exposure with a potential causal link in patients with ILD. We suggest that a systematic specialised consultation in occupational medicine could be beneficial in the ILD diagnostic approach.

Carlier et al. 2022.

Respiratory Research, vol. 23, no. 1.

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Keywords: Asbestos; interstitial lung disease; multidisciplinary discussion; occupational exposure; silica.

Evidence Level: 5B

Link: <https://respiratory-research.biomedcentral.com/articles/10.1186/s12931-022-02257-6>

Occupational Exposure

This month we explore occupational exposure issues associated with combined noise and hand-arm vibration, pesticides, including organophosphate and pyrethroid pesticides, and risk of cancer in workers offspring, hexavalent chromium, welding fumes, fire smoke exposure, occupational radon exposure, UV radiation, production of PC components and risk of noise induced hearing loss. In Covid-19 related research we explore asbestos exposure and severity of Covid-19, and risk of Covid-19 infection among healthcare personnel.

Proposal of combined noise and hand-arm vibration index for occupational exposure: Application to a study case in the olive sector

Background: In many production and industrial sectors, workers are exposed to noise and hand-arm vibrations (HAV). European directives have established the maximum limit values or exposure action values for noise and vibration independently. However, in many cases, workers who endure hand-arm vibration also receive high noise levels. **Methods:** This research suggests a procedure to aid the establishment of precautionary measures for workers with simultaneous exposure to both physical agents. This procedure defines a combined index based on the energy doses for both noise and HAV. **Results:** From this combined index, the suggested methodology allows a recommended exposure time for workers with simultaneous noise and HAV exposure to be calculated. This methodology can be adapted to tackle the relative importance assigned to both agents according to the safety manager and new knowledge on combined health effects. To test this method, a measurement campaign under real working conditions was conducted with workers from the olive fruit-harvesting sector, where a variety of hand-held machinery is used. The results of the study case show that the suggested procedure can obtain reliable exposure time recommendations for simultaneous noise and HAV exposures and is therefore a useful tool for establishing prevention measures.

Nieto-Álvarez et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 21.

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Keywords: HAV; noise; olive sector; physical agents; vibration; workers.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/19/21/14345>

Occupational exposure to pesticides in mothers and fathers and risk of cancer in the offspring: A register-based case-control study from Sweden (1960-2015)

Background: Maternal and paternal occupational exposure to pesticides was linked to leukemia in the offspring in some previous studies. Risks for other cancers, particularly from maternal exposure, are largely unknown. **Methods:** We examined the association between maternal and paternal exposure to pesticides and childhood cancer in a Swedish register-based case-control study (1960-2015). Cancer cases <20 years old were identified from the Cancer Register (n = 17313) and matched to controls (1:25) on birth year and sex. Employment history of each biological parent around the child's birth was retrieved from six censuses and a nationwide register, and exposure to any of herbicides, insecticides, and fungicides was evaluated using the Swedish job-exposure matrix (SWEJEM) in 9653/172194 mothers and 12521/274434 fathers of cases/controls. Adjusted odds ratios (OR) and 95% confidence intervals (CI) were estimated from conditional logistic regression models for any cancer, leukemia, lymphoma, central nervous system [CNS], and other solid tumors. **Results:** We found an OR of 1.42 (95% CI 0.78, 2.57; 12 exposed cases) for lymphoma and 1.30 (95% CI 0.88, 1.93; 27 exposed cases) for other solid tumors associated with maternal occupational exposure to pesticides. No associations were observed between maternal exposure and leukemia or CNS tumors, or paternal exposure and any of the cancers examined, except for a potential association between pesticides exposure and myeloid leukemia (OR 1.15 [95% CI 0.73, 1.79; 22 exposed cases]). **Conclusions:** Although these findings merit further investigation, they indicate that parental exposure to pesticides may lead to higher risks of childhood cancer even in settings of low exposure.

Rossides et al. 2022.

Environmental Research, vol. 214.

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Keywords: Case-control studies; childhood cancer; parental occupational exposure; pesticides; registries; Sweden.

Evidence Level: 5B

Link: <https://www.sciencedirect.com/science/article/pii/S0013935122011471?via%3Dihub>

Occupational exposure to Cr(VI) in Finland in 1980-2016 and related lung cancer risk assessment

Background: Occupational exposure to hexavalent chromium [Cr(VI)], a known lung carcinogen, remains a relevant concern. When performing exposure assessment for risk assessment, biomonitoring is an important tool, reflecting actual internal exposure of workers. **Methods:** Here, we present total urinary chromium (U-Cr) biomonitoring data from several occupational sectors, spanning 1980-2016 (n > 42,000). Based on these data, we estimated lifelong (40-year) occupational lung cancer risks in the Cr-plating and welding sectors. We used published regression formulas to relate internal (U-Cr) and external Cr(VI) inhalation exposures, allowing risk assessment based on a published lung cancer dose-response. **Results:** Generally, measured U-Cr levels decreased considerably over the study period. The overall highest U-Cr P95 levels (representing realistic worst-case) were measured in the interval 1980-1989 in casters, maintenance workers and welders (40-45 µg/L). By the interval 2010-2016, the U-Cr P95 had decreased to ≤9.5 µg/L in all studied sectors. Lifelong external Cr(VI) exposure estimation for 1980-2019 was 0.16-0.32 mg/m³ x year for platers and 1.03 mg/m³ x year for welders. Worst-case lifelong lung cancer relative risk (RR) estimates were 1.28-1.56 for platers and 2.80 for welders; attributable risks (AR) were 22-36% for platers and 64% for welders. Uncertainties that may have impacted the risk assessment are discussed.

Mahiout et al. 2022.

Regulatory Toxicology Pharmacology, vol. 136.

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Keywords: HBM4EU; hexavalent chromium; human biomonitoring; lung cancer; occupational exposure; risk assessment.

Evidence Level: 4B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S0273-2300\(22\)00163-5](https://linkinghub.elsevier.com/retrieve/pii/S0273-2300(22)00163-5)

Modelling the occupational health risk of workers caused by environmental release during the production of PC components

Background: Prefabricated construction is one of the solutions to the problem of balancing environmental improvements with the new buildings in the construction industry. Some work originally done on site is transferred to the front end, and the occupational health risks to industrial workers during the production of prefabricate concrete components are thus aggravated. **Methods and Results:** This study aims to propose a framework to simulate the occupational health risks of workers in prefabricate concrete component plants from the perspective of risk identification, risk assessment, and risk control. Through the following 4 steps, including environmental release monitoring, diffusion and human inhalation mechanism analysis, occupational health risk evaluation, and full-path health risk simulation, this study maps physical entities to virtual reality. **Conclusions:** The proposed method tends to address the root causes behind occupational health risks, such as the lack of measurement, assessment and prevention criteria, and providing new ideas for theoretical research and innovative practice of HSE management and risk management in the construction industry.

Cui et al. 2022.

Frontiers in Public Health, vol. 22, no. 10.

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Keywords: LCA; environmental release; occupational health risks; prefabricate concrete; risk management assessment.

Evidence Level: 5B

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1076461/full>

The effect of occupational exposure to welding fumes on trachea, bronchus and lung cancer: A systematic review and meta-analysis from the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury

Background: The World Health Organization (WHO) and the International Labour Organization (ILO) are the producers of the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates). Welding fumes have been classified as carcinogenic to humans (Group 1) by the WHO International Agency for Research on Cancer (IARC) in IARC Monograph 118; this assessment found sufficient evidence from studies in humans that welding fumes are a cause of lung cancer. In this article, we present a systematic review and meta-analysis of parameters for estimating the number of deaths and disability-adjusted life years from trachea, bronchus, and lung cancer attributable to occupational exposure to welding fumes, to inform the development of WHO/ILO Joint Estimates on this burden of disease (if considered feasible). **Objectives:** We aimed to systematically review and meta-analyse estimates of the effect of any (or high) occupational exposure to welding fumes, compared with no (or low) occupational exposure to welding fumes, on trachea, bronchus, and lung cancer (three outcomes: prevalence, incidence, and mortality). **Data sources:** We developed and published a protocol, applying the Navigation Guide as an organizing systematic review framework where feasible. We searched electronic databases for potentially relevant records from published and unpublished studies, including Medline, EMBASE, Web of Science, CENTRAL and CISDOC. We also searched grey literature databases, Internet search engines, and organizational websites; hand-searched reference lists of previous systematic reviews; and consulted additional experts. **Study eligibility and criteria:** We included working-age (≥ 15 years) workers in the formal and informal economy in any Member State of WHO and/or ILO but excluded children (< 15 years) and unpaid domestic workers. We included randomized controlled trials, cohort studies, case-control studies, and other non-randomized intervention studies with an estimate of the effect of any (or high) occupational exposure to welding fumes, compared with occupational exposure to no (or low) welding fumes, on trachea, bronchus, and lung cancer (prevalence, incidence, and mortality). **Study appraisal and synthesis methods:** At least two review authors independently screened titles and abstracts against the eligibility

criteria at a first review stage and full texts of potentially eligible records at a second stage, followed by extraction of data from qualifying studies. If studies reported odds ratios, these were converted to risk ratios (RRs). We combined all RRs using random-effects meta-analysis. Two or more review authors assessed the risk of bias, quality of evidence, and strength of evidence, using the Navigation Guide tools and approaches adapted to this project. Subgroup (e.g., by WHO region and sex) and sensitivity analyses (e.g., studies judged to be of "high"/"probably high" risk of bias compared with "low"/"probably low" risk of bias) were conducted. **Results:** Forty-one records from 40 studies (29 case control studies and 11 cohort studies) met the inclusion criteria, comprising over 1,265,512 participants ($\geq 22,761$ females) in 21 countries in three WHO regions (Region of the Americas, European Region, and Western Pacific Region). The exposure and outcome were generally assessed by job title or self-report, and medical or administrative records, respectively. Across included studies, risk of bias was overall generally probably low/low, with risk judged high or probably high for several studies in the domains for misclassification bias and confounding. Our search identified no evidence on the outcome of having trachea, bronchus, and lung cancer (prevalence). Compared with no (or low) occupational exposure to welding fumes, any (or high) occupational exposure to welding fumes increased the risk of acquiring trachea, bronchus, and lung cancer (incidence) by an estimated 48 % (RR 1.48, 95 % confidence interval [CI] 1.29-1.70, 23 studies, 57,931 participants, I^2 24 %; moderate quality of evidence). Compared with no (or low) occupational exposure to welding fumes, any (or high) occupational exposure to welding fumes increased the risk dying from trachea, bronchus, and lung cancer (mortality) by an estimated 27 % (RR 1.27, 95 % CI 1.04-1.56, 3 studies, 8,686 participants, I^2 0 %; low quality of evidence). Our subgroup analyses found no evidence for difference by WHO region and sex. Sensitivity analyses supported the main analyses. **Conclusions:** Overall, for incidence and mortality of trachea, bronchus, and lung cancer, we judged the existing body of evidence for human data as "sufficient evidence of harmfulness" and "limited evidence of harmfulness", respectively. Occupational exposure to welding fumes increased the risk of acquiring and dying from trachea, bronchus, and lung cancer. Producing estimates for the burden of trachea, bronchus, and lung cancer attributable to any (or high) occupational exposure to welding fumes appears evidence-based, and the pooled effect estimates presented in this systematic review could be used as input data for the WHO/ILO Joint Estimates. PROTOCOL IDENTIFIER: <https://doi.org/10.1016/j.envint.2020.106089>.

Loomis et al. 2022.

Environment International, vol. 170.

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Keywords: Burden of disease; lung neoplasms; meta-analysis; occupational health; systematic review; tracheal neoplasms; welding.

Evidence Level: 1A

Link: <https://www.sciencedirect.com/science/article/pii/S0160412022004925?via%3Dihub>

Asbestos exposure and severity of COVID-19

Background: The aim of this study was to analyse the relationship between occupational exposure to asbestos and the severity of SARS-CoV-2 infection. **Methods:** We evaluated patients who survived admission in our centre for COVID-19 pneumonia. Demographic, analytical, and clinical variables were collected during admission. After discharge, a previously validated occupational exposure to asbestos questionnaire was administered. Spirometry, CO diffusion test, the 6-min walk test, and high-resolution chest CT were performed. Patients who required respiratory support (oxygen, CPAP, or NIV) were considered severe. **Results:** In total, 293 patients (mean age 54 + 13 years) were included. Occupational exposure to asbestos was detected in 67 (24%). Patients with occupational exposure to asbestos had a higher frequency of COVID-19 pneumonia requiring respiratory support ($n = 52$, 77.6%) than their unexposed peers ($n = 139$, 61.5%) ($p = 0.015$). Asbestos exposure was associated with COVID-19 severity in the univariate but not in the multivariate analysis. No differences were found regarding follow-up variables including spirometry and the DLCO diffusion, the 6-min walk test, and CT alterations. **Conclusions:** In hospitalised patients with COVID-19 pneumonia, those with occupational exposure to asbestos more frequently needed respiratory support. However, an independent association between asbestos exposure and COVID-19 severity could not be confirmed.

Granados et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 23.

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Keywords: COVID-19; asbestos exposure; occupational exposure; questionnaire (QEAS-7).

Evidence Level: 4A

Link: <https://www.mdpi.com/1660-4601/19/23/16305>

The effect of fire smoke exposure on firefighters' lung function: A meta-analysis

Background: Firefighters are exposed to a range of harmful substances during firefighting. Exposure to fire smoke has been associated with a decrease in their lung function. However, the cause-effect relationship between those two factors is not yet demonstrated. **Methods:** This meta-analysis aimed to evaluate the potential associations between firefighters' occupational exposure and their lung function deterioration. Studies were identified from PubMed, Web of Science, Scopus and Science Direct databases (August 1990-March 2021). The studies were included when reporting the lung function values of Forced Expiratory Volume in 1 s (FEV1) or Forced Vital Capacity (FVC). The meta-analyses were performed using the generic inverse variance in R software with a random-effects model. Subgroup analysis was used to determine if the lung function was influenced by a potential study effect or by the participants' characteristics. **Results:** A total of 5562 participants from 24 studies were included. No significant difference was found between firefighters' predicted FEV1 from wildland, 97.64% (95% CI: 91.45-103.82%; I² = 99%), and urban fires, 99.71% (95% CI: 96.75-102.67%; I² = 98%). Similar results were found for the predicted FVC. Nevertheless, the mean values of firefighters' predicted lung function varied significantly among studies, suggesting many confounders, such as trials' design, statistical methods, methodologies applied, firefighters' daily exposure and career length, hindering an appropriate comparison between the studies.

Barbosa et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 24.

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Keywords: FVC and FEV1; firefighters; lung function; meta-analysis; occupational exposure.

Evidence Level: 1A

Link: <https://www.mdpi.com/1660-4601/19/24/16799>

Occupational and residential exposures to organophosphate and pyrethroid pesticides in a rural setting

Background: Organophosphate (OP) and pyrethroid pesticides (PYR) are extensively used in agriculture, resulting in higher exposures among farmworkers. **Methods:** The present study reports the occurrence of 8 urinary OP and PYR metabolites in a sample of farmworkers and residents from Sucs (n = 87), a rural township in North West Catalonia (Spain). The aim of the present study was to examine differences in urinary pesticide metabolite concentrations between occupationally-exposed (farmworkers; n = 45) and environmentally-exposed subjects (n = 42) and to assess the relationship between pesticide's exposures and occupational activities in a real-case scenario. Six OP and two PYR metabolites have been investigated, urine samples were extracted using SPE extraction and analyzed by UPLC-MS/MS. **Results:** Three OP metabolites were commonly detectable in urine, namely TCPY (metabolite of chlorpyrifos), PNP (parathion) and DEAMPY (pirimiphos). Regarding pyrethroids, the two analyzed metabolites, 3-PBA and 4F-3-PBA, were detected in a high proportion of urine samples. Differences in concentrations between both groups were statistically significant for TCPY and 4F-3-PBA (Mann-Whitney U Test for independent groups, p < 0.05). In the case of TCPY, the concentrations were higher among the farmworkers, which is consistent with their occupational activity. The small differences found in DEAMPY, PNP, 3-PBA or even the significant higher concentrations of 4F-3-PBA among rural population suggest a general exposure to these compounds, even in those who do not carry an occupational activity. Specific personal protective equipment (PPE) among farmworkers, such as the use of gloves and mask during mixing, showed a decrease in the exposure levels, although the differences were not statistically significant. However, a positive association was found between the use of a cap during mixing (for PNP and 3-PBA) and during application (only for 3-PBA). However, this piece of cloth is mainly used for sun protection, and when not cleaned after the handling of pesticides, it might represent a continuous source of exposure through dermal contact. Farmworkers using tractors with cabin had statistically significant lower concentrations of DEAMPY than those using a tractor

without cabin. The previous results suggest that occupational protections should be encouraged among farmworkers and other potential workers handling with pesticides.

Bravo et al. 2022.

Environmental Research, vol.214.

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Keywords: Farmworker; occupational exposure; organophosphate pesticides; personal protective equipment; pyrethroids; rural area; urinary metabolites.

Evidence Level: 5B

Link: <https://www.sciencedirect.com/science/article/pii/S0013935122015134?via%3Dihub>

Characterizing occupational radon exposure greater than 100 Bq/m(3) in a highly exposed country

Background: Radon is an established lung carcinogen concentrating in indoor environments with importance for many workers worldwide. However, a systematic assessment of radon levels faced by all workers, not just those with direct uranium or radon exposure, has not previously been completed. The objective of this study was to estimate the prevalence of workers exposed to radon, and the level of exposure (> 100-200 Bq/m³, 200-400 Bq/m³, 400-800 Bq/m³, and > 800 Bq/m³) in a highly exposed country (Canada). **Methodology:** Exposures among underground workers were assessed using the CAREX Canada approach. Radon concentrations in indoor workplaces, obtained from two Canadian surveys, were modelled using lognormal distributions. Distributions were then applied to the susceptible indoor worker population to yield the number of exposed workers, by occupation, industry, province, and sex. **Results:** In total, an estimated 603,000 out of Canada's 18,268,120 workers are exposed to radon in Canada. An estimated 52% of exposed workers are women, even though they comprise only 48% of the labour force. The majority (68%) are exposed at a level of > 100-200 Bq/m³. Workers are primarily exposed in educational services, professional, scientific and technical services, and health care and social assistance, but workers in mining, quarrying, and oil and gas extraction have the largest number of exposed workers at high levels (> 800 Bq/m³). Overall, a significant number of workers are exposed to radon, many of whom are not adequately protected by existing guidelines. Radon surveys across multiple industries and occupations are needed to better characterize occupational exposure. **Conclusions:** These results can be used to identify exposed workers, and to support lung cancer prevention programs within these groups.

Brobbey et al. 2022.

Scientific Reports, vol. 12, no. 1.

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Keywords: Radon; carcinogen; exposure; workers.

Evidence Level: 5B

Link: <https://www.nature.com/articles/s41598-022-25547-x>

Workplace exposure to UV radiation and strategies to minimize cancer risk

Background: Workplace exposure to solar ultraviolet (UV) causes malignant melanoma and non-melanoma skin cancer. The evidence for beneficial effects of solar UV exposure in reducing the risks for other cancers is increasing. The intensity of UV radiation at the Earth's surface is dependent on latitude, but even in northern European countries exposure can be high enough for outdoor work to cause skin cancer. **Growing points:** Awareness of the health risks and benefits of occupational solar UV exposure is poor. Actions to reduce the risk of skin cancer have been identified and employers should recognize their responsibility to actively manage these risks. There is evidence for reduced risks for breast, ovarian and colorectal cancer and possibly other cancers linked to solar UV exposure. **Sources of data:** This narrative review draws on published scientific articles and material designed to assist identifying strategies to protect workers from solar UV exposure. **Areas of agreement:** Solar UV exposure can be harmful. Wavelengths in the UVB range are more effective in causing erythema and DNA damage. Solar UV is the main source of vitamin D for most people. Primary and secondary prevention for skin cancer can potentially eliminate these risks but the evidence for effectiveness is limited. **Areas of controversy:** Potential health benefits of UV exposure, particularly for reduced cancer risk. Determining and communicating optimal exposure to maximize health benefits. The risk of non-melanoma skin cancers may be more than doubled for some workers in temperate

latitudes. **Areas timely for developing research:** Exposure-response epidemiological studies; studies of the health benefits of occupational UV exposure; studies of the effectiveness of intervention strategies to prevent skin cancer. Use of low-cost UV sensors in workplaces.

Cherrie et al. 2022.

British Medical Bulletin, vol. 144, no. 1.

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Keywords: Occupational exposure; outdoor work; sunlight; ultraviolet radiation.

Evidence Level: 6A

Link: <https://academic.oup.com/bmb/article/144/1/45/6668781?login=true>

Occupational exposure to severe acute respiratory coronavirus virus 2 (SARS-CoV-2) and risk of infection among healthcare personnel

Background: To assess the rate and factors associated with healthcare personnel (HCP) testing positive for severe acute respiratory coronavirus virus 2 (SARS-CoV-2) after an occupational exposure. **Design:** Retrospective cohort study. **Setting:** Academic medical center with sites in Minnesota, Wisconsin, Arizona, and Florida. **Participants:** HCP with a high or medium risk occupational exposure to a patient or other HCP with SARS-CoV-2. **Methods:** We reviewed the records of HCP with significant occupational exposures from March 20, 2020, through December 31, 2020. We then performed regression analysis to assess the impact of demographic and occupational variables to assess their impact on the likelihood of testing positive for SARS-CoV-2. **Results:** In total, 2,253 confirmed occupational exposures occurred during the study period. Employees were the source for 57.1% of exposures. Overall, 101 HCP (4.5%) tested positive in the postexposure period. Of these, 80 had employee sources of exposure and 21 had patient sources of exposure. The postexposure infection rate was 6.2% when employees were the source, compared to 2.2% with patient sources. In a multivariate analysis, occupational exposure from an employee source had a higher risk of testing positive compared to a patient source (odds ratio [OR], 3.22; 95% confidence interval [CI], 1.72-6.04). Sex, age, high-risk exposure, and HCP role were not associated with an increased risk of testing positive. **Conclusions:** The risk of acquiring coronavirus disease 2019 (COVID-19) following a significant occupational exposure has remained relatively low, even in the prevaccination era. Exposure to an infectious coworker carries a higher risk than exposure to a patient. Continued vigilance and precautions remain necessary in healthcare settings.

Shah et al. 2022.

Infection Control and Hospital Epidemiology, vol. 43, no. 12.

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Keywords: Coronavirus; occupational exposure; severe acute respiratory; healthcare personnel.

Evidence Level: 4B

Link: <https://www.cambridge.org/core/journals/infection-control-and-hospital-epidemiology/article/occupational-exposure-to-severe-acute-respiratory-coronavirus-virus-2-sarscov2-and-risk-of-infection-among-healthcare-personnel/AA794A1BD30434386CBD14A3199A515F>

Estimation of occupational noise-induced hearing loss using kurtosis-adjusted noise exposure levels

Background: Studies have shown that in addition to energy, kurtosis plays an important role in the assessment of hearing loss caused by complex noise. The objective of this study was to investigate how to use noise recordings and audiometry collected from workers in industrial environments to find an optimal kurtosis-adjusted algorithm to better evaluate hearing loss caused by both continuous noise and complex noise. **Design:** In this study, the combined effects of energy and kurtosis on noise-induced hearing loss (NIHL) were investigated using data collected from 2601 Chinese workers exposed to various industrial noises. The cohort was divided into three subgroups based on three kurtosis (β) levels (K 1 : $3 \leq \beta \leq 10$, K 2 : $10 < \beta \leq 50$, and K 3 : $\beta > 50$). Noise-induced permanent threshold shift at test frequencies 3, 4, and 6 kHz (NIPTS 346) was used as the indicator of NIHL. Predicted NIPTS 346 was calculated using the ISO 1999 model for each participant, and the actual NIPTS was obtained by correcting for age and sex using non-noise-exposed Chinese workers (n = 1297). A kurtosis-adjusted A-weighted sound pressure level normalized to a nominal 8-hour working day (L Aeq,8h) was developed based on the kurtosis categorized group data sets using multiple linear regression. Using the NIPTS 346 and the L Aeq,8h metric, a dose-response

relationship for three kurtosis groups was constructed, and the combined effect of noise level and kurtosis on NIHL was investigated. **Results:** An optimal kurtosis-adjusted L Aeq,8h formula with a kurtosis adjustment coefficient of 6.5 was established by using the worker data. The kurtosis-adjusted L Aeq,8h better estimated hearing loss caused by various complex noises. The analysis of the dose-response relationships among the three kurtosis groups showed that the NIPTS of K 2 and K 3 groups was significantly higher than that of K 1 group in the range of 70 dBA ≤ L Aeq,8h < 85 dBA. For 85 dBA ≤ L Aeq,8h ≤ 95 dBA, the NIPTS 346 of the three groups showed an obvious K 3 > K 2 > K 1. For L Aeq,8h >95 dBA, the NIPTS 346 of the K 2 group tended to be consistent with that of the K 1 group, while the NIPTS 346 of the K 3 group was significantly larger than that of the K 1 and K 2 groups. When L Aeq,8h is below 70 dBA, neither continuous noise nor complex noise produced significant NIPTS 346. **Conclusions:** Because non-Gaussian complex noise is ubiquitous in many industries, the temporal characteristics of noise (i.e., kurtosis) must be taken into account in evaluating occupational NIHL. A kurtosis-adjusted L Aeq,8h with an adjustment coefficient of 6.5 allows a more accurate prediction of high-frequency NIHL. Relying on a single value (i.e., 85 dBA) as a recommended exposure limit does not appear to be sufficient to protect the hearing of workers exposed to complex noise.

Zhang et al. 2022.

Ear and Hearing, vol. 43, no. 6.

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Keywords: Hearing loss; kurtosis; noise exposure.

Evidence Level: 4B

Link: https://journals.lww.com/ear-hearing/Fulltext/2022/11000/Estimation_of_Occupational_Noise_Induced_Hearing.27.aspx

Relationship between occupational noise and hypertension in modern enterprise workers: A case-control study

Background: The association between occupational noise exposure and hypertension is controversial. Thus, we aimed to assess the relationship between occupational noise exposure and hypertension. **Methods:** This was a case-control study, and 509 cases and 1,018 controls from an automobile company were included between July and October 2013. Occupational noise exposure was defined as exposure to noise level ≥80 dB(A) (Lex, 8 h) or cumulative noise exposure (CNE) ≥ 80 dB(A)-years. To assess the associations of noise level and CNE with hypertension, univariate and multivariate logistic regression were performed to calculate odds ratios (ORs) and 95% confidence intervals (CIs). The restricted cubic spline function was used to establish dose-response curves. **Results:** A noise level ≥80 dB (A) (Lex, 8 h) was significantly associated with hypertension (OR 2.48, 95% CI 1.89-3.24). CNE ≥80 dB (A)-years was significantly associated with hypertension (OR 1.53, 95% CI 1.18-2.00). Nonlinear relationships between noise level, CNE and hypertension were found (p- nonlinear<0.05). **Conclusion:** Our study suggests that occupational noise exposure is a potential risk factor for hypertension in automobile company workers.

Zhou et al. 2022.

International Journal of Public Health, vol. 67.

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Keywords: Blood pressure; cumulative noise exposure; dose response relationship; noise level; risk factors.

Evidence Level: 5B

Link: <https://www.ssph-journal.org/articles/10.3389/ijph.2022.1604997/full>

Sedentary Practices

Effects of combined training during the COVID-19 pandemic on metabolic health and quality of life in sedentary workers: A randomized controlled study

Background: This study aimed to analyze the effects of a combined training (CT) program performed during the first national lockdown due to the COVID-19 pandemic on body composition, metabolic profile, quality

of life and stress in sedentary workers, and examines whether changes in the metabolic profile are associated with changes in health-related outcomes which are modifiable by exercise. **Methods:** We evaluated 31 sedentary workers (48.26 ± 7.89 years old). Participants were randomly assigned to a CT group (i.e., performed 16 weeks of exercise) or to a non-exercise control group. The CT program consisted of 16-week of resistance and aerobic exercise. Body composition, glycemic and lipidic profiles, cardiorespiratory fitness (CRF), health-related quality of life and stress levels were assessed pre- and post-intervention. **Results:** After the intervention period, the CT group demonstrated significantly lower waist and hip circumference ($p < 0.05$) values than the control group. The control group significantly increased the fasting glucose and HOMA-IR after 16 weeks follow-up ($+4.74$ mg/dL, $p = 0.029$; and $+0.41$ units, $p = 0.010$, respectively), while no significant changes were observed in the CT group in the same parameters ($+3.33$ mg/dL, $p = 0.176$; and $+0.04$ units, $p = 0.628$, respectively). No changes were observed in the lipid profile for either group ($p > 0.05$). A significant positive relationship was detected between the change in BMI with the changes in insulin and HOMA-IR ($r = 0.643$, $p = 0.024$; and $r = 0.605$, $p = 0.037$, respectively). In addition, the changes in CRF were negatively associated with the changes in total cholesterol ($r = -0.578$, $p = 0.049$). We observed differences between groups on perceived stress levels and physical, psychological, and environmental domains of quality of life, with the CT group showing better results. Moreover, the CT group improved perceived life satisfaction ($+3.17$ points, $p = 0.038$). **Conclusions:** The findings of the present study suggest that the participants who remained physically active during the first pandemic-related lockdown were able to mitigate the deleterious effects associated with a sedentary lifestyle.

Silva et al. 2022.

Frontiers in Public Health, vol. 10.

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Keywords: COVID-19; insulin resistance; physical activity; quality of life; stress-reducing interventions.

Evidence Level: 2A

Link: <https://www.frontiersin.org/articles/10.3389/fpubh.2022.1040714/full>

Musculoskeletal Health

This month we explore the use of biomechanical job exposure matrices with job history to quantify work exposure for musculoskeletal disorders, the relationship between forward bending of the back and long-term sickness absence risk, and the use of a participatory ergonomics intervention to prevent work disability among workers with low back pain. In other research we explore the effects of a sit-stand desk, factors related to shoulder work-related musculoskeletal disorders and the use of the Borg CR-10 scale to predict future neck and low back pain. In Covid-19 related research we explore the musculoskeletal pain trajectories of employees working from home and the relationships between musculoskeletal symptoms, self-rated health, work locations and Covid-19 diagnosis.

Relationships among musculoskeletal symptoms, self-rated health, and work locations in studies of computer work or Coronavirus diagnosis

Background: To clarify work location's association with musculoskeletal symptoms. **Methods:** Study 1 surveyed 246 working adults who usually felt pain, in general, and increased pain from computer work. Study 2 surveyed a nationally representative sample of 1084 working adults. **Results:** In study 1, 32.5% of the participants sought treatment for their increased pain from computer work. Education differed by work location. When education was considered, there were no significant work location differences in pain intensity, pain interference, or self-rated health. In study 2, COVID-19 diagnoses, education, and gender differed by work location. Age and work location explained self-rated health. Self-rated health was associated with musculoskeletal ache. Work location did not significantly predict musculoskeletal ache. **Conclusion:** Working at home was associated with fewer COVID-19 diagnoses and higher self-rated health than working at employers' locations.

Dannecker et al. 2022.

Journal of Occupational and Environmental Medicine, vol. 64, no. 12.

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Keywords: Musculoskeletal; health; symptoms; Coronavirus.

Evidence Level: 5A

Link:

https://journals.lww.com/joem/Fulltext/2022/12000/Relationships_Among_Musculoskeletal_Symptoms,.12.aspx

How to use biomechanical job exposure matrices with job history to assess work exposure for musculoskeletal disorders? Application of mathematical modeling in severe knee pain in the constances cohort

Background: Musculoskeletal disorders related to work might be caused by the cumulative effect of occupational exposures during working life. We aimed to develop a new model which allows to compare the accuracy of duration of work and intensity/frequency associations in application to severe knee pain.

Methods: From the CONSTANCES cohort, 62,620 subjects who were working at inclusion and coded were included in the study. The biomechanical job exposure matrix "JEM Constances" was used to assess the intensity/frequency of heavy lifting and kneeling/squatting at work together with work history to characterize the association between occupational exposure and severe knee pain. An innovative model G was developed and evaluated, allowing to compare the accuracy of duration of work and intensity/frequency associations.

Results: The mean age was 49 years at inception with 46 percent of women. The G model developed was slightly better than regular models. Among the men subgroup, odds ratios of the highest quartile for the duration and low intensity were not significant for both exposures, whereas intensity/duration were for every duration. Results in women were less interpretable.

Conclusions: Though higher duration increased strength of association with severe knee pain, intensity/frequency were important predictors among men. Exposure estimation along working history should have emphasis on such parameters, though other outcomes should be studied and have a focus on women.

Deltreil et al. 2022.

International Journal of Environmental Research and Public Health, vol. 19, no. 23.

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Keywords: Lifecourse; mathematical modeling; musculoskeletal; occupational; pain.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/19/23/16217>

Does occupational forward bending of the back increase long-term sickness absence risk? A 4-year prospective register-based study using device-measured compositional data analysis

Background: Forward bending of the back is common in many jobs and a risk factor for sickness absence. However, this knowledge is based on self-reported forward bending that is generally imprecise. Thus, we aimed to investigate the dose-response relation between device-measured forward bending at work and prospective register-based risk of long-term sickness absence (LTSA). **Methods:** At baseline, 944 workers (93% from blue-collar jobs) wore accelerometers on their upper back and thigh over 1-6 workdays to measure worktime with forward bending (>30° and >60°) and body positions. The first event of LTSA (≥6 consecutive weeks) over a 4-year follow-up were retrieved from a national register. Compositional Cox proportional hazard analyses were used to model the association between worktime with forward bending of the back in an upright body position and LTSA adjusted for age, sex, body mass index (BMI), occupational lifting/carrying, type of work, and, in an additional step, for leisure time physical activity (PA) on workdays.

Results: During a mean worktime of 457 minutes/day, the workers on average spent 40 and 10 minutes on forward bending >30° and >60° in the upright position, respectively. Five more minutes forward bending >30° and >60° at work were associated with a 4% [95% confidence interval (CI) 1.01-1.07] and 8% (95% CI 1.01-1.16) higher LTSA risk, respectively. Adjustment for leisure-time PA did not influence the results.

Conclusion: We found a dose-response association between device-measured forward bending of the back and prospective LTSA risk. This knowledge can be integrated into available feasible methods to measure forward bending of the back for improved workplace risk assessment and prevention.

Gupta et al. 2022.

Scandinavian Journal of Work, Environment and Health, vol. 48, no. 8.

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Keywords: Sickness; absence; forward bending; back.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/4047>

Participatory ergonomics intervention to prevent work disability among workers with low back pain: A randomized clinical trial in workplace setting

Background: In order to support people with low back pain (LBP) to stay at work, work arrangements are regarded important. This study aimed to evaluate the effectiveness of a workplace intervention using a participatory approach on work disability of workers with ongoing or recurrent LBP. **Methods:** A total of 107 workers with LBP, with duration of pain for at least two consecutive weeks or recurrent pain of any duration during the last year, were randomized either to the intervention (n = 51) or control group (n = 56). The intervention included arrangements at the workplace, along with individual guidance provided by an occupational physiotherapist (OPT). The randomized intervention study used standard counselling and guidance by an OPT without workplace intervention as a comparison. Surveys were completed at baseline, and 6 and 12 months after baseline. **Results:** There were no statistically significant differences between the intervention and control groups on the primary outcome measure, i.e. self-assessed work ability. We found no between-group differences in perceived health, self-assessed work productivity, number of sickness absence days and severity of back pain. However, there were significant positive within-group changes in the intervention group in the intensity of LBP, perceived health and the number of sickness absence days due to LBP. **Conclusion:** Workplace arrangements are feasible using participatory ergonomics, but more quantitative and qualitative research is needed on its utilization and effectiveness among workers with LBP. **Sormunen et al. 2022.**

Journal of Occupational Rehabilitation, vol. 32, no. 4.

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Keywords: Clinical trial; ergonomics; low back pain; occupational health service; workplace.

Evidence Level: 3A

Link: <https://link.springer.com/article/10.1007/s10926-022-10036-9>

Longitudinal effects of a sit-stand desk intervention - persistence, fade-out, and psychological momentum: A randomized controlled trial

Background: This study examined whether the effects of a sit-stand desk (SSD) intervention on employees' musculoskeletal complaints (i.e., intensity and prevalence) and activation (i.e., vigilance and vitality) persist or fade out and whether velocity and acceleration of health improvements can predict medium-term (six-month) and long-term (24-month) improvements. Drawing from dynamic models of self-regulation, as well as the psychological momentum theory, we hypothesized that velocity and acceleration of health improvements in the early stages of the intervention would predict medium-term health improvements, which sustain long-term. **Methods:** We used data from a six-month seven-wave randomized controlled trial with employees in mostly sedentary occupations and supplemented this by follow-up data from the same participants 18 months later, resulting in eight waves. **Results:** Bayesian structural equational modeling revealed no significant intervention effect after 24 months implying a fade-out. But more importantly, velocity and, partially, acceleration of health improvements at earlier stages predicted medium-term improvements in musculoskeletal complaints and long-term improvements in vigilance. **Conclusion:** The findings of this study suggest that positive intervention effects fade out over time and health effects benefit from prompt progresses at the beginning of the intervention, warranting exploration in prolonged longitudinal studies.

Konradt et al. 2022.

BMC Psychology, vol. 10, no. 1.

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Keywords: Acceleration; activity-permissive intervention; fade-out; health; sit-stand desk intervention; velocity.

Evidence Level: 3A

Link: <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-022-00948-9>

Shoulder work-related musculoskeletal disorders and related factors of workers in 15 industries of China: a cross-sectional study

Background: Changes in modern industrial production practices can easily lead to shoulder work-related musculoskeletal disorders (WMSD). The current reports on shoulder WMSD are limited to some industries are less well studied, and the sample size is usually small. This study aimed to describe the prevalence and severity of shoulder WMSD in a large sample of Chinese workers from 15 industries, analyze the possible correlations with sociodemographic and work-related variables, and compare the differences between industries. **Methods:** A cross-sectional study was conducted among a sample of 55,749 participants from 252 enterprises in 15 industries throughout China. A Chinese version of the musculoskeletal disease questionnaire was used to collect the demographic factors, shoulder symptoms in past 12 months, and work-related factors including posture-related factors, repetition, vibration, work organization, job control, and environmental factors as independent variables. Descriptive statistics were used, and the binary logistic regression analysis was performed to explore the association between shoulder WMSD and potential demographic and work-related factors. **Results:** Nearly 35.5% of participants reported shoulder pain and discomfort in the previous 12 months. Biopharmaceutical manufacturing (56.2%), medical services (54.4%), and aviation services (50.1%) were the three industries with the highest prevalence of shoulder WMSD. The pain score of aviation services workers was the highest. The related factors for shoulder WMSD varied among the different industries. **Conclusion:** Our study found a relatively high prevalence of shoulder WMSD in China. There were large differences in the prevalence of shoulder WMSD among industries, and the related factors were particular to each industry. Such information is useful to help occupational health practitioners and policymakers conduct preventive programs to reduce shoulder disorders in these working populations.

Liang et al. 2022.

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

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Keywords: Related factor; shoulder pain; work-related musculoskeletal disorders (WMSD).

Evidence Level: 4B

Link: <https://bmcmusculoskeletdisord.biomedcentral.com/articles/10.1186/s12891-022-05917-2>

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

Background: In March 2020, the COVID-19 pandemic necessitated a rapid public health response which included mandatory working from home (WFH) for many employees. This study aimed to identify different trajectories of multisite musculoskeletal pain (MSP) amongst employees WFH during the COVID-19 pandemic and examined the influence of work and non-work factors. **Methods:** Data from 488 participants (113 males, 372 females and 3 other) involved in the Employees Working from Home (EWFH) study, collected in October 2020, April and November 2021 were analysed. Age was categorised as 18-35 years (n = 121), 36-55 years (n = 289) and 56 years and over (n = 78). Growth Mixture Modelling (GMM) was used to identify latent classes with different growth trajectories of MSP. Age, gender, working hours, domestic living arrangements, workstation comfort and location, and psychosocial working conditions were considered predictors of MSP. Multivariate multinomial logistic regression was used to identify work and non-work variables associated with group membership. **Results:** Four trajectories of MSP emerged: high stable (36.5%), mid-decrease (29.7%), low stable (22.3%) and rapid increase (11.5%). Decreased workstation comfort (OR 1.98, CI 1.02, 3.85), quantitative demands (OR 1.68, CI 1.09, 2.58), and influence over work (OR 0.78, CI 0.54, 0.98) was associated with being in the high stable trajectory group compared to low stable. Workstation location (OR 3.86, CI 1.19, 12.52) and quantitative work demands (OR 1.44, CI 1.01, 2.47) was associated with the rapid increase group. **Conclusions:** Findings from this study offer insights into considerations for reducing MSP in employees WFH. Key considerations include the need for a dedicated workstation, attention to workstation comfort, quantitative work demands, and ensuring employees have influence over their work.

Oakman et al. 2022.

International Archives of Occupational and Environmental Health, vol. 95, no. 9.

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

Evidence Level: 4A

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

Can the Borg CR-10 scale for neck and low back discomfort predict future neck and low back pain among high-risk office workers?

Background: Perceived discomfort could indicate an early sign of pain, for example, as a result of a biomechanical load on the musculoskeletal system. Assessing discomfort can, therefore, help to identify workers at increased risk of musculoskeletal disorders for targeted intervention development. We aimed: (1) to identify the optimal cut-off value of neck and low back discomfort among office workers and (2) to evaluate its predictive validity with future neck and low back pain, respectively. **Methods:** At baseline healthy participants (n = 100) completed questionnaires, including the Borg CR-10 discomfort scale (on a 0-10 scale), and were followed for six months, during which musculoskeletal pain was assessed monthly. Logistic regression analyses were performed to assess the associations of baseline discomfort with the onset of future neck or low back pain. Sensitivity, specificity, and the area under the receiver operating characteristics curve were estimated to identify the optimal discomfort cut-off value predicting future pain. **Results:** Borg CR-10 scores ≥ 3.5 for perceived neck and low back discomfort had acceptable sensitivity and specificity to predict future neck and low back pain, respectively. Perceived discomfort at baseline as a dichotomous measure (using the ≥ 3.5 cut-off) was a statistically significant predictor of future neck pain (OR = 10.33) and low back pain (OR = 11.81). **Conclusion:** We identified the optimal cut-off value of the Borg CR-10 discomfort scale to identify office workers at increased risk of developing neck and low back pain. These findings might benefit ergonomists, primary health care providers, and occupational health researchers in developing targeted interventions.

Waongenngarm et al. 2022.

International Archives of Occupational and Environmental Health, vol. 95, no. 9.

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Keywords: Discomfort; low back pain; neck pain; office workers; predictive validity.

Evidence Level: 5A

Link: <https://link.springer.com/article/10.1007/s00420-022-01883-3>