



Emerging Evidence Alert November 2021

This Emerging Evidence Alert includes the latest peer-reviewed articles, reports and evidence on a range of workplace health and safety, prevention, recovery at work and return to work topics. It provides a review of recent journal articles and relevant content related to Comcare’s five research themes: Fostering Work Participation; Building Employer Capability; Adapting to the Future of Work; Guiding and Supporting Mental Health and Wellbeing; and Enabling Healthy and Safe Workplaces. Collated articles were published in October 2021 only.

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Monthly research highlight

Improved working conditions reduce instances of workplace bullying

Workplace bullying is a pervasive and common issue that affects many organisations and employees. While there have been a range management strategies and tools to support workplaces, new research has found addressing psychosocial conditions may be key to reducing the problem.

A [recent study](#) has found that factors such as high workload, few resources and organisation factors like restructuring can leave some employees at a higher risk of being targets of workplace bullying.

The study looked at a representative group of employees in Germany, following them over a period of five years, and recording self-reported instances of bullying in relation to their job demands and resources. The study asked participants to report on:

- Instances of being bullied in the workplace
- Work pace and quantity
- How much influence they had in the workplace and the quality of their leadership
- Organisation factors like restructuring and layoffs.

The study concluded that 90% of self-reported bullying instances could be attributed to the above factors, and that interventions to reduce bullying should focus on addressing these psychosocial concerns and conditions.

For more information about reducing psychosocial hazards, visit the Comcare website for [guidance](#), and our Office Safety tool for more on [bullying](#). Resources available are suitable for both employers and employees and include factsheets, videos, tips and more.

Description of Evidence Levels Definitions Used in this Review

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

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

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

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

Fostering Work Participation

Return to Work

The fact of return to work in Cervical Cancer survivors and the impact of survival rate: An 11-Year Follow-Up Study

The aim of the current cohort study was to explore the relationship between return to work (RTW) after cervical cancer treatment and different medical and occupational covariates. We also investigated the effect of RTW on all-cause mortality and survival outcomes of cervical cancer survivors. Data were collected between 2004 and 2015 from the database of the Taiwan Cancer Registry, Labor Insurance Database, and National Health Insurance Research Database. The associations between independent variables and RTW were analyzed by Cox proportional hazard models. A total of 4945 workers (82.3%) who returned to work within 5 years after being diagnosed with cervical cancer. Patients who underwent surgical treatment were more likely to RTW by the 5th year compared to other groups, with a hazard ratio (HR) of 1.21 (95% CI: 1.01~1.44). Small company size and a monthly income greater than NT 38,200 were inversely associated with RTW (HR = 0.91, 95% CI: 0.84~0.98 and HR = 0.48, 95% CI: 0.44~0.53). Furthermore, RTW showed a statistically significant decrease in the risk of all-cause mortality in the fully adjusted HR, (HR = 0.42, $p < 0.001$). Some medical and occupational factors are associated with RTW in cervical cancer survivors. Returning to work may have a beneficial effect on the survival of patients with cervical cancer.

Sun et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Cancer survivors; Cervical cancer; Return to work; Survival rate.

Evidence Level: 4A

Link: <https://www.mdpi.com/1660-4601/18/20/10703>

Investigation on returning to work in liver cancer survivors in Taiwan: a 5-year follow-up study

Background: Primary liver cancer is the fifth most common malignancy and limits patients' quality of life and working ability. Return to work after cancer treatment is an important step in social recovery. In addition, return to work represents the recovery of financial ability and improvements in self-confidence. The purpose of this article is to discuss the relationship between return to work and various covariables in workers with liver cancer. **Methods:** The national registry cohort study collected adult workers newly diagnosed with liver cancer from 2004 to 2010 in Taiwan. There were 2451 workers included in our study. Primary liver cancer was diagnosed by using the International Classification of Diseases for Oncology code. Return to work after liver cancer survival was determined as returning to the same work or reemployment within five years after cancer diagnosis. The associations between independent variables and return to work were analyzed by Cox proportional hazard models. **Results:** Workers who underwent surgery were more likely to return to work not only in the 2nd year but also in the 5th year. A lower survival rate was noted in the non-return-to-work group ($p < 0.001$) among all patients with liver cancer. The completely adjusted model identified that the rate of return to work was related to all-cause mortality with a hazard ratio of 0.244 (95% Confidence Intervals: 0.235-0.253). **Conclusions:** Our study indicated the impacts of treatment on the return to work of liver cancer survivors. In addition, in patient with liver cancer, return to work had positive effect on the survival rate.

Yang et al. 2021.

BMC Public Health, vol. 21, no. 1.

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Keywords: Cancer survivors; Liver neoplasms; Return-to-work; Workers.

Evidence Level: 4B

Link: <https://bmcpublikealth.biomedcentral.com/articles/10.1186/s12889-021-11872-9>

Does gradually returning to work improve time to sustainable work after a work-acquired musculoskeletal disorder in British Columbia, Canada? A matched cohort effectiveness study

Objective: This study investigates if gradual return to work (GRTW) is associated with full sustainable return to work (RTW) for seriously injured workers with a musculoskeletal disorder (MSD), in British Columbia, Canada. **Methods:** This is an effectiveness study using a retrospective cohort study design. Accepted workers' compensation lost-time claims were extracted for workers with an MSD who were on full work disability for at least 30 days, between 2010 and 2015 (n=37 356). Coarsened exact matching yielded a final matched cohort of 12 494 workers who experienced GRTW at any point 30 days post-injury and 12 494 workers without any GRTW. The association between GRTW and sustainable RTW through to end of 12 months was estimated with multivariable quantile regression. **Results:** Workers who were provided with GRTW experienced more time-loss days until sustainable RTW between the 2nd and 5th months after the first time-loss day (<50th quantile of time loss), but less time-loss days until sustainable RTW between the 6th and 12th months of work disability (70th quantile of time loss), with the largest effect for women, workers with soft-tissue injuries and workers in the manufacturing or trades sector (all in the 60th and 70th percentile, after 6-7 months of time loss). **Conclusions:** For seriously injured workers with at least 30 days of disability due to a work-acquired MSD, the effect of GRTW becomes apparent at longer disability durations (more than 6 months), with larger beneficial effects for women, workers with soft-tissue injuries and for trade and manufacturing sectors.

Maas et al. 2021.

Occupational and Environmental Medicine, vol. 78, no. 10.

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Keywords: Epidemiology; Musculoskeletal system; Occupational health; Sick leave.

Evidence Level: 4A

Link: <https://oem.bmj.com/content/78/10/715.long>

Work ethics and societal norms influence sick leave and return to work: Tales of transformation

Purpose: This study's purpose was to explore how people on sick leave manage societal norms and values related to work, and how these influence their perspectives of themselves throughout the rehabilitation process. **Materials and methods:** This was a longitudinal interview study with a narrative approach, comprising 38 interviews with 11 individuals on long-term sick leave. Data collection was conducted in two phases and analysed iteratively through content analysis. **Results:** The results suggest that work ethics and societal norms influence individuals' views of themselves and the sick leave and rehabilitation process. Conforming one's personal values to the work norm can create internal conflicts and cause feelings of shame for not being able to live up to the established norm. The strong work norm may create unrealistic expectations, which in some cases may result in constraining the return to work process. **Conclusion:** To transform a sick leave narrative into a positive one, societal norms and their influence on identity needs to be recognised. Stakeholders involved in the process can contribute to a positive transformation by not only supporting return to work, but also to acknowledge and help people manage their self-image as having a disability that limits their ability to work. **IMPLICATIONS FOR REHABILITATION:** Stakeholders involved in the sick leave and rehabilitation process need to support sick listed individuals by acknowledging and helping people manage their self-image. Full RTW is not always the best option from a quality of life and wellbeing perspective. Treatment and support from stakeholders should be viewed as meaningful and legitimate, even if it does not lead to RTW.

Moldvik et al. 2021.

Disability and Rehabilitation, vol. 43, no. 21.

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Keywords: Sick leave; Experiences; Narrative; Return to work; Societal norms; Work ethic.

Evidence Level: 5B

Link: <https://www.tandfonline.com/doi/full/10.1080/09638288.2020.1728398>

Implementing a stratified vocational advice intervention for people on sick leave with musculoskeletal disorders: A multimethod process evaluation

Purpose: To perform a process evaluation of a stratified vocational advice intervention (SVAI), delivered by physiotherapists in primary care, for people on sick leave with musculoskeletal disorders participating in a randomised controlled trial. The research questions concerned how the SVAI was delivered, the content of the SVAI and the physiotherapists' experiences from delivering the SVAI. **Methods:** We used qualitative and quantitative data from 148 intervention logs documenting the follow-up provided to each participant, recordings of 18 intervention sessions and minutes from 20 meetings with the physiotherapists. The log data were analysed with descriptive statistics. A qualitative content analysis was performed of the recordings, and we identified facilitators and barriers for implementation from the minutes. **Results:** Of 170 participants randomised to the SVAI 152 (89%) received the intervention and 148 logs were completed. According to the logs, 131 participants received the correct number of sessions (all by telephone) and 146 action plans were developed. The physiotherapists did not attend any workplace meetings but contacted stakeholders in 37 cases. The main themes from the recorded sessions were: 'symptom burden', 'managing symptoms', 'relations with the workplace' and 'fear of not being able to manage work'. The physiotherapists felt they were able to build rapport with most participants. However, case management was hindered by the restricted number of sessions permitted according to the protocol. **Conclusion:** Overall, the SVAI was delivered in accordance with the protocol and is therefore likely to be implementable in primary care if it is effective in reducing sick leave.

Aanesen et al. 2021.

Journal of Occupational Rehabilitation, vol. 4.

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Keywords: Musculoskeletal diseases; Process evaluation; Return to work; Sick leave; Vocational rehabilitation.

Evidence Level: 5A

Link: <https://link.springer.com/article/10.1007%2Fs10926-021-10007-6>

Exploring the employment readiness and return to work status of breast cancer patients and related factors

Objective: To investigate the employment status, employment readiness, and other factors affecting the ease or difficulty with which breast cancer patients effect their return to work (RTW). **Methods:** This study adopted a mixed-method design, recruiting participants from among breast cancer patients in a cancer hospital in Hunan from December 2018 to June 2019. We approached 300 individuals, 192 of whom ultimately participated in this study. The quantitative part of the study involved several scales: the Patient Health Questionnaire-9 (PHQ-9), the Brief Fatigue Inventory (BFI), the Work Ability Index (WAI), and the Lam Assessment of Employment Readiness (LASER). The qualitative part involved a set of open-ended questions and written responses collected from 41 participants who had already returned to work at the time of data collection. Their written responses mainly concerned factors influencing RTW. **Results:** Forty-one breast cancer patients had returned to work. The results reported a median total Cognitive Symptom Checklist score of 9.00 (6.00, 15.25), a median WAI score of 5.00 (3.50, 9.75), a median BFI score of 26.00 (14.75, 42.00), a median total PHQ-9 score of 8.00 (5.25, 17.00), and a LASER score of 50.35 ± 11.90. Multiple regression analysis showed that the participants' cancer stage, cognitive limitations, depression, fatigue, and work ability were significant predictors of employment readiness ($P < 0.05$). Exploring the qualitative data, we found that higher skill levels, better social support, and a flexible work schedule facilitated RTW; stress, lack of confidence in one's work skills, depression, and fatigue are all possible barriers to RTW. **Conclusion:** The findings indicate that breast cancer patients have a low level of employment readiness. Nurses and other healthcare providers can develop relevant interventions to promote employment readiness and ultimately achieve RTW in this study population.

Hou et al. 2021.

International Journal of Nursing Sciences, vol. 8, no. 4.

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Keywords: Breast neoplasms; Employment readiness; Mental health; Patients; Return to work; Work ability.

Evidence Level: 5A

Link: <https://www.sciencedirect.com/science/article/pii/S2352013221000909?via%3Dihub>

Experiences of female Breast Cancer survivors concerning their return to work in Spain

The objective of this study was to analyze the experiences of returning to work of women who had overcome breast cancer, identifying its physical and psychological consequences, the process they underwent, their motivations, and difficulties. A total of 19 female breast cancer survivors, with an age range of 30 to 57 years, participated in two focus groups. A semi-structured script was prepared about their experiences of returning to work. The results indicated that survivors' self-perception was weakened by the physical and psychological consequences of the treatment of the disease; economic difficulties were one of the main reasons for going back to work; lastly, returning to work was a difficult process, mainly because of their physical/psychological limitations, the scarcity of job adaptation measures, and the limited support of the various public administrations. In addition, most of the women had to cope with seeking a new job without any guidance or job training. Significant difficulties related to the maintenance and return to work of female breast cancer survivors have been revealed. Findings highlighted the need to provide more and better information and guidance to cancer patients concerning their return to work or the search for a new job.

Aguiar-Fernandez et al. 2021

Behavioral Sciences (Basel, Switzerland), vol. 11, no. 10.

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Keywords: Breast cancer; Employment support; Return to work; Women.

Evidence Level: 5B

Link: <https://www.mdpi.com/2076-328X/11/10/135>

The challenge of return to work after Breast Cancer: The role of family situation, CANTO Cohort

Return to work (RTW) after breast cancer is associated with improved quality of life. The link between household characteristics and RTW remains largely unknown. The aim of this study was to examine the effect of the family situation on women's RTW two years after breast cancer. We used data of a French prospective cohort of women diagnosed with stage I-III, primary breast cancer (CANTO, [NCT01993498](https://clinicaltrials.gov/ct2/show/study/NCT01993498)). Among women employed at diagnosis and under 57 years old, we assessed the association between household characteristics (living with a partner, marital status, number and age of economically dependent children, support by the partner) and RTW. Logistic regression models were adjusted for age, household income, stage, comorbidities, treatments and their side effects. Analyses stratified by age and household income were performed to assess the association between household characteristics and RTW in specific subgroups. Among the 3004 patients included, women living with a partner returned less to work (OR = 0.63 [0.47-0.86]) and decreased their working time after RTW. Among the 2305 women living with a partner, being married was associated with decreased RTW among women aged over 50 (OR = 0.57 [0.34-0.95]). Having three or more children (vs. none) was associated with lower RTW among women with low household income (OR = 0.28 [0.10-0.80]). Household characteristics should be considered in addition to clinical information to identify vulnerable women, reduce the social consequence of cancer and improve their quality of life.

Caumette et al. 2021.

Current Oncology, vol. 28, no. 5.

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Keywords: Breast cancer; Cohort; Family situation; Return to work.

Evidence Level: 5B

Link: <https://www.mdpi.com/1718-7729/28/5/330>

Presenteeism and Absenteeism

The effect of mental and physical health problems on sickness absence

Absenteeism is an important feature of the labour market, imposing significant costs on employers and the economy as a whole. This paper is the first to use a large labour force survey sample to investigate how different physical and mental health conditions affect absence rates among prime age workers in the UK. A pooled time series/cross-section analysis reveals that people with a chronic health condition are more likely to be absent from work, and mental health has a significantly larger effect than physical health. From a longitudinal perspective, we find that a change in mental health has an effect on absenteeism more than three times greater than a change in physical health. These findings imply that the prevention and alleviation of chronic health conditions, particularly common mental disorders such as depression and anxiety that are highly prevalent in prime age workers, will deliver significant benefits to the UK economy due to reduced absenteeism. Further, there is significant heterogeneity between different health conditions, with some having no effect at all on absenteeism having controlled for other factors.

Bryan et al. 2021.

The European Journal of Health Economics, vol. 22, no. 9.

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Keywords: Absenteeism; Labour force survey; Labour market; Mental health; Physical health.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007%2Fs10198-021-01379-w>

Domain-specific active and sedentary behaviors in relation to workers' presenteeism and absenteeism

Objectives: To examine the associations between domain-specific sedentary and active behaviors and workers' presenteeism and absenteeism in a sample of company employees. **Methods:** This study recruited participants (n = 2466) from a nationwide online survey database (Japan, 2019). Participants completed a questionnaire that captured data on relative and absolute presenteeism and absenteeism and domain-specific physical activity and sedentary behaviors. **Results:** Daily minutes of work-related physical activity were negatively associated with relative absenteeism. Daily minutes of leisure-related physical activity were positively associated with absolute presenteeism (ie, better productivity). Daily minutes of total physical activity were negatively and positively associated with relative absenteeism and absolute presenteeism (ie, better productivity). There was also a positive association between car sitting time and absolute absenteeism. **Conclusions:** A change in work culture and practices that support active behaviors at work and outside of work may improve employee's productivity indices.

Koohsari et al. 2021.

Journal of Occupational and Environmental Medicine, vol. 63, no. 10.

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Keywords: Domain-specific behavior; Active; Sedentary behavior; Worker presenteeism; Absenteeism.

Evidence Level: 5B

Link:

https://journals.lww.com/joem/Fulltext/2021/10000/Domain_Specific_Active_and_Sedentary_Behaviors_in.18.aspx

Emotional demands at work and risk of long-term sickness absence in 1.5 million employees in Denmark: a prospective cohort study on effect modifiers

Background: High emotional demands at work can affect employees' health and there is a need to understand whether such an association might be modified by other working conditions. We aimed to examine emotional demands at work as a risk factor for long-term sickness absence and analyse whether influence, possibilities for development, role conflicts, and physical demands at work might modify this risk.

Methods: We did a nationwide, population-based, prospective cohort study in Denmark and included employed individuals who were residing in Denmark in 2000, aged 30-59 years, who had complete data on age, sex, and migration background, with information on emotional demands and possible effect modifiers from job exposure matrices, and covariates and outcome (sickness absence) from population registers.

Individuals with long-term sickness absence (≥ 6 weeks of consecutive sickness absence) between Jan 1, 1998, and Dec 31, 2000, and self-employed individuals were excluded. We assessed long-term sickness absence during a 10-year period from Jan 1, 2001, to Dec 31, 2010. Using Cox regression, we estimated hazard ratios (HRs) and 95% CIs and tested interaction as departure from additivity, estimating relative excess risk due to interaction (RERI). Multivariable adjusted models included sex, age, cohabitation, migration background, and income. **Findings:** 1 521 352 employed individuals were included and contributed data between Jan 1, 2000, and Dec 31, 2010. During 11 919 021 person-years (mean follow-up 7.8 years), we identified 480 685 new cases of long-term sickness absence. High emotional demands were associated with increased risk of long-term sickness absence compared with low emotional demands, after adjusting for age, sex, cohabitation, migration background, income, and the four possible effect modifiers (adjusted HR 1.55 [95% CI 1.53-1.56]). The association between high emotional demands and risk of long-term sickness absence was stronger in a synergistic way when individuals were also exposed to low possibilities for development (RERI 0.35 [95% CI 0.22-0.47]; 28.9 additional cases per 1000 person-years) and high role conflicts (0.13 [0.11-0.15]; 22.0 additional cases per 1000 person-years). No synergy was observed for influence and physical demands at work. **Interpretation:** People in occupations with high emotional demands were at increased risk of long-term sickness absence. Our findings on synergistic interactions suggest that, in emotionally demanding occupations, increasing possibilities for development and reducing work-related role conflicts might reduce long-term sickness absence. Further interventional studies are needed to confirm or refute this hypothesis. **Funding:** Danish Work Environment Research Fund, NordForsk.

Framke et al. 2021.

The Lancet Public Health, vol. 6, no. 10.

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Keywords: Emotional demands; Long-term sickness; Employees; Emotional health; Working conditions.

Evidence Level: 4B

Link: [https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667\(21\)00185-7/fulltext](https://www.thelancet.com/journals/lanpub/article/PIIS2468-2667(21)00185-7/fulltext)

Working Hours

The effect of exposure to long working hours on depression: 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 developing the WHO/ILO Joint Estimates of the Work-related Burden of Disease and Injury (WHO/ILO Joint Estimates), supported by a large number of individual experts. Evidence from previous reviews suggests that exposure to long working hours may cause depression. In this article, we present a systematic review and meta-analysis of parameters for estimating (if feasible) the number of deaths and disability-adjusted life years from depression that are attributable to exposure to long working hours, for the development of the WHO/ILO Joint Estimates. **Objectives:** We aimed to systematically review and meta-analyse estimates of the effect of exposure to long working hours (three categories: 41-48, 49-54 and ≥ 55 h/week), compared with exposure to standard working hours (35-40 h/week), on depression (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 academic databases for potentially relevant records from published and unpublished studies, including the WHO International Clinical Trial Registers Platform, Medline, PubMed, EMBASE, Web of Science, CISDOC and PsycInfo. 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 WHO and/or ILO Member State but excluded children (aged < 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 exposure to long working hours (41-48, 49-54 and ≥ 55 h/week), compared with exposure to standard working hours (35-40 h/week), on

depression (prevalence, incidence and/or mortality). **Study appraisal and synthesis methods:** At least two review authors independently screened titles and abstracts against the eligibility criteria at a first stage and full texts of potentially eligible records at a second stage, followed by extraction of data from qualifying studies. Missing data were requested from principal study authors. We combined odds ratios using random-effects meta-analysis. Two or more review authors assessed the risk of bias, quality of evidence and strength of evidence, using Navigation Guide and GRADE tools and approaches adapted to this project. **Results:** Twenty-two studies (all cohort studies) met the inclusion criteria, comprising a total of 109,906 participants (51,324 females) in 32 countries (as one study included multiple countries) in three WHO regions (Americas, Europe and Western Pacific). The exposure was measured using self-reports in all studies, and the outcome was assessed with a clinical diagnostic interview (four studies), interview questions about diagnosis and treatment of depression (three studies) or a validated self-administered rating scale (15 studies). The outcome was defined as incident depression in all 22 studies, with first time incident depression in 21 studies and recurrence of depression in one study. We did not identify any study on prevalence of depression or on mortality from depression. For the body of evidence for the outcome incident depression, we had serious concerns for risk of bias due to selection because of incomplete outcome data (most studies assessed depression only twice, at baseline and at a later follow-up measurement, and likely have missed cases of depression that occurred after baseline but were in remission at the time of the follow-up measurement) and due to missing information on life-time prevalence of depression before baseline measurement. Compared with working 35-40 h/week, we are uncertain about the effect on acquiring (or incidence of) depression of working 41-48 h/week (pooled odds ratio (OR) 1.05, 95% confidence interval (CI) 0.86 to 1.29, 8 studies, 49,392 participants, I² 46%, low quality of evidence); 49-54 h/week (OR 1.06, 95% CI 0.93 to 1.21, 8 studies, 49,392 participants, I² 40%, low quality of evidence); and ≥ 55 h/week (OR 1.08, 95% CI 0.94 to 1.24, 17 studies, 91,142 participants, I² 46%, low quality of evidence). Subgroup analyses found no evidence for statistically significant (P < 0.05) differences by WHO region, sex, age group and socioeconomic status. Sensitivity analyses found no statistically significant differences by outcome measurement (clinical diagnostic interview [gold standard] versus other measures) and risk of bias ("high"/"probably high" ratings in any domain versus "low"/"probably low" in all domains). **Conclusions:** We judged the existing bodies of evidence from human data as "inadequate evidence for harmfulness" for all three exposure categories, 41-48, 48-54 and ≥55 h/week, for depression prevalence, incidence and mortality; the available evidence is insufficient to assess effects of the exposure. Producing estimates of the burden of depression attributable to exposure to long working appears not evidence-based at this point. Instead, studies examining the association between long working hours and risk of depression are needed that address the limitations of the current evidence.

Rugulies et al. 2021.

Environment International, vol. 155.

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Keywords: Depression; Global burden of disease; Long working hours; Meta-analysis; Occupational health; Systematic review.

Evidence Level: 1A

Link: <https://www.sciencedirect.com/science/article/pii/S0160412021002543?via%3Dihub>

Exploring the concept inability to work fulltime in the context of work disability assessments: a qualitative study

Background: In many countries inability to work fulltime is recognized as an important concept in work disability assessments. However, consensus is lacking regarding the concept and how it should be assessed. This study seeks to conceptualize and operationalize the concept of inability to work fulltime, and includes perspectives of both patients and physicians. Research questions involve identifying: 1. key elements, 2. measurable indicators, and 3. valid methods for assessing indicators of inability to work fulltime.

Methods: We used a qualitative study with a thematic content analysis design to conceptualize inability to work fulltime, based on nineteen semi-structured interviews conducted among insurance and occupational health physicians, and representatives of patient organizations. **Results:** Inability to work fulltime is conceptualized as a complex concept which is strongly individually determined and variable due to time and underlying disease. Key dimensions of inability to work fulltime included besides the disease itself, also

personal factors like psychological and lifestyle factors, as well as environmental factors related to the work situation and social context. Fatigue, cognitive impairments, and restrictions in functioning in- and outside work were reported as important measurable indicators. A combined use of self-assessment, assessment interviews, and testing, and assessment in the actual (work) setting was identified for assessing these indicators. **Conclusion:** Taking into account the complex and variable nature of inability to work fulltime, we found it advisable to use multiple methods and multiple time points for the assessment. Results of this study provide starting points for further research on the operationalization of inability to work fulltime in a work disability context.

Boersema et al. 2021.

BMC Public Health, vol. 21, no. 1.

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Keywords: Disability evaluation; Insurance medicine; Qualitative research; Work; Working hours.

Evidence Level: 5B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-11917-z>

Working hours - tracking the current and future trends

It is important to track the trends of future working hours, since working hours have strong associations to everyday life and work-life interaction, but also to health. In this paper we aim to track the current and future trends in working hours. We discuss the trends through the key dimensions of working hours: the length, timing, tempo and autonomy. We also consider the role of current trends of spatial changes of work. Changes in working time patterns are fostered by several driving factors: globalization and business restructuring challenging the current work organizations, new information technologies, demographic and climate change and the current and future pandemics. The past and current tremendous changes in working hours indicate that changes in working hours will continue. The contemporary trends in future working hours pose risks for personal, family and social life, material well-being and health. At its best, however, the new post-industrial working time regime may provide more autonomy and time for recovery to employees as new technologies and changes in business structures release opportunities for greater individual autonomy over how, where, and for how long paid work is performed.

Anttila et al. 2021.

Industrial Health, vol. 59, no. 5.

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Keywords: Autonomy; Shift work; Trends; Work intensity; Working hours; Working life; Working time.

Evidence Level: 6A

Link: https://www.jstage.jst.go.jp/article/indhealth/59/5/59_2021-0086/article

Building Employer Capability

Wellness Programs

Future challenges for work-related health promotion in Europe: A data-based theoretical reflection

This contribution is a theoretical reflection based on statistical and empirical data as well as concepts proposed by other authors or institutions. Based on the thesis that the respective social developments equally influence and limit the orientation and design of workplace health promotion, this article deals with the challenges that arise from the contemporary social, political and economic developments for a needs-oriented and effective workplace health promotion. On the basis of a historical review of the lines of development in workplace health promotion, beginning with the Ottawa Charter in 1986, the field of tension in which work-related health promotion approaches generally operate is first outlined. Based on the results of a keyword search in relevant European statistics databases and specialized databases on the topics of demographic change, labor migration and digitalization and flexibilization of work, current development trends in the world of work are traced, priority desiderata for a future design of health promotion are derived from these, and their chances of realization are reflected upon. On the basis of the

data collected, it becomes clear that today's world of work is characterized by multidimensional diversification processes, which are accompanied by the risk of worsening social inequalities. The conclusion is that future concepts of workplace health promotion must be more universal than previous approaches, which are often limited to the focus of individual behavioral prevention. The attempt to promote workplace health promotion with economic benefit arguments also runs the risk of reinforcing social inequality. The task of effective workplace health promotion, conversely, must be to initiate critical reflection on current priorities.

Faller 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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

Keywords: Atypical work; Demographic change; Digitalization; Home-office; Migration; Subjectification; Workplace health management; Workplace health promotion.

Evidence Level: 6B

Link: <https://www.mdpi.com/1660-4601/18/20/10996>

Organisational Issues

Organisational factors and under-reporting of occupational injuries in Sweden: a population-based study using capture-recapture methodology

Objective: To estimate the magnitude of under-reporting of non-fatal occupational injuries (OIs) by different organisational factors in Sweden for the year 2013. **Methods:** Capture-recapture methods were applied using two data sources: (1) the national OI register and (2) records from a labour market insurance company. To assure comparability of data sources, the analysis was restricted to the public sector and private companies with at least 50 employees. OIs were matched using personal identification number and reported injury dates (± 7 days). Organisational factors were obtained from the national labour market register and injury severity (no healthcare/only outpatient/hospitalised) from the National Patient Register. Total number of OIs and ascertainment by data sources were estimated assuming data source independence. **Results:** There were an estimated 98 493 OIs in 2013. Completeness of reporting OIs to the national register and to the insurance company was estimated at 73% and 43%, respectively. No report to either source was estimated at 15 000 OIs (~15%). Under-reporting to the national register differed by selected organisational factors, being higher among organisations in the public sector, those with more females, with a younger workforce and with a higher proportion of immigrants. Overall under-reporting was more common in agriculture (19.7%), other services (19.3%), commerce and hospitality (19.1%), health (18.4%) and education (18.4%). Under-reporting decreased as injury severity increased, with little variations across sectors of economic activity. **Conclusions:** Results suggest considerable under-reporting of OIs in Sweden and differential under-reporting by organisational factors. Results are relevant for official estimates of burden and for setting priorities for workplace safety and prevention.

Orellana et al. 2021.

Occupational and Environmental Medicine, vol. 78, no. 10.

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

Keywords: Accidents; Epidemiology; Occupational health.

Evidence Level: 4B

Link: <https://oem.bmj.com/content/78/10/745.long>

Shift Work

Timing and composition of last meal before bedtime affect sleep parameters of night workers

Night workers tend to eat irregularly, both in terms of meal times and composition. The disruption in energy metabolism caused by inappropriate eating habits can negatively affect the sleep quality of these individuals. The objectives of this study were to determine the interval between the last meal and bedtime and its relationship with both diurnal and nocturnal sleep parameters, as well as to evaluate the association

of the adequacy of this meal with sleep parameters. The analyses were carried out for a usual sleep routine on a workday and a day off. This cross-sectional study was part of a controlled, randomized, double-blind, crossover clinical trial. The sample comprised 30 female nursing professionals who worked permanent night shifts of 12 × 36 h. Timing and composition of the last meal were obtained from food diaries, and sleep parameters were collected via actigraphy. On multiple linear regression analysis, every hour decrease in the interval between the last meal and sleep onset there was an increase of 0.39 h on diurnal sleep duration. Regarding food intake, every 1 g of fat and 1 g of carbohydrate consumed was associated with an increase in diurnal sleep onset latency of 0.13 h and 0.02 h, respectively. These findings suggest that both timing and composition of the last meal before bedtime may be potential key factors for good diurnal and nocturnal sleep among night-shift workers.

Nogueria et al. 2021.

Clocks and Sleep, vol. 3, no. 4.

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Keywords: Feeding behavior; Night-shift work; Nursing personnel; Nutrients; Sleep.

Evidence Level: 4A

Link: <https://www.mdpi.com/2624-5175/3/4/38>

Effects of a snack on performance and errors during a simulated 16-h night shift: A randomized, crossover-controlled, pilot study

Background: Night shift workers might not eat due to their busy schedules during the night shift. However, food may not only satisfy hunger, but also affect performance and errors. The aim of this study was to clarify the effect of a snack on performance and errors during 2-day, 16-h, simulated night shifts.

Methods: A randomized, repeated-measure, crossover study was performed to investigate subjective and cognitive performance in 15 healthy female adults (mean age, 21.7 years) after they consumed a snack (352 kcal) during a simulated night shift (16:00 to 09:00) from October to November 2018. The participants were kept awake from waking up in the morning to the next day at 09:00. Subjects were tested for performance on the Uchida-Kraepelin test, as well as for subjective feeling, body temperature, psychomotor vigilance test, and heart rate variability, before and after they consumed the snack. One day before the experiment, all participants wore an actigraphy monitoring device to determine their sleep state

Results: There was no difference between having (Snack condition) and not having (Skipping condition) the snack in sleep states the day before the experiment. On the day of the experiment, between 16:00 and 09:00, subjective sleepiness, fatigue, and body temperature were not different between the two conditions. Subjects maintained performance on the Uchida-Kraepelin test and showed a significant improvement in false starts on the psychomotor vigilance test, the primary outcome measure, in the Snack condition compared with the Skipping condition. The Snack condition was also associated with decreased high-frequency power, a decreased low-frequency power/high-frequency power ratio, and increased heart rate in the vagally mediated heart rate variability indices, which may reflect a higher ability to modulate cognitive and behavioral processes. **Conclusions:** These results suggest that providing a snack to shift workers during night shifts might improve work safety and efficiency.

Oriyama et al. 2021.

PLoS One, vol. 16, no. 10.

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

Keywords: Snacks; Night shift; Performance; Error; Shift work.

Evidence Level: 2A

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0258569>

Management and Leadership

Inclusive leadership and subordinates' pro-social rule breaking in the workplace: Mediating role of self-efficacy and moderating role of employee relations climate

Purpose: Drawing on the Social Information Processing (SIP) theory, the study sought to examine the link between inclusive leadership and employees' pro-social rule-breaking (PSRB) behavior through the

mediating effect of self-efficacy. The study also investigates the moderating role of employee relations climate between inclusive leadership and self-efficacy. **Methods:** The study's sample size consists of 438 full-time corporate employees at 47 organizations from China. Statistical analysis methods were used for data analysis, such as Pearson's correlation analysis, confirmatory factor analysis, and multilevel regression analysis. **Results:** The results demonstrated that inclusive leadership positively affects PSRB behavior and self-efficacy. Furthermore, the employee relations climate moderate's self-efficacy, which mediates the relationship between inclusive leadership and the PSRB behavior of employees. **Conclusion:** This study determines the psychological factors causing PRSB behavior in light of inclusive leadership. In the context of SIP theory, the findings conclude that inclusive leadership fundamentally influences self-efficacy, encouraging employees to exhibit PSRB behavior. Furthermore, this study also explains the mediating and moderating effect of self-efficacy and employment climate, which shape PSRB behavior. Hence, this study contributes to the organizational behavior literature regarding PSRB behavior and inclusive leadership.

He et al. 2021.

Psychology Research and Behavior Management, vol. 11, no. 14.

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Keywords: Employee relations; Inclusive leadership; Pro-social rule-breaking; Psychology; Self-efficacy.

Evidence Level: 5B

Link: <https://www.dovepress.com/inclusive-leadership-and-subordinates-pro-social-rule-breaking-in-the-peer-reviewed-fulltext-article-PRBM>

Managing diversity in the Chinese organizational context: The impact of workforce diversity management on employee job performance

The purpose of this study is to investigate the impact of workforce diversity management on employee job performance in the Chinese organizational context, considering the mediating effect of person-job match and employee commitment and the moderating effect of structural empowerment. Data were collected from 400 telecommunication sector employees in China. All hypotheses were tested through structural equation modeling (SEM). The findings of the study illustrated that workforce diversity management has a positive and significant impact on employee job performance. Furthermore, the results indicated that person-job match and employee commitment partially mediate the relationship between workforce diversity management and employee job performance. Moreover, structural empowerment directly affects employee job performance, whereas a moderating effect is also found in the relationship between workforce diversity management and employee job performance. Finally, implications and limitations are discussed.

Li et al. 2021.

Frontiers in Psychology, vol. 12, no. 12.

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

Keywords: China; Employee commitment; Employee job performance; Person-job match; Structural empowerment; Telecommunication sector; Workforce diversity management.

Evidence Level: 5B

Link: <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.733429/full>

Will job crafters stay or leave? The roles of organizational instrumentality and inclusive leadership

Although studies have indicated the influences of job crafting on contemporary employees' working outcomes, the path from job crafting to turnover intention is still unexplored in depth. Drawing on goal facilitation theory, we delineate how job crafting relates to turnover intention through organizational instrumentality and is conditioned by inclusive leadership. We collected data from 218 employees from Chinese high-tech companies at two different time points by submitting survey questionnaires. The results indicated that employees' job crafting relates positively to their perception of organizational instrumentality and further results in decreased turnover intention. We also found that inclusive leadership not only positively moderates the path from job crafting to organizational instrumentality but also positively moderates the whole mediational relationship. Moreover, job crafting relates positively and directly to turnover intention-i.e., the more employees craft their jobs, the more likely they leave their

organizations when we control the roles of organizational instrumentality and inclusive leadership. Finally, the theoretical and practical implications are also discussed.

Xin et al. 2021.

Frontiers in Psychology, vol. 8, no. 12.

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Keywords: Goal facilitation theory; Inclusive leadership; Job crafting; Organizational instrumentality; Turnover intention.

Evidence Level: 5B

Link: <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.743828/full>

Work Ability

Who keeps on working? The importance of resilience for labour market participation

Background: It is widely recognized that individuals' health and educational attainments, commonly referred to as their human capital, are important determinants for their labour market participation (LMP). What is less recognised is the influence of individuals' latent resilience traits on their ability to sustain LMP after experiencing an adversity such as a health shock. **Aim:** We investigate the extent to which resilience is independently associated with LMP and moderates the effect of health shocks on LMP. **Method:** We analysed data from two consecutive waves of a Norwegian prospective cohort study. We followed 3,840 adults who, at baseline, were healthy and worked full time. Binary logistic regression models were applied to explain their employment status eight years later, controlling for age, sex, educational attainment, health status at baseline, as well as the occurrences of three types of health shocks (cardiovascular diseases, cancer, psychological problems). Individuals' resilience, measured by the Resilience Scale for Adults (RSA), entered as an independent variable and as an interaction with the indicators of health shocks. In separate models, we explore the role of two further indicators of resilience; locus of control, and health optimism. **Results:** As expected, health shocks reduce the probability to keep on working full-time. While both the RSA and the two related indicators all suggest that resilience increases the probability to keep on working, we did not find evidence that resilience moderates the association between health shocks and LMP. **Conclusion:** Higher levels of resilience is associated with full-time work as individuals age.

Berthung et al. 2021.

PLoS One, vol. 16, no. 10.

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Keywords: Labour market participation; Resilience; Health.

Evidence Level: 4B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0258444>

Adapting to the Future of Work

Aging Workforce

Factors influencing retirement decisions among blue-collar workers in a global manufacturing company- Implications for age management from a system perspective

The maintenance of older workers and determining the appropriate age for retirement are growing issues related to the fact that fewer people, still active in working life, have to provide for more non-working people due to increased life expectancy. As a result, retirement age has started to rise in many countries, and employers need to find ways to maintain an older and healthy work force, not least to avoid the loss of important experience. The aim of the current study was to increase the knowledge of factors influencing the retirement decisions among blue-collar workers in different national settings. A survey and semi-structured interviews were conducted with a sample of 100 blue-collar workers in Sweden, the Netherlands, and France, aged 55 years and older, within a global manufacturing company. Based on the results, implications for companies' age management strategies were discussed from a system perspective. Factors contributing to both retirement and to a prolonged work life were found on individual,

organisational, and societal levels. This indicates the importance of a system perspective when planning for age management interventions.

Jaldestad et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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

Keywords: International study; Job crafting; Older workers; Prolonged work life; Sustainable work.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/18/20/10945>

Employees' emotional, cognitive, and behavioral responses to increasing statutory retirement ages

Increasing statutory retirement ages around the world are forcing employees to prolong their working lives. We study the different ways in which mid- and late-career workers respond to such changes. We distinguish between negative emotions about working longer, cognitive engagement with prolonged employment, and proactive behavior to facilitate longer working lives. We analyze data from 1,351 employees aged 40-66 from the Netherlands. We estimate a structural equation model to identify in which ways experiences of age discrimination, accessibility of accommodative HR facilities, and social norms in the workers' social networks are related to the three different types of responses. Results show that when employees do not experience age discrimination, when their employer offers easily accessible accommodative HR facilities, and the social norms support prolonged employment, employees have fewer negative emotional reactions and are more likely to behaviorally respond to facilitate longer working lives. When these contexts are misaligned, the reverse is generally found. We also find socioeconomic differences in the ways employees respond to the prospect of prolonged employment. This study shows the importance of supportive contexts at different levels-societally, in organizations, and in individuals' own lives-for policy changes such as increasing statutory retirement ages to be effective. Different responses between different socioeconomic groups may lead to growing long-term inequality.

Oude Mulders et al. 2021.

BioMed Research International, vol. 6.

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

Keywords: Employees; Cognitive; Emotional; Behavior responses; Retirement.

Evidence Level: 5B

Link: <https://www.hindawi.com/journals/bmri/2021/6645271/>

Do aging employees benefit from self-regulative strategies? A follow-up study

SOC-strategies (selection, optimization, and compensation) are crucial for well-being and adaptation throughout the life course. The workforce is aging rapidly, thus the age-conditional premises of SOC theory require attention. This study explored (1) whether older employees used SOC strategies more often (compared to younger employees), and (2) whether older employees benefited more from SOC strategies in relation to occupational well-being (job burnout, work engagement). The study was based on follow-up data including three occupational subsamples of different age (N = 1,020). There were no significant age-conditional differences in the take-up of SOC strategies. However, older (white-collar) employees benefited more from compensation and elective selection in relation to occupational well-being. Moreover, older employees also benefited more from using all SOC strategies concerning occupational well-being. Strengthening older employees' SOC strategies needs more attention as the workforce is aging.

Mauno et al. 2021.

Research on Aging, vol. 43.

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Keywords: Age-conditional effects; Compensation; Follow-up study; Occupational well-being; Optimization; Selection.

Evidence Level: 4B

Link: <https://www.semanticscholar.org/paper/Do-Aging-Employees-Benefit-from-Self-Regulative-A-Mauno-Minkkinen/b0b96d9832a7f6deadc13791c7efebf3db89a98?p2df>

Technology

Validation of Fitbit Charge 2 sleep and heart rate estimates against polysomnographic measures in shift workers: Naturalistic Study

Background: Multisensor fitness trackers offer the ability to longitudinally estimate sleep quality in a home environment with the potential to outperform traditional actigraphy. To benefit from these new tools for objectively assessing sleep for clinical and research purposes, multisensor wearable devices require careful validation against the gold standard of sleep polysomnography (PSG). Naturalistic studies favor validation.

Objective: This study aims to validate the Fitbit Charge 2 against portable home PSG in a shift-work population composed of 59 first responder police officers and paramedics undergoing shift work. **Methods:** A reliable comparison between the two measurements was ensured through the data-driven alignment of a PSG and Fitbit time series that was recorded at night. Epoch-by-epoch analyses and Bland-Altman plots were used to assess sensitivity, specificity, accuracy, the Matthews correlation coefficient, bias, and limits of agreement. **Results:** Sleep onset and offset, total sleep time, and the durations of rapid eye movement (REM) sleep and non-rapid-eye movement sleep stages N1+N2 and N3 displayed unbiased estimates with nonnegligible limits of agreement. In contrast, the proprietary Fitbit algorithm overestimated REM sleep latency by 29.4 minutes and wakefulness after sleep onset (WASO) by 37.1 minutes. Epoch-by-epoch analyses indicated better specificity than sensitivity, with higher accuracies for WASO (0.82) and REM sleep (0.86) than those for N1+N2 (0.55) and N3 (0.78) sleep. Fitbit heart rate (HR) displayed a small underestimation of 0.9 beats per minute (bpm) and a limited capability to capture sudden HR changes because of the lower time resolution compared to that of PSG. The underestimation was smaller in N2, N3, and REM sleep (0.6-0.7 bpm) than in N1 sleep (1.2 bpm) and wakefulness (1.9 bpm), indicating a state-specific bias. Finally, Fitbit suggested a distribution of all sleep episode durations that was different from that derived from PSG and showed nonbiological discontinuities, indicating the potential limitations of the staging algorithm. **Conclusions:** We conclude that by following careful data processing processes, the Fitbit Charge 2 can provide reasonably accurate mean values of sleep and HR estimates in shift workers under naturalistic conditions. Nevertheless, the generally wide limits of agreement hamper the precision of quantifying individual sleep episodes. The value of this consumer-grade multisensor wearable in terms of tackling clinical and research questions could be enhanced with open-source algorithms, raw data access, and the ability to blind participants to their own sleep data.

Stucky et al. 2021.

Journal of Medical Internet Research, vol. 23, no. 10.

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Keywords: Actigraphy; Mobile phone; Multisensory; Polysomnography; Validation; Wearables.

Evidence Level: 5B

Link: <https://www.jmir.org/2021/10/e26476/>

Guiding and Supporting Mental Health and Wellbeing

Mental Health

Let the team fix it? - Performance and mood of depressed workers and coworkers in different work contexts

Depression in the workplace is a significant factor for reduced personal well-being and productivity. Consequently, this has negative effects on the economic success of the companies in which depressed people are employed. In addition, the economy has to deal with the significant burden of this illness on the health system. In this paper, we investigated how different working contexts-working in a group or individually-influenced depressed individuals towards higher or lower well-being and productivity. We examined this using a laboratory experiment. In this setting, we were also able to analyze how, in turn, a depressive individual impacted the productivity and affective situation of their workgroup, reflecting the company perspective. The experimental design mimicked the very basic processes of a workplace in a stylized way. We used two distinct samples: subclinically and clinically depressed, both working in a group with healthy controls. As expected, we found generally lower performance in the clinically depressed

sample, but in the subclinically depressed sample, we only found this in the individual work context. In contrast to our expectations, the performance of subclinically depressed individuals working in groups with healthy controls was even higher than that of healthy controls in homogeneously healthy groups. The performance of the entire group with a depressed member was lower for the sample with clinically manifested depression, while the performance of groups with a subclinically depressed participant was significantly higher than the performance of homogeneously non-depressed control groups. We discuss our results with a focus on the design of workplaces to both re-integrate clinically depressed employees and prevent subclinically depressed employees from developing major depression.

Vollmann et al. 2021.

PLoS One, vol. 16, no. 10.

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Keywords: Performance; Mood; Depression; Well-being; Productivity; Workers.

Evidence Level: 6B

Link: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0256553>

Procrastination, perfectionism, and other work-related mental problems: Prevalence, types, assessment, and treatment-A scoping review

Work-related mental problems can be defined as behaviors, emotions and cognitions that impede the successful completion of a task in a given time frame, i. e., the difficulty or inability to achieve important work-related goals. They are highly prevalent but have been neglected in psychology in general and as a target of psychotherapy in particular. Although work-related problems do not represent a mental disorder per se, they are associated with severe distress and high psychosocial costs. In this article, the prevalence of work-related problems, associated burden, diagnostic assessment and treatment are reviewed. So far, research has primarily focused on procrastination, i.e., the act of postponing or delaying tasks until the last minute or past the deadline. However, procrastination represents just one type of work-related problems among several others. Further forms of work-related problems are presented (e.g., perfectionism, or work-related problems in the context of specific personality types). The relation of work-related problems to specific mental disorders is discussed. Psychosocial interventions are the treatment of choice for work-related mental problems. However, response rates for the treatment of procrastination are limited, which calls for further research into which treatments work for whom. No evidence-based treatments are currently available for other types of work-related problems, with the exception of perfectionism, a personality trait that is also linked to problems in the field of work. Thus, there is a need to further improve the treatment of work-related problems including procrastination. For other types of work-related problems, effective treatments need to be developed and validated. They may be based on existing manualized treatments and extended by specific aspects or modules focusing on work-related problems.

Steinert et al. 2021.

Frontiers in Psychiatry, vol. 12.

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Keywords: Diagnostics; Perfectionism; Personality; Procrastination; Psychotherapy; Work-related problems.

Evidence Level: 6A

Link: <https://www.frontiersin.org/articles/10.3389/fpsy.2021.736776/full>

Depressive symptoms in helping professions: A systematic review of prevalence rates and work-related risk factors

Objective: The aim of this study is twofold. Our first aim is to provide an overview of the prevalence rate of depression in a wide array of helping professions. Our second aim is to identify work organization conditions that seem to be associated with this depression risk. **Methods:** Four databases were searched (CINAHL, PsycInfo, PubMed, and Web of Science) yielding 87,626 records in total. We were interested in identifying depression prevalence rates and work-related variables that have been found to contribute to depression in helping professions. **Results:** In total, this systematic review included 17,437 workers in more than 29 countries. Depression prevalence rate varied between 2.5% and 91.30%. The two most frequently reported professions were nurses and doctors with 73.83% and 30.84% of studies including nurses and

doctors in their sample. Work factors contributing to depression included: skill utilization, decision authority, psychological demands, physical demands, number of hours worked, work schedule (irregular or regular), work schedule (daytime or night time), social support from coworkers, social support from supervisor and the family, job insecurity, recognition, job promotion, and bullying. **Conclusion:** The results of this study highlight alarmingly high rates of depression in helping professions and should serve as a reminder to pay close attention to the mental health of those workers. Investing in employees' mental health by preventing and reducing depression risk could prove to be a valuable investment from an employer's point of view, as it is likely to increase productivity and reduce absenteeism among a host of other positive outcomes.

Saade et al. 2021.

International Archives of Occupational and Environment Health, vol. 22.

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Keywords: Depression; Healthcare; Helping professions; Systematic review; Work conditions.

Evidence Level: 1A

Link: <https://link.springer.com/article/10.1007%2Fs00420-021-01783-y>

Long-term effects of the individual placement and support intervention on employment status: 6-year follow-up of a randomized controlled trial

People with mental illness often experience difficulties with reintegration into the workplace, although employment is known to assist these individuals in their recovery process. Traditional approaches of "first train, then place" have been recently replaced by supported employment (SE) methods that carry strategy of "first place, then train." Individual placement and support (IPS) is one of the best-studied methods of SE, which core principles are individualized assistance in rapid job search with consequent placement in a paid employment position. A considerable amount of high-quality evidence supported the superiority of IPS over conventional methods in providing improved employment rates, longer job tenure, as well as higher salaries in competitive job markets. Nonetheless, our knowledge about the IPS-mediated long-term effects is limited. This non-interventional follow-up study of a previously published randomized controlled trial (RCT) called ZhEPP aimed to understand the long-term impact of IPS after 6 years since the initial intervention. Participants from the ZhEPP trial, where 250 disability pensioners with mental illnesses were randomized into either IPS intervention group or treatment as usual group (TAU), were invited to face-to-face interviews, during which employment status, job tenure, workload, and salaries were assessed. One hundred and fourteen individuals agreed to participate in this follow-up study. Although during the first 2 years post-intervention, the IPS group had higher employment rates (40% (IPS) vs. 28% (TAU), $p < 0.05$ at 24 months), these differences disappeared by the time of follow-up assessments (72 months). The results indicated no substantial differences in primary outcome measures between IPS and TAU groups: employment rate (36 vs. 33%), workload (10.57 vs. 10.07 h per week), job tenure (29 vs. 28 months), and salary (20.21CHF vs. 25.02 CHF). These findings provide important insights regarding the long-term effects of IPS among individuals with mental health illnesses. Further research is required to advance the current knowledge about IPS intervention and its years-long impact.

Pichler et al. 2021.

Frontiers in Psychiatry, vol. 12, no. 12.

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Keywords: Individual placement and support (IPS); Job sustainability; Serious mental disease; Social security disability insurance; Supported employment (SE); Vocational rehabilitation (VR).

Evidence Level: 2A

Link: <https://www.frontiersin.org/articles/10.3389/fpsy.2021.709732/full>

Frequent short sickness absence, occupational health service utilisation and long-term sickness absence due to mental disorders among young employees

Objectives: We examined whether frequent short-term sickness absence (FSTSA) and primary care use in occupational health service (OHS) were associated with medically-certified long-term sickness absence (LTSA) due to mental disorders among young employees. **Methods:** We used record-linkage data covering the young employees (< 35 years) of the City of Helsinki, Finland ($n = 8,282$) from 2010 to 2014. The

outcome was LTSA due to mental disorders. Cox regression models were fitted. **Results:** FSTSA were associated with subsequent LTSA. Also OHS use predicted LTSA due to mental disorders; however, this association was not found for those with prior FSTSA. **Conclusions:** Both FSTSA and primary care use indicate subsequent LTSA independently, and together these indicators identify a larger proportion of individuals at risk of LTSA due to mental disorders.

Harkko et al. 2021.

International Archives of Occupational and Environmental Health, vol. 94, no. 7.

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Keywords: Cox regression; Frequent attenders; Municipal employees; Occupational health primary care; Socioeconomic inequality; Work disability.

Evidence Level: 4B

Link: <https://link.springer.com/article/10.1007%2Fs00420-021-01728-5>

Low-quality employment trajectories and risk of common mental disorders, substance use disorders and suicide attempt: a longitudinal study of the Swedish workforce

Objective: High-quality longitudinal evidence exploring the mental health risk associated with low-quality employment trajectories is scarce. We therefore aimed to investigate the risk of being diagnosed with common mental disorders, substance use disorders, or suicide attempt according to low-quality employment trajectories. **Methods:** A longitudinal register-study based on the working population of Sweden (N=2 743 764). Employment trajectories (2005-2009) characterized by employment quality and pattern (constancy, fluctuation, mobility) were created. Hazard ratios (HR) were estimated using Cox proportional hazards regression models for first incidence (2010-2017) diagnosis of common mental disorders, substance use disorders and suicide attempt as dependent on employment trajectories.

Results: We identified 21 employment trajectories, 10 of which were low quality (21%). With the exception of constant solo self-employment, there was an increased risk of common mental disorders (HR 1.07-1.62) and substance use disorders (HR 1.05-2.19) for all low-quality trajectories. Constant solo self-employment increased the risk for substance use disorders among women, while it reduced the risk of both disorders for men. Half of the low-quality trajectories were associated with a risk increase of suicide attempt (HR 1.08-1.76). **Conclusions:** Low-quality employment trajectories represent risk factors for mental disorders and suicide attempt in Sweden, and there might be differential effects according to sex - especially in terms of self-employment. Policies ensuring and maintaining high-quality employment characteristics over time are imperative. Similar prospective studies are needed, also in other contexts, which cover the effects of the Covid-19 pandemic as well as the mechanisms linking employment trajectories with mental health.

Jonsson et al. 2021.

Scandinavian Journal of Work, Environment and Health, vol. 47, no. 7.

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Keywords: Mental disorders; Substance use disorders; Suicide attempt; Low-quality employment.

Evidence Level: 4B

Link: <https://www.sjweh.fi/article/3978>

Improving outcomes for work-related concussions: A Mental Health Screening and Brief Therapy Model

Objective: This study assessed the efficacy of a neurocognitive screening evaluation and brief therapy model to improve RTW outcomes for workers who experienced mild head injuries. **Methods:** Patients referred were evaluated using a neurocognitive and psychological screening battery. Work-focused cognitive behavioral therapy was provided when appropriate, addressing the role of negative emotional adjustment and functional sleep disturbance in prolonging recovery. **Results:** Average time to RTW was 7 weeks post-evaluation, despite workers being off an average of 10 months between injury and referral dates. Overall, 99% were released to full-duty work without restrictions or accommodations.

Conclusions: This study demonstrates the favorable outcomes achieved via a structured, clinically driven program for workers who experience head-involved injuries, validating previous research on the importance of recognizing the role of psychological factors in prolonging concussion recovery.

LeGoff et al. 2021.

Journal of Occupational and Environmental Medicine, vol. 63, no. 10.

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

Keywords: Concussion; Neurocognitive screening; Mild head injuries; Mental health.

Evidence Level: 5A

Link:

https://journals.lww.com/joem/Fulltext/2021/10000/Improving_Outcomes_for_Work_Related_Concussions_A.21.aspx

Working conditions and mental health functioning among young public sector employees

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

Harkko et al. 2021.

Scandinavian Journal of Public Health, vol 5.

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Keywords: Mental health functioning; SF-36; Job control; Job demand; Mental component summary; Mental disorders; Municipal employees; Physical workload; Working conditions; Younger employees.

Evidence Level: 4B

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

Bullying and Harassment

Antecedents of workplace bullying among employees in Germany: Five-year lagged effects of job demands and job resources

Objectives: The aim of the present study was to examine the long-term association of job demands and job resources with self-reported exposure to workplace bullying in a representative sample of employees in Germany. **Methods:** We analysed a nation-wide representative cohort of employees working in the same workplace with a 5-year follow-up (S-MGA; N = 1637). The study contained self-reported measures of psychosocial working conditions, including work pace, amount of work, influence at work, role clarity and quality of leadership, and workplace bullying, and of organisational factors, including organisational restructuring and layoffs. **Results:** After controlling for bullying and occupational level at baseline, higher baseline levels of organisational restructuring (OR 1.73; 95% CI 1.10-2.70), work pace (1.30; 95% CI 1.01-1.66), and amount of work (1.55; 95% CI 1.21-1.99), and lower baseline levels of influence at work (0.70; 95% CI 0.55-0.90) and quality of leadership (0.64; 95% CI 0.50-0.82), were associated with an elevated risk of workplace bullying at follow-up. In all, 90% of cases of self-reported workplace bullying could be attributed to these factors. **Conclusions:** The study suggests that employees reporting higher demands and

lower resources, as well as organisational factors such as restructuring, are at a higher long-term risk of being targets of workplace bullying. Interventions aimed at preventing workplace bullying could benefit from a focus on psychosocial working conditions and organisational factors.

et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: S-MGA; Job demands-resources model; Prospective study; Psychosocial working conditions; Workplace bullying.

Evidence Level: 4B

Link: <https://www.mdpi.com/1660-4601/18/20/10805>

Association between workplace bullying and common mental disorders in civil servants from a middle-income country

Workplace bullying (WB) is associated with Common mental disorders (CMD) in high-income countries, but there is a lack of evidence relating to this subject in low- and middle-income countries. Therefore, this study aimed to investigate the association between bullying and CMD in Brazil. A cross-sectional study with 907 judicial civil servants from Porto Alegre, southern Brazil, was carried out. WB was measured by the Negative Acts Questionnaire (NAQ-r) and CMD by the Self-Report Questionnaire (SRQ-20). Logistic regression was used to analyse data and test hypotheses. The overall prevalence of CMD was 32.8%, while the overall prevalence of bullying was 18.3%. WB was strongly associated with CMD, even after controlling for confounders. After adjustment for sociodemographic, personality and occupational confounders, weekly and daily exposures to negative acts increased 4.32 (95% CI: 2.00-9.33) and 6.80 (95% CI: 3.42-13.51) times the risk of CMD, respectively. Considering the operational definition, bullied workers had a 3.45 (95% CI: 2.26-5.25) higher risk of CMD. The results are consistent with studies from high-income countries. Different ways of categorising exposure to WB and testing association with CMD are suggested. Interventions to prevent bullying, focusing on work processes and psychosocial factors at work, could reduce the risk of mental health problems.

Feijó et al. 2021.

Industrial Health, vol. 12.

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Keywords: Common mental disorders; Epidemiology; Occupational health; Psychosocial factors at work; Workplace bullying.

Evidence Level: 5B

Link: https://www.jstage.jst.go.jp/article/indhealth/advpub/0/advpub_2021-0049/_article

Psychosocial Issues – Risk Factors

The effects of psychological risk factors at work on cognitive failures through the accident proneness

Background: Various agents such as psychosocial items and accident proneness can affect cognitive failures through different paths. The probable paths are the direct effects of workplace psychosocial items on cognitive failures and their indirect effects on cognitive failures through the mediator variable of accident proneness, which has not yet been studied by others. Thus, the present study aimed to investigate these paths. **Methods:** This cross-sectional study was conducted on 164 male employees of Karoon Sugar Company in 2018. The participants were asked to complete a background and demographic questionnaire, Broadbent cognitive failures scale, accident proneness questionnaire, and Copenhagen psychosocial questionnaire. Obtained data were analyzed and modeled using the statistical descriptive method, ANOVA, independent t-test, Pearson correlation test, and path analysis in the SPSS and AMOS software.

Results: The results of the path analysis showed that, not only, some psychosocial risk items had a significant direct effect on cognitive failures, but also, they could affect cognitive failures through the accident proneness, indirectly. Work-family conflict and social support from supervisors by coefficients of 0.188 and - 0.187 had the highest direct effects, respectively. The highest indirect effects belonged to

justice and respect, and work-family conflict by coefficients of - 0.220 and 0.199, respectively. The highest total effects were also related to the work-family conflict and justice and respect by coefficients of 0.387 and - 0.381, respectively. **Conclusions:** In total, our results showed that some psychological items could, directly and indirectly, increase cognitive failure through accident proneness.

Abbasi et al. 2021.

BMC Psychology, vol. 9, no. 1.

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Keywords: Accident proneness; Cognitive failure; Occupational factor; Psychosocial factor.

Evidence Level: 4B

Link: <https://bmcpyschology.biomedcentral.com/articles/10.1186/s40359-021-00669-5>

Responding to positive emotions at work - The four steps and potential benefits of a validating response to coworkers' positive experiences

In order to capitalize on positive emotions at work and build high-quality interpersonal relationships and psychological safety, it is important that coworkers respond to each other's positive emotions in a constructive and validating way. However, despite the importance of symmetrical emotion regulation outcomes, organizational research has largely overlooked how an employee can positively respond to coworkers' positive emotions. Existing research has concentrated almost exclusively on negative ways of responding, with a particular focus on envy. This article develops a theoretical model of employees' positive responses to coworkers' positive emotional experiences, introduced here as a validating response. We identify four steps - noticing, sensemaking, feeling, and acting - and the key mechanisms within each step that enable a responder to react in a validating way. We connect the validating response to important potential individual and organizational outcomes. These outcomes include improved relationship quality and trust, as well as increased positivity and well-being that can result in enhanced learning behavior and collaboration. This article also discusses the connection between a validating response and compassion. We identify them both as parallel affirmative processes that acknowledge a coworker's emotions, with the former being a response to positive emotion while the latter is a response to negative emotion.

Paakkanen et al. 2021.

Frontiers in Psychology, vol. 11, no. 12.

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Keywords: Capitalization; Interpersonal relationships; Organizations; Positive emotions; Positive empathy; Psychological safety; Validating response.

Evidence Level: 6B

Link: <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.668160/full>

Acting proactively to manage job insecurity: How worrying about the future of one's job may obstruct future-focused thinking and behavior

An increasing number of people experience insecurity about the future of their job, making it more important than ever to manage this insecurity. While previous research suggests that proactive coping is a promising way to alleviate job insecurity, we suggest that, paradoxically, it may be particularly difficult to act proactively when feeling emotionally distressed about the future of one's job. Drawing on the principle of resource scarcity and the Conservation of Resources theory, we propose that affective job insecurity ignites a scarcity mindset that inhibits workers' future focus and cognitive functioning, thereby undermining proactive career behavior. Additionally, we examine whether income adequacy can compensate for these negative consequences of job insecurity. Results of a three-wave survey study among 108 self-employed professionals during the COVID-19 pandemic showed that initial affective job insecurity was negatively related to cognitive functioning but unrelated to future focus. Yet, the latter relationship was moderated by income adequacy: affective job insecurity was positively related to future focus when participants reported high income adequacy. In turn, future focus was positively related to proactive career behavior, which was subsequently related to lower cognitive job insecurity. Thus, while replicating the finding that workers can proactively manage their cognitive job insecurity, we also showed that initial affective job insecurity may obstruct people's cognitive functioning. We discuss how our results signal a

Matthew effect, in which job insecure people with sufficient means are able to look ahead and proactively build resources to change their career, while job insecure people with insufficient means may fall behind. **Koen et al. 2021.**

Frontiers in Psychology, vol. 12, no. 12.

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Keywords: Cognitive functioning; Conservation of resources theory; Future focus; Income; Job insecurity; Proactive career behavior; Proactive coping; Resource scarcity theory.

Evidence Level: 5A

Link: <https://www.frontiersin.org/articles/10.3389/fpsyg.2021.727363/full>

Refugees at work: The preventative role of Psychosocial Safety Climate against workplace harassment, discrimination and psychological distress

It is widely recognised that employment is vital in assisting young refugees' integration into a new society. Drawing on psychosocial safety climate (PSC) theory, this research investigated the effect of organisational climate on young refugee workers' mental health (psychological distress) through stressful social relational aspects of work (e.g., harassment, discrimination). Drawing on data from 635 young refugees aged between 15 and 26 in South Australia, 116 refugees with paid work were compared with 519 refugee students without work, and a sample of young workers from Australian Workplace Barometer (AWB) data (n = 290). The results indicated that refugees with paid work had significantly lower psychological distress compared with refugees with no paid work, but more distress than other young Australian workers. With respect to workplace harassment and abuse, young refugee workers reported significantly more harassment due to their ongoing interaction and engagement with mainstream Australian workers compared with unemployed refugees. Harassment played a vital role in affecting psychological health in refugees (particularly) and other young workers. While refugee youth experienced harassment at work, overall, their experiences suggest that their younger age upon arrival enabled them to seek and find positive employment outcomes. Although PSC did not differ significantly between the employed groups, we found that it likely negatively influenced psychological distress through the mediating effects of harassment and abuse. Hence, fostering pathways to successful employment and creating safe work based on high PSC and less harassment are strongly recommended to improve refugees' mental health and adaptation.

Afsharian et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Harassment; Psychological demands; Psychological distress; Psychosocial safety climate.

Evidence Level: 5A

Link: <https://www.mdpi.com/1660-4601/18/20/10696>

Enabling Healthy and Safe Workplaces

Health and Wellbeing

The effect of using participatory working time scheduling software on employee well-Being and workability: A Cohort Study analysed as a pseudo-experiment

Shift workers are at increased risk of health problems. Effective preventive measures are needed to reduce the unfavourable effects of shift work. In this study we explored whether use of digital participatory working time scheduling software improves employee well-being and perceived workability by analysing an observational cohort study as a pseudo-experiment. Participants of the Finnish Public Sector cohort study with payroll records available between 2015 and 2019 were included (N = 2427). After estimating the propensity score of using the participatory working time scheduling software on the baseline characteristics using multilevel mixed-effects logistic regression and assigning inverse probability of treatment weights for each participant, we used generalised linear model to estimate the effect of using the participatory working time scheduling software on employees' control over scheduling of shifts, perceived workability, self-rated health, work-life conflict, psychological distress and short sleep (≤ 6 h). During a 2-year follow-up, using the

participatory working time scheduling software reduced the risk of employees' low control over scheduling of shifts (risk ratio [RR] 0.34; 95% CI 0.25-0.46), short sleep (RR 0.70; 95% CI 0.52-0.95) and poor workability (RR 0.74; 95% CI 0.55-0.99). The use of the software was not associated with changes in psychological distress, self-rated health and work-life conflict. In this observational study, we analysed as a pseudo-experiment, the use of participatory working time scheduling software was associated with increased employees' perceived control over scheduling of shifts and improved sleep and self-rated workability.

Shiri et al. 2021.

Healthcare (Basel, Switzerland), vol. 9, no. 10.

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Keywords: Propensity score; Psychological distress; Self-rated health; Self-rostering; Work-life conflict; Worktime control.

Evidence Level: 3B

Link: <https://www.mdpi.com/2227-9032/9/10/1385>

Understanding worker well-being relative to high-workload and recovery activities across a whole day: Pilot testing an ecological momentary assessment technique

Occupational health and safety is experiencing a paradigm shift from focusing only on health at the workplace toward a holistic approach and worker well-being framework that considers both work and non-work factors. Aligned with this shift, the purpose of this pilot study was to examine how, within a person, frequencies of high-workload and recovery activities from both work and non-work periods were associated with same day well-being measures. We analyzed data on 45 workers with type 1 diabetes from whom we collected activity data 5-6 times daily over 14 days. More frequent engagement in high-workload activities was associated with lower well-being on multiple measures including higher stress. Conversely, greater recovery activity frequency was mostly associated with higher well-being indicated by lower stress and higher positive affect. Overall, our results provide preliminary validity evidence for measures of high-workload and recovery activity exposure covering both work and non-work periods that can inform and support evaluations of worker well-being.

Hernandez et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 19.

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Keywords: Ecological momentary assessment; Future of work; Healthy work design and well-being; Recovery; Type 1 Diabetes; Workload; Workweek.

Evidence Level: 5A

Link: <https://www.mdpi.com/1660-4601/18/19/10354>

Disability and economic loss caused by headache among information technology workers in Korea

Background and purpose: Headache disorders are a leading cause of disability globally. However, there is inadequate information available about these disorders and the related economic loss in the workplace in Asian countries. Information technology (IT) jobs are intellectually and cognitively challenging, and hence IT workers are a suitable population for assessing headache disorders and related economic loss.

Methods: We sent invitation emails to all employees of selected IT companies. A comprehensive Web-based questionnaire regarding headache characteristics, disability, quality of life, and economic loss was completed by 522 participants from 8 companies. **Results:** The participants included 450 (86.2%) who had experienced headache more than once during the previous year. The frequencies of migraine, probable migraine (PM), and tension-type headache (TTH) were 18.2%, 21.1%, and 37.0%, respectively. The Migraine Disability Assessment score was higher for participants with migraine [median and interquartile range, 3.0 (0.0-6.0)] than for those with PM [0.0 (0.0-2.0), $p < 0.001$] and TTH [0.0 (0.0-1.0), $p < 0.001$]. The estimated annual economic losses caused by migraine per person associated with absenteeism and presenteeism were USD 197.5±686.1 and USD 837.7±22.04 (mean±standard deviation), respectively. The total annual economic loss per person caused by migraine (USD 1,023.3±1,972.7) was higher than those caused by PM (USD 424.8±1,209.1, $p < 0.001$) and TTH (USD 197.6±636.4, $p < 0.001$). **Conclusions:** Migraine, PM, and TTH were found to be prevalent among IT workers in Korea. Disability and economic loss were significantly greater in participants with migraine than in those with PM or TTH.

Kim et al. 2021.

Journal of Clinical Neurology, vol. 17, no. 4.

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Keywords: Cost of illness; Disability; Migraine; Quality of life; Tension-type headache; Work performance.

Evidence Level: 5B

Link: <https://thejcn.com/DOIx.php?id=10.3988/jcn.2021.17.4.546>

Individual determinants of rest-break behavior in occupational settings

Aims: Work breaks improve well-being, productivity, and health. The aim of this study was to investigate the individual determinants of rest-break behavior during work using the theory of planned behavior (TPB).

Methods: The association between attitude, control, and subjective norm and rest-break intention (i.e., taking rest breaks regularly), and rest-break behavior (average number of rest breaks/workhour) was analyzed with stepwise linear regression in a cross-sectional design. The study participants included 109 clerical employees, and 215 nurses. **Results:** Attitude and control were positively associated with rest-break intention. Intention and control were positively associated with rest-break behavior. The effect of intention was moderated by occupation, with intention being more weakly associated with rest-break behavior in nurses who had less behavioral control. **Conclusions:** Job control is the major predictor of rest-break behavior, with attitudes playing a minor role, and social norm playing no role. To increase rest-break behavior, a greater extent of job control is necessary.

Blasche et al. 2021.

Healthcare (Basel, Switzerland), vol. 9, no. 10.

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Keywords: Attitude; Behavioral intention; Job control; Rest breaks; Rest-break behavior; Subjective norm; Theory of planned behavior.

Evidence Level: 5A

Link: <https://www.mdpi.com/2227-9032/9/10/1330>

Prescription opioid use and employment: A nationwide Finnish register study

Background: The secular decline in labor market participation and the concurrent increase in opioid use in many developed countries have sparked a policy debate on the possible connection between these two trends. We examined whether the use of prescription opioids was connected to labor market outcomes relating to participation, employment and unemployment among the Finnish population. **Methods:** The working-age population (aged 19-64 years) living in Finland during the period 1995-2016 was used in the analyses (consisting of 67 903 701 person-year observations). Lagged values of prescription opioid use per capita were used as the exposure. Instrumental variables (IV) estimation method was used to identify causal effects, where opioid use per capita for the elderly (65-95-year-old) was used as an instrument for the opioid use per capita for the working-age population of the same gender, education and region.

Results: Increased opioid use led to worse labor market outcomes in the long run, with the effect size of 16 % and 20 %, compared to the standard deviation of the employment and participation rates. On the contrary, in the short run, increased opioid use had positive employment effects.

Conclusions: Policymakers should take the contradictory short- and long-term effects into account while considering regulation and monitoring of opioid use. Regulating and monitoring long-term prescription opioids is crucial for reducing their negative labor market consequences.

Böckerman et al. 2021.

Drug and Alcohol Dependence, vol. 1, no. 227.

User License:

Keywords: Employment; Labor market; Opioids; Population-based; Prescription drugs.

Evidence Level: 5B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S0376-8716\(21\)00462-2](https://linkinghub.elsevier.com/retrieve/pii/S0376-8716(21)00462-2)

Work Health and Safety

Prevention, medical management, and adjudication of workplace injuries: A thirty-two year follow-up of an Integrated Workers' Compensation Program

Objective: To describe the cost outcomes of an integrated workers' compensation program. **Methods:** We studied a population that increased from 20K to 59K, incurring 8807 lost-time claims between 1988 and 2020. **Results:** Lost-time claims decreased from 22.15 to 4.32 per 1000 employees (1988 to 2020), and total closed lost-time claim costs per \$100 payroll, decreased from \$0.62 to \$0.17 (1988 to 2017). The percent of claims resolved within 3 years of the accident increased from 10% to 89% (1988 to 2017). Adjusting for medical inflation and wage increases, total workers' compensation benefits paid per claim decreased \$124 per year, medical benefits decreased \$45 per year and indemnity benefits decreased \$79 per year. **Conclusion:** On both a population (per employee) and on a per claim basis, workers' compensation costs decreased substantially, which is attributable to improvements in accident prevention and decreases in claim duration.

Bernacki et al. 2021.

Journal of Occupational and Environmental Medicine, vol. 63, no. 10.

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Keywords: Prevention; Medical management; Adjudication; Workplace injuries; Workers' Compensation.

Evidence Level: 4B

Link:

[https://journals.lww.com/joem/Fulltext/2021/10000/Prevention, Medical Management, and Adjudication.3.aspx](https://journals.lww.com/joem/Fulltext/2021/10000/Prevention,_Medical_Management,_and_Adjudication.3.aspx)

Implementation of an organizational intervention to improve low-wage food service workers' safety, health and wellbeing: findings from the Workplace Organizational Health Study

Background: Many organizational interventions aim to improve working conditions to promote and protect worker safety, health, and well-being. The Workplace Organizational Health Study used process evaluation to examine factors influencing implementation of an organizational intervention. This paper examines the extent to which the intervention was implemented as planned, the dose of intervention implemented, and ways the organizational context hindered or facilitated the implementation of the intervention.

Methods: This proof-of-concept trial was conducted with a large, multinational company that provides food service through contractual arrangements with corporate clients. The 13-month intervention was launched in five intervention sites in October 2018. We report findings on intervention implementation based on process tracking and qualitative data. Qualitative data from 25 post-intervention interviews and 89 process tracking documents were coded and thematically analyzed. **Results:** Over the 13-month intervention, research team representatives met with site managers monthly to provide consultation and technical assistance on safety and ergonomics, work intensity, and job enrichment. Approximately two-thirds of the planned in-person or phone contacts occurred. We tailored the intervention to each site as we learned more about context, work demands, and relationships. The research team additionally met regularly with senior leadership and district managers, who provided corporate resources and guidance. By assessing the context of the food service setting in which the intervention was situated, we explored factors hindering and facilitating the implementation of the intervention. The financial pressures, competing priorities and the fast-paced work environment placed constraints on site managers' availability and limited the full implementation of the intervention. **Conclusions:** Despite strong support from corporate senior leadership, we encountered barriers in the implementation of the planned intervention at the worksite and district levels. These included financial demands that drove work intensity; turnover of site and district managers disrupting continuity in the implementation of the intervention; and staffing constraints that further increased the work load and pace. Findings underscore the need for ongoing commitment and support from both the parent employer and the host client.

Sorensen et al. 2021.

BMC Public Health, vol. 21, no. 1.

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Keywords: Food service workers; Healthy work design; Intervention implementation; Low wage workers; Occupational health and safety interventions; Organizational interventions; Participatory intervention; Process evaluation; Total worker health.

Evidence Level: 6A

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-11937-9>

Factors associated with occupational accidents during part-time work among international students in Japan

This study investigated the status of and risk factors for occupational accidents occurring during part-time work among international students in Japan. In total, 390 international students who had registered with an online survey company were invited to participate in a cross-sectional study using an online self-administered questionnaire in October 2020. Multiple regression analysis was performed to evaluate factors associated with accidents with absence from work. Among 311 participants, 126 (40.5%) had experienced an occupational accident at their part-time job in the past year, and 27 (8.7%) had lost working days because of accidents. The likelihood of accident with work absence was significantly higher among those with high income (adjusted odds ratio [OR] = 4.39, 95% confidence interval [CI]: 1.57-12.24) and language barrier (adjusted OR = 2.37, 95% CI: 1.03-5.47). International students experienced occupational accidents relatively frequently. These results provide insight to guide occupational safety measures for migrants.

Ishimaru et al. 2021.

Industrial Health, vol. 12.

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Keywords: Foreigner; Japan; Migrant; Occupational accident; Occupational injury.

Evidence Level: 5B

Link: https://www.jstage.jst.go.jp/article/indhealth/advpub/0/advpub_2021-0028/_article

Analysis of the correlation between occupational accidents and economic factors in China

One of the important factors affecting the production safety of a country or region is the level of economic development. Avoiding accidents under the condition of ensuring economic development is a problem that needs in-depth research. On the basis of collecting the data of occupational accidents and economic development indicators in China from 2000 to 2020, this paper studies the relationship between occupational accidents and five economic indicators, such as resident consumption, energy consumption, education funds, wage level and research input. The grey working accident model of Gaussian function is established, the occurrence trend of occupational accidents is quantitatively analyzed, and the accident reduction measures are suggested based on the relationship between accidents and economy. The results show that there is a strong correlation between accident and economic indicators, and the comprehensive correlation coefficient among scientific research investment, education funds and accident indicators is significantly higher than that of other economic indicators. Increasing investment in scientific research and education is conducive to improving the quality of workers and training safety professionals and can effectively reduce workplace accidents.

Li et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Gaussian grey model; Accident statistics; Correlation analysis; Economic factors; Occupational accidents.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/18/20/10781>

Work-related stress was not associated with increased cancer risk in a population-based cohort setting

Background: Stress is a commonly perceived cause of cancer, but the evidence to date is limited and inconclusive. We examined work-related stress in relation to cancer incidence in a population-based cohort, with outcome data from Swedish national registries. **Methods:** The study population included 113

057 participants in the Västerbotten Intervention Programme. Hazard ratios (HR) were estimated using Cox proportional hazards regression, for cancer overall and for types with {greater than or equal to}500 cases, and adjusting for several potential confounders. The primary exposure was prediagnostic work-related stress, using the well-established Karasek job demand/control model. Demand and control variables were dichotomized at the median, and participants were classified according to combinations of these categories. We also considered social network and aspects of quality of life. **Results:** "High-strain" work (high demand/low control) was not associated with cancer risk compared to "low-strain" work (low demand/high control): multivariable HR 1.01 (95% CI 0.94-1.08) for men and 0.99 (95% CI 0.92-1.07) for women. Results were also null for most cancer types assessed: prostate, breast, colorectal, lung and gastrointestinal. The risk of gastrointestinal cancer was lower for "passive" (low demand/low control) versus "low strain" work, particularly for colorectal cancer in women: multivariable HR 0.71 (95% CI 0.55-0.91), but statistical significance was lost after adjustment for multiple testing. **Conclusions:** The findings of this population-based, cohort study do not support a role for work-related stress in determining cancer risk. **Impact:** This study helps fill an important knowledge gap given the common concern about stress as a risk factor for cancer.

Hadrevi et al. 2021.

Cancer Epidemiology, Biomarkers & Prevention, vol. 25.

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Keywords: Work-related stress; Cancer risk; Stress; Risk factor.

Evidence Level: 4B

Link: <https://cebp.aacrjournals.org/content/early/2021/10/25/1055-9965.EPI-21-0182.long>

Industry context as an essential tool for the future of healthy and safe work: Illustrative examples for Occupational Health Psychology from the hospitality industry

Contextual nuance holds value for occupational health and safety, particularly as workplace challenges and solutions become more complex. However, disciplines that inform occupational safety and health vary in the degree to which they target breadth and depth of understanding. The future of work presents challenges related to work, the workplace, and the workforce, and an appreciation of the context of industry will ready researchers and practitioners with the most informed solutions. Broadly developed solutions for future of work challenges may flounder without an appreciation for the context of industry, as evidenced by two examples provided in this review. As occupational safety and health disciplines answer the call provided by the future of work, this review provides an account for the value of industry context and recommendations for achieving both breadth and depth of scientific inquiry and practical reach.

Horan et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Context; Industry; Occupational health psychology; Occupational safety and health.

Evidence Level: 6A

Link: <https://www.mdpi.com/1660-4601/18/20/10720>

Chronic Health Issues

Trajectories of sickness absence and disability pension days among people with multiple sclerosis by type of occupation

Background: Multiple sclerosis (MS) can impact working life, sickness absence (SA) and disability pension (DP). Different types of occupations involve different demands, which may be associated with trajectories of SA/DP among people with MS (PwMS). **Objectives:** To explore, among PwMS and references, if SA/DP differ according to type of occupation. Furthermore, to examine how trajectories of SA/DP days are associated with type of occupation among PwMS. **Methods:** A longitudinal nationwide Swedish register-based cohort study was conducted, including 6100 individuals with prevalent MS and 38,641 matched references from the population. Trajectories of SA/DP were identified with group-based trajectory

modelling. Multinomial logistic regressions were estimated for associations between identified trajectories and occupations. **Results:** Increase of SA/DP over time was observed in all occupational groups, in both PwMS and references, with higher levels of SA/DP among PwMS. The lowest levels of SA/DP were observed among managers. Three trajectory groups of SA/DP were identified: Persistently Low (55.2%), Moderate Increasing (31.9%) and High Increasing (12.8%). Managers and those working in Science & Technology, and Economics, Social & Cultural were more likely to belong to the Persistently Low group.

Conclusion: Results suggest that type of occupation plays a role in the level and course of SA/DP.

Bosma et al. 2021.

Multiple Sclerosis, vol. 6.

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Keywords: Multiple Sclerosis; Disability pension; Occupation; Sick leave.

Evidence Level: 4B

Link: <https://journals.sagepub.com/doi/full/10.1177/13524585211048759>

People with disabilities in the workplace: Results of a survey conducted among Polish and Finnish employers

The key aspect of the inclusion of people with disabilities (PwD) in the workplace is how they are perceived by employers who make decisions on hiring employees. The article presents the results of CAWI (Computer Assisted Web Interview) research conducted among Polish and Finnish employers (n = 414) in 2021 using a proprietary questionnaire. Employers were asked to assess the state policy in the field of PwD's inclusion, the social atmosphere in this respect, the level of acceptance of privileges/special solutions dedicated to PwD in the workplace and the knowledge of the specificity of disability. When analysing the obtained data, we verified the differentiation of Polish and Finnish employers' assessments, the impact of respondents' characteristics on their assessment and the relations between the assessments of various aspects of PwD's inclusion. For the analysis, we used the t-test of independent samples for equality of means and the Pearson correlation coefficient. The results showed that Finnish respondents assess the conditions for the full inclusion of PwD much better than Polish ones. The characteristics most differentiating employers' assessments is gender and the fact of employing PwD. There were also correlations between the responses of respondents in both countries to three out of four analysed questions from the questionnaire. The differences found in this study indicate that it would be worth extending the research to other European countries to generalize conclusions about the influence of cultural determinants on the situation of PwD on the labour market.

Grześkowiak et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Disability; Employers' opinions; Inclusive employment; Quantitative research.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/18/20/10934>

Occupational performance of hearing-impaired and normal-hearing workers in Korea

Background and objectives: This study aimed to investigate the occupational performance of Korean workers with and without hearing loss and analyze the hearing-related difficulties in the working environment. **Subjects and purpose:** The Amsterdam checklist for hearing and work was used for the analyses and the occupational environments of the Korean workers were investigated. Out of 129 total participants, 86 workers experienced severe to profound hearing loss and 43 had the normal hearing ability. The hearing-impaired workers were recruited from two leading vocational centers and normal-hearing workers were their colleagues. **Results:** The hearing-impaired workers were found to take fewer sick leaves and exhibited higher rates of permanent job statuses compared to the normal-hearing workers. Workers with hearing loss rarely detected background sound; however, they could perceive reverberation more frequently. They felt more satisfied with their careers than the normal hearing workers as they received social support and needed to put their effort into hearing for most hearing activities. Furthermore, the effort in hearing increased with the increase in job demand, job control, social support, and career satisfaction. The working hours per week increased with the increase in age, education level, job demand,

job control, and social support. Different trends were observed in 9 out of 12 variables while comparing the data from the present study with that obtained from the hearing-impaired workers of the Netherlands, indicating a large difference between countries. **Conclusions:** Although the hearing-impaired Korean workers operate diligently with good job positions, it is necessary to enhance their acoustic environment and provide them social support. Considering the cultural background of the hearing-impaired workers, the development of suitable vocational rehabilitation programs and specific questionnaires is strongly recommended worldwide.

Kim et al. 2021.

Journal of Audiology and Otology, vol. 25, no. 4.

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

Keywords: Acoustic environment; Amsterdam checklist for hearing and work; Korean hearing-impaired workers; Occupational performance; Vocational rehabilitation.

Evidence Level: 5B

Link: <https://www.ejao.org/journal/view.php?doi=10.7874/jao.2021.00185>

Occupational Exposure

Occupational exposure to metalworking fluid and the effect on health symptoms-An Intervention Study

Exposure to metalworking fluid has been shown to cause health problems among workers. The aim of this study was to compare health outcomes and levels of exposure among workers exposed to metalworking fluid before and after the implementation of preventive measures. The frequencies of self-reported symptoms, as well as the concentrations of measured substances were lower after the implementation of preventive measures. Logistic regression showed statistically significant differences in the report of irritations, a stuffy or runny nose, eye irritation, a hoarse or dry throat, and a cough with odds ratios of 0.31 (95% confidence interval [CI] 0.21 to 0.47), 0.12 (95% CI 0.05 to 0.29), 0.13 (95% CI 0.06 to 0.28), and 0.24 (95% CI 0.12 to 0.46), respectively. This confirms the efficiency of the performed intervention and highlights the importance of eliminating the recirculation of contaminated air.

Thornéus et al. 2021.

Journal of Occupational and Environmental Medicine, vol. 63, no. 10.

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Keywords: Metalworking fluid; Health symptoms; Health problems; Exposure.

Evidence Level: 3A

Link:

https://journals.lww.com/joem/Fulltext/2021/10000/Occupational_Exposure_to_Metalworking_Fluid_and.15.aspx

Exposure to respirable dust among workers fabricating aluminium trihydroxide-containing synthetic countertops

The aim of this study is to characterize personal exposure of workers to respirable particulate matter (PM) generated in cutting and other fabrication activities when fabricating acryl polymer/aluminium trihydroxide synthetic countertops. We collected 29 personal full-day samples of respirable PM from three workers in a small private workshop. We tested differences between- and within-worker variances of mass concentrations using the Kruskal-Wallis test. We used segmented regression to test the means and medians 15-min interval concentrations changes over time and to identify a breakpoint. Respirable PM concentrations ranged nearly 100-fold, from 0.280 to 25.4 mg/m³ with a median of 2.0 mg/m³ (1-min concentrations from 13,920 data points). There were no statistical difference in daily median or geometric mean concentrations among workers, whereas the concentrations were significantly higher on days with three versus two workers present. The 15-min median concentrations (n = 974 measures) increased until 2.35 h (beta 0.177; p < 0.05), representing a 0.70 mg increase in exposure per hour. This was followed by a plateau in concentrations. The high levels of respirable PM we observed among workers fabricating aluminium trihydroxide-containing synthetic countertops highlight an unmet early prevention need.

Vinnikov et al. 2021.

Scientific Reports, vol. 11, no. 1.

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Keywords: Exposure; Respirable particulate matter; Fabrication.

Evidence Level: 5B

Link: <https://www.nature.com/articles/s41598-021-00814-5>

Occupational exposure to Diisocyanates in the European Union

Objectives: Diisocyanates are a chemical group that are widely used at workplaces in many sectors. They are also potent skin- and respiratory sensitizers. Exposure to diisocyanates is a main cause of occupational asthma in the European Union. To reduce occupational exposure to diisocyanates and consequently the cases of diisocyanate-induced asthma, a restriction on diisocyanates was recently adopted under the REACH Regulation in the European Union. **Methods:** A comprehensive evaluation of the data on occupational exposure to the most important diisocyanates at workplaces was made and is reported here. The diisocyanates considered are methylene diphenyl diisocyanate (MDI), toluene diisocyanate (TDI), and hexamethylene diisocyanate (HDI), accounting for more than 95% of the market volume in the EU. The exposure assessment is based on data from Chemical Safety Reports (CSRs) of REACH Registration Dossiers, workplace air monitoring data from Germany, from the UK Health and Safety Executive (HSE), and literature data relevant for the EU, and the USA. **Results:** Occupational exposure to diisocyanates is particularly relevant in: (i) C.A.S.E. applications (Coatings, Adhesives, Sealants, Elastomers), (ii) production of polyurethanes (PUs) (e.g. slab-stock foam), (iii) handling of partly uncured PU products (e.g. cutting, demoulding, spray application of foam), and (iv) when diisocyanates/PUs are heated (e.g. hot lamination, foundry applications/casting forms). Ranking of the reported data on inhalation to diisocyanate exposure at workplaces (maximum values) leads to following order: (i) HDI and its oligomers in coatings, (ii) MDI in spray foam applications, (iii) TDI in manufacture of foam, (iv) TDI in manufacture of PUs and PU composite materials, (v) TDI in adhesives, (vi) MDI in adhesives, (vii) MDI in manufacture of PUs and PU composite materials, (viii) TDI in coatings, (ix) MDI in manufacture of foam, and (x) HDI in adhesives.

Rother et al. 2021.

Annals of Work Exposure and Health, vol. 65, no. 8.

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Keywords: Asthma; Diisocyanates; Occupational exposure; Workplace exposure.

Evidence Level: 5B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8501949/>

Environmental and occupational short-term exposure to airborne particles and FEV1 and FVC in healthy adults: A systematic review and meta-analysis

Background: No study has compared the respiratory effects of environmental and occupational particulate exposure in healthy adults. **Methods:** We estimated, by a systematic review and meta-analysis, the associations between short term exposures to fine particles (PM_{2.5} and PM₄) and certain parameters of lung function (FEV₁ and FVC) in healthy adults. **Results:** In total, 33 and 14 studies were included in the qualitative synthesis and meta-analyses, respectively. In environmental studies, a 10 µg/m³ increase in PM_{2.5} was associated with an FEV₁ reduction of 7.63 mL (95% CI: -10.62 to -4.63 mL). In occupational studies, an increase of 10 µg/m³ in PM₄ was associated with an FEV₁ reduction of 0.87 mL (95% CI: -1.36 to -0.37 mL). Similar results were observed with FVC. **Conclusions:** Both occupational and environmental short-term exposures to fine particles are associated with reductions in FEV₁ and FVC in healthy adults.

da Silveira Fleck et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Environmental exposures; Healthy adults; Lung function; Occupational exposures; Particulate matter; Short-term.

Evidence Level: 1A

Link: <https://www.mdpi.com/1660-4601/18/20/10571>

Occupational causes of hypersensitivity pneumonitis: a systematic review and compendium

Background: Hypersensitivity pneumonitis (HP) is caused by a variety of antigens and low-molecular-weight chemicals, often through occupational exposure. Making a diagnosis of HP and identifying a cause are challenging. Cryptogenic cases are frequently reported, and missing or incomplete exposure histories can cause misclassification. **Aims:** To provide an evidence-based compendium of sources of exposure and causes of HP for the clinician, through systematic review of medical literature. **Methods:** Articles related to HP causative agents and occupational exposure were searched from the databases OVID Medline (1946 to October 2020) and EMBASE (1974 to October 2020). Abstracts and full texts of articles were screened by two reviewers. Data on causative antigens, occupational source of exposure and any associated eponymous name were extracted and grouped according to source of exposure. **Results:** A total of 1790 articles were identified, from which 305 articles met the inclusion criteria. An additional 22 articles were identified from citation lists of the selected review articles. Sources of exposure identified for HP were sorted into 14 categories of work (agricultural, plant matter processing, wood, animal-related, foodstuff, food processing, metal processing, polymers, other manufacturing, chemicals, aerosolized water, service, waste and sewage and wind instruments). **Conclusions:** This work is a comprehensive list of occupational causative agents and exposures causing HP. Cases are grouped by source of exposure, allowing an immediately accessible compendium of causes for use during occupational exposure assessment, which could also form the basis for a clinical questionnaire.

Kongsupon et al. 2021.

Occupational Medicine, vol. 1, no. 71.

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Keywords: Aetiology; Extrinsic allergic alveolitis; Occupational disease; Occupational exposure; Occupational health.

Evidence Level: 1A

Link: <https://academic.oup.com/occmed/article/71/6-7/255/6346534>

Environmental/occupational exposure to Radon and Non-Pulmonary Neoplasm risk: A Review of Epidemiologic Evidence

Although Radon (Rn) is a known agent for lung cancer, the link between Rn exposure and other non-pulmonary neoplasms remains unclear. The aim of this review is to investigate the role of Rn in the development of tumors other than lung cancer in both occupational and environmental exposure. Particularly, our attention has been focused on leukemia and tumors related to brain and central nervous system (CNS), skin, stomach, kidney, and breast. The epidemiologic literature has been systematically reviewed focusing on workers, general population, and pediatric population. A weak increase in leukemia risk due to Rn exposure was found, but bias and confounding factors cannot be ruled out. The results of studies conducted on stomach cancer are mixed, although with some prevalence for a positive association with Rn exposure. In the case of brain and CNS cancer and skin cancer, results are inconclusive, while no association was found for breast and kidney cancers. Overall, the available evidence does not support a conclusion that a causal association has been established between Rn exposure and the risk of other non-pulmonary neoplasms mainly due to the limited number and heterogeneity of existing studies. To confirm this result, a statistical analysis should be necessary, even if it is now not applicable for the few studies available.

Mozzoni et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 19.

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Keywords: Cancer risk; Environmental exposure; Epidemiological studies; Occupational exposure; Radon.

Evidence Level: 1A

Link: <https://www.mdpi.com/1660-4601/18/19/10466>

Musculoskeletal Health

Association of clinically relevant carpal tunnel syndrome with type of work and level of education: A general-population study

Carpal tunnel syndrome (CTS) is a common cause of work disability. The association with occupational load and education level has not been established in general-population studies. The purpose of this study was to investigate the association of clinically relevant CTS with work and education. From the Healthcare Register of Skane region (population 1.2 million) in southern Sweden we identified all individuals, aged 17-57 years, with first-time physician-made CTS diagnosis during 2004-2008. For each case we randomly sampled 4 referents, without a CTS diagnosis, from the general population matched by sex, age, and residence. We retrieved data about work and education from the national database. The study comprised 5456 individuals (73% women) with CTS and 21,667 referents. We found a significant association between physician-diagnosed CTS and type of work and level of education in both women and men. Compared with white-collar workers, the odds ratio (OR) for CTS among blue-collar workers was 1.67 (95% CI 1.54-1.81) and compared with light work, OR in light-moderate work was 1.37 (1.26-1.50), moderate work 1.70 (1.51-1.91), and heavy manual labor 1.96 (1.75-2.20). Compared with low-level education, OR for CTS in intermediate level was 0.82 (0.76-0.89) and high-level 0.48 (0.44-0.53). In women and men there is significant association with a dose-response pattern between clinically relevant CTS and increasing manual work load and lower education level. These findings could be important in design and implementation of preventive measures.

Möllerstam et al. 2021.

Scientific Reports, vol. 11, no. 1.

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Keywords: Carpal Tunnel Syndrome; Work; Disability; Occupational load.

Evidence Level: 4B

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8494938/>

COVID 19

Adapting to the Future of Work

Occupational risk of COVID-19 in the first versus second epidemic wave in Norway, 2020

Background: The occupational risk of COVID-19 may be different in the first versus second epidemic wave.

Aim: To study whether employees in occupations that typically entail close contact with others were at higher risk of SARS-CoV-2 infection and COVID-19-related hospitalisation during the first and second epidemic wave before and after 18 July 2020, in Norway. **Methods:** We included individuals in occupations working with patients, children, students, or customers using Standard Classification of Occupations (ISCO-08) codes. We compared residents (3,559,694 on 1 January 2020) in such occupations aged 20-70 years (mean: 44.1; standard deviation: 14.3 years; 51% men) to age-matched individuals in other professions using logistic regression adjusted for age, sex, birth country and marital status. **Results:** Nurses, physicians, dentists and physiotherapists had 2-3.5 times the odds of COVID-19 during the first wave when compared with others of working age. In the second wave, bartenders, waiters, food counter attendants, transport conductors, travel stewards, childcare workers, preschool and primary school teachers had ca 1.25-2 times the odds of infection. Bus, tram and taxi drivers had an increased odds of infection in both waves (odds ratio: 1.2-2.1). Occupation was of limited relevance for the odds of severe infection, here studied as hospitalisation with the disease. **Conclusion:** Our findings from the entire Norwegian population may be of relevance to national and regional authorities in handling the epidemic. Also, we provide a knowledge foundation for more targeted future studies of lockdowns and disease control measures.

Magnusson et al. 2021.

Euro Surveillance, vol. 26, no. 40.

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Keywords: COVID-19; Occupational risk; Pandemic policy.

Evidence Level: 5B

Link: <https://www.eurosurveillance.org/content/10.2807/1560-7917.ES.2021.26.40.2001875>

Recurrent sick leave after COVID-19: investigating the first wave of the pandemic in a comprehensive Swedish registry-based study

Background: Sick-leave due to COVID-19 vary in length and might lead to re-current episodes. The aim was to investigate recurrent sick leave due to COVID-19 during the first wave. **Methods:** This is a registry-based cohort study. The study comprises all people with sickness benefit due to COVID-19 in Sweden in March 1- August 31, 2020. Data from the Swedish Social Insurance Agency, the Swedish National Board of Health and Welfare, and Statistics Sweden were merged. **Results:** Within the follow-up period of 4 months, 11,955 people were subject to sickness benefit due to COVID-19, whereof 242 people (2.0%) took recurrent sick leave due to COVID-19, and of those 136 (56.2%) remained on sick leave at the end of follow-up. People with recurrent sick leave were older, more often women, and more likely to have been on sick leave prior to the COVID-19 pandemic. **Conclusion:** A group of people presented with recurrent sick leave due to COVID-19. For half of them, the second sick leave lasted throughout the follow-up. People with recurrent sick leave differ in several aspects from those with shorter sick leave. To capture long-term sick-leave patterns due to COVID-19, a longer period of follow-up is needed.

Palstam et al. 2021.

BMC Public Health, vol. 21, no. 1.

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Keywords: COVID-19; Post-COVID; Registries; Return to work; Sickness benefits.

Evidence Level: 5B

Link: <https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-11918-y>

Occupation and working outcomes during the Coronavirus Pandemic

Using data from the first wave of the SHARE COVID-19 Survey and additional information collected from the previous waves of SHARE (Survey of Health Ageing and Retirement in Europe), we explore the effects of job characteristics on two outcomes: (i) the probability of work interruptions and (ii) the length of such interruptions during the first phase of the Coronavirus Pandemic. In order to assess the relationship between job features and labour market outcomes, we define two indexes proxying the pre-COVID-19 technical remote work feasibility as well as the level of social interaction with other people while working. Moreover, we use an indicator that classifies ISCO-08 3-digit job titles based on the essential nature of the good or service provided. We find that job characteristics have been major determinants of the probability of undergoing work interruptions and their duration. In addition, we show that women have been negatively affected by the Pandemic to a much larger extent than men, suggesting the relevance of the intrinsic characteristics of jobs they are mainly involved in, and the role of gender selection into specific activities. Not only females were more likely to have undergone work interruptions but they also exhibited larger probabilities of longer work breaks. A similar impact is seen for self-employed and less-educated workers.

Brugiavini et al. 2021.

European Journal of Ageing, vol. 82

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Keywords: Essential/unessential jobs; Pandemic; Remote work; Social interaction; Work interruption.

Evidence Level: 5B

Link: <https://link.springer.com/article/10.1007%2Fs10433-021-00651-5>

Guiding and Supporting Mental Health and Wellbeing

Coronavirus disease (COVID-19) pandemic: the psychological well-being in a cohort of workers of a multinational company

Background: The aim of the present study was to evaluate the psychological well-being (PWB) during the coronavirus disease (COVID-19) pandemic in workers of a multinational company. **Methods:** Employees (aged ≥ 18 years) were recruited from Latin American, North American, New Zealand and European sites of a multinational company operative during all the pandemic period. The self-reported Psychological General Well Being Index (PGWBI) was employed to assess the global PWB and the effects on 6 sub-domains:

anxiety, depressed mood, positive well-being, self-control, general health and vitality. The influencing role of age, gender, geographical location, COVID-19 epidemiology, and restrictive measures adopted to control the pandemic was explored. **Results:** A total of 1335 workers completed the survey. The aggregate median PWB global score was in a positive range, with significantly better outcomes detected in the Mexican and Colombian Latin American sites compared to the other worldwide countries ($p < 0.001$). Among the European locations, a significantly higher PWB score was determined in Spain compared to the German and French sites ($p < 0.05$). Comparable geographical trends were demonstrated for all the PWB sub-domains. Male workers had a significantly better PWB compared to females ($p < 0.05$), while a negative correlation emerged with aging ($p = 0.01$). COVID-19 epidemiology and pandemic control measures had no clear effects on PWB. **Conclusions:** Monitoring PWB and the impact of individual and pandemic-related variables may be helpful to clarify the mental health effects of pandemic, define targeted psychological-supporting measures, also in the workplace, in order to face such a complex situation in a more constructive way.

Lovreglio et al. 2021.

Safety and Health at Work, vol. 22.

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Keywords: SARS-CoV-2 infection; Mental health; Predictive factors; Resilience; Workplace.

Evidence Level: 4A

Link: <https://www.sciencedirect.com/science/article/pii/S2093791121000858?via%3Dihub>

Working from home and dietary changes during the COVID-19 pandemic: A longitudinal study of health app (CALO mama) users

It is plausible that the coronavirus disease pandemic and related changes in work and life patterns affected dietary patterns, but existing studies have limitations owing to a cross-sectional design. Using longitudinal data, we examined dietary changes in people due to the pandemic and work and life patterns. We conducted an online survey on changes in work and life patterns during the pandemic from April 30, 2020, to May 8, 2020, among users of a health app called CALO mama provided in Japan. We retrieved and linked the dietary data for 5929 participants from January 1, 2020, to May 13, 2020. Generalized linear mixed models were used to estimate the frequencies of food intake associated with the pandemic and work and life patterns. During the state of emergency, the frequency of intake of vegetables, beans, seaweeds, fish, meats, dairy products, and snacks increased, whereas alcohol intake decreased. Working from home was associated with increased intake of vegetables, fruits, dairy products, and snacks but decreased intake of seaweeds, meats, and alcohol. Time spent on childcare was associated with decreased intake of vegetables and fruits but increased intake of meats. Probable depressive symptoms were negatively associated with the frequency of food intake other than snacks and alcohol. We conclude that diet quality improved during the pandemic in general, but attention must be paid to overconsumption of snacks and negative factors such as increased burden of childcare and depression for healthy eating.

Sato et al. 2021.

Appetite, vol 165.

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Keywords: COVID-19; Dietary change; Fruit and vegetable intake; Snacking; Work and life pattern; Working from home.

Evidence Level: 4B

Link: [https://linkinghub.elsevier.com/retrieve/pii/S0195-6663\(21\)00230-0](https://linkinghub.elsevier.com/retrieve/pii/S0195-6663(21)00230-0)

Enabling Healthy and Safe Workplaces

Working: The role of Occupational Epidemiology

The COVID-19 pandemic redemonstrated the importance of work as a determinant of health. Extant disparities were accentuated, as the workforce was divided into the roughly 50% who could safely work from home and those who could not. With the spotlight on work, one might wonder where all the occupational epidemiologists have gone. To answer, we point to diminished research support and more

limited workplace access that have led many to shift away from a focus on workers towards other vulnerable populations. We build on the renewed interest in work as a driver of health and inequality during the pandemic to highlight contributions of occupational epidemiology to public health. Consider: (1) etiologic studies of chronic disease based on employment records to define cohorts and reconstruct long-term exposure; (2) studies of hypothetical interventions particularly appropriate for evaluating potential regulations to reduce workplace exposures; and (3) studies of disparities that take advantage of work as a potential source of social stratification and economic opportunity. As we have learned during COVID-19, workplaces can become venues for public health messaging and delivering interventions to enumerated populations of adults. By starting with COVID-19 prevention policies, we have a chance to protect public health and rethink work.

Eisen et al. 2021.

American Journal of Epidemiology, vol. 6.

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Keywords: Environmental health; Health disparities; Occupational health; Racial disparities; Vulnerable populations; Work as a social determinant of health; Workplace.

Evidence Level: 6A

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8500149/>

Occupational risk of COVID-19 by country of birth. A register-based study

Background: Occupational exposure has been suggested to contribute to a disproportionate burden of COVID-19 among immigrants. We aim to assess this hypothesis in Norway. **Methods:** In 2729 627 adults born in Norway, Somalia, Pakistan, Iraq, Afghanistan and Turkey, we examined whether persons employed as taxi drivers, bus and tram drivers, child care workers, nurses, personal care workers in health, food service counter attendants, waiters/bartenders, cleaners and shop sale persons had a higher risk of COVID-19, from 1 April 2020 to 2 December 2020, compared with (i) Norwegian-born in the same occupational group and (ii) all others with the same birth country and aged 20-70 years, using logistic regressions.

Results: Within each occupational group, immigrants had a greatly increased odds of COVID-19 when compared with Norwegian-born (odds ratio [OR] ~ 1.66-12.72). However, immigrants working in the selected occupations had the same odds of COVID-19 as person with same birth country not having the same occupation (OR ~ 1). Exceptions were Somalian, Afghani and Iraqi personal care workers in health services who had an increased odds of COVID-19 compared with others from the same country.

Conclusion: Occupation is not an important driver of the high rates of COVID-19 among immigrants from Somalia, Pakistan, Iraq, Afghanistan and Turkey.

Kjøllestad et al. 2021.

Journal of Public Health, vol. 6.

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Keywords: Ethnicity; Infectious disease.

Evidence Level: 5B

Link: <https://academic.oup.com/jpubhealth/advance-article/doi/10.1093/pubmed/fdab362/6382416>

Challenges for Workplace Risk Assessment in home offices-Results from a Qualitative Descriptive Study on working life during the First wave of the COVID-19 Pandemic in Latvia

Epidemiological restrictions due to the COVID-19 pandemic have raised legal and practical questions related to the provision of workplace risk assessment in home offices of teleworkers. The objective of this qualitative study was to analyze practical experience of employers and occupational safety and health experts performing workplace risk assessment in Latvia during the first wave of the COVID-19 pandemic. Our findings suggest that employers have not sufficiently implemented their legal obligations related to workplace risk assessment which can result in an increased number of physical and mental health problems of teleworkers in the short term and in the future. Work from home has shown how different working conditions can be for the same type of work (office work); therefore, the promotion of personalized workplace risk assessment should be encouraged. Even if virtual workplace visits using photos and videos

are not the traditional way the workplace risk assessment should be done, it is effective; workers who report that their employers assessed their working conditions report fewer health effects. The experience of workers in participation in workplace risk assessment for telework might change the level and role of worker participation in the management of health and safety hazards at work in general.

Matisāne et al. 2021.

International Journal of Environmental Research and Public Health, vol. 18, no. 20.

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Keywords: Distance work; Home assessment; Home office; Occupational health; Occupational safety; Risk assessment methods; Telework; Workplace risk assessment.

Evidence Level: 5B

Link: <https://www.mdpi.com/1660-4601/18/20/10876>

Controlling risk of SARS-CoV-2 infection in essential workers of enclosed food manufacturing facilities

The SARS-CoV-2 global pandemic poses significant health risks to workers who are essential to maintaining the food supply chain. Using a quantitative risk assessment model, this study characterized the impact of risk reduction strategies for controlling SARS-CoV-2 transmission (droplet, aerosol, fomite-mediated) among front-line workers in a representative indoor fresh fruit and vegetable manufacturing facility. We simulated: 1) individual and cumulative SARS-CoV-2 infection risks from close contact (droplet and aerosols at 1-3 m), aerosol, and fomite-mediated exposures to a susceptible worker following exposure to an infected worker during an 8 h-shift; and 2) the relative reduction in SARS-CoV-2 infection risk attributed to infection control interventions (physical distancing, mask use, ventilation, surface disinfection, hand hygiene, vaccination). Without mitigation measures, the SARS-CoV-2 infection risk was largest for close contact (droplet and aerosol) at 1 m (0.96, 5th - 95th percentile: 0.67-1.0). In comparison, risk associated with fomite (0.26, 5th - 95th percentile: 0.10-0.56) or aerosol exposure alone (0.05, 5th - 95th percentile: 0.01-0.13) at 1 m distance was substantially lower (73-95%). At 1 m, droplet transmission predominated over aerosol and fomite-mediated transmission, however, this changed by 3 m, with aerosols comprising the majority of the exposure dose. Increasing physical distancing reduced risk by 84% (1-2 m) and 91% (1-3 m). Universal mask use reduced infection risk by 52-88%, depending on mask type. Increasing ventilation (from 0.1 to 2-8 air changes/hour) resulted in risk reductions of 14-54% (1 m) and 55-85% (2 m). Combining these strategies, together with handwashing and surface disinfection, resulted in <1% infection risk. Partial or full vaccination of the susceptible worker resulted in risk reductions of 73-92% (1 m risk range: 0.08-0.26). However, vaccination paired with other interventions (ACH 2, mask use, or distancing) was necessary to achieve infection risks <1%. Current industry SARS-CoV-2 risk reduction strategies, particularly when bundled, provide significant protection to essential food workers.

Sobolik et al. 2021.

Food Control, vol. 22.

User License:

Keywords: Aerosol; And fomite-mediated transmission; COVID-19; Droplet; Quantitative microbial risk assessment; Vaccination.

Evidence Level: 5A

Link: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8532033/>