

IWH Research Alert
August 13, 2021

Missed an issue? Catch up on previous *Research Alerts* available on the IWH website <https://www.iwh.on.ca/journal-articles/research-alerts>

Research Alert is a service provided to you by the Institute for Work & Health (IWH) to help you keep abreast of recent literature in the areas of occupational health and safety, epidemiology, public health and others within the IWH mandate. Please note that these articles have not been reviewed by Institute scientists to assess the quality of the studies. *Research Alerts* should not be considered an endorsement of the findings. Readers are cautioned not to act on the results of single studies, but rather to seek bodies of evidence. It should also be noted that the Institute for Work & Health cannot provide full-text of articles listed in *Research Alerts* to individuals outside of the organization, as this violates copyright legislation.

Aegerter AM, Deforth M, Johnston V, Sjogaard G, Volken T, Luomajoki H, et al. No evidence for an effect of working from home on neck pain and neck disability among Swiss office workers: short-term impact of COVID-19. *European Spine Journal*. 2021; 30(6):1699-1707.

<https://doi.org/10.1007/s00586-021-06829-w> [open access]

Abstract: Purpose: The aim of this study was to investigate the effect of working from home on neck pain (NP) among office workers during the COVID-19 pandemic. Methods: Participants from two Swiss organisations, aged 18-65 years and working from home during the lockdown (n = 69) were included. Baseline data collected in January 2020 before the lockdown (office work) were compared with follow-up data in April 2020 during lockdown (working from home). The primary outcome of NP was assessed with a measure of intensity and disability. Secondary outcomes were quality of workstation ergonomics, number of work breaks, and time spent working at the computer. Two linear mixed effects models were fitted to the data to estimate the change in NP. Results: No clinically relevant change in the average NP intensity and neck disability was found between measurement time points. Each working hour at the computer increased NP intensity by 0.36 points (95% CI: 0.09 to 0.62)



**Institute
for Work &
Health**

Research Excellence
Safe Work
Healthy Workers

indicating strong evidence. No such effect was found for neck disability. Each work break taken reduced neck disability by 2.30 points (95% CI: - 4.18 to - 0.42, evidence). No such effect was found for NP intensity. There is very strong evidence that workstation ergonomics was poorer at home. Conclusion: The number of work breaks and hours spent at the computer seem to have a greater effect on NP than the place of work (office, at home), measurement time point (before COVID-19, during lockdown) or the workstation ergonomics. Further research should investigate the effect of social and psychological factors. Trial registration: ClinicalTrials.gov, NCT04169646. Registered 15 November 2019-Retrospectively registered, <https://clinicaltrials.gov/ct2/show/NCT04169646> .

Aljohani B, Burkholder J, Tran QK, Chen C, Beisenova K, and Pourmand A. Workplace violence in the emergency department: a systematic review and meta-analysis. Public Health. 2021; 196:186-197.

<https://doi.org/10.1016/j.puhe.2021.02.009>

Abstract: Objectives: Emergency departments (EDs) currently face a widely acknowledged issue of workplace violence (WPV) against healthcare workers (HCWs). WPV in the ED occurs in different forms and from different types of instigators; its prevalence also varies in different regions of the world. This study investigates the incidence of WPV among ED staff and identifies the types of instigators involved. Study design: Systematic review and meta-analysis. Methods: Using PubMed and SCOPUS databases, a search for WPV against ED physicians and nurses was conducted, yielding 301 articles. Studies were excluded if measuring violence between HCWs or against prehospital personnel. Studies assessing WPV not in the ED, such as domestic violence that occurred before arrival to the ED, and studies investigating violence involving alcohol/drug use or individuals with a psychiatric diagnosis were also excluded. This study used a random-effects meta-analysis to examine the prevalence of WPV in the ED, including types of violence, instigators, and professions of the victims. Results: In total, 26 articles were selected for this study. There were 9072 cases of WPV in the ED; 6575 (72%) cases involved verbal violence and 1639 (18%) related to physical abuse. Among the ED workers involved, 2112 (36.5%) were physicians, 3225 (55.7%) were nurses and 455 (7.8%) other ED staff. There were 2578 instigators, of



whom 1340 (52%) were family members, 700 (27%) were patients and 538 (21%) were other relatives/friends. The overall prevalence of verbal violence was 0.77 (95% confidence interval [CI]: 0.72-0.82, I² = 87%), suggesting 77% of ED staff reported exposure to WPV. The prevalence of violence from patients as instigators was 0.24 (95% CI: 0.18-31, I² = 93%). Conclusions: WPV in the ED is a serious issue as most nurses and physicians are significantly exposed to verbal and/or physical abuse. Further studies should focus on factors influencing the different types of WPV, which ED professions are most at risk and interventions to prevent WPV in the ED.

Badarin K, Hemmingsson T, Hillert L, and Kjellberg K. Physical workload and increased frequency of musculoskeletal pain: a cohort study of employed men and women with baseline occasional pain. Occupational & Environmental Medicine. 2021; 78(8):558-566.

<https://doi.org/10.1136/oemed-2020-107094> [open access]

Abstract: OBJECTIVES: Musculoskeletal pain (MSP) is prevalent among the workforce. This study investigates the long-term association between physical workload (PWL) and increased frequency of MSP among male and female employees with pre-existing occasional MSP. METHODS: This study uses the Stockholm Public Health cohort survey data from the baseline 2006. The sample includes 5715 employees with baseline occasional MSP (no more than a few days per month). Eight PWL exposures and overall PWL were estimated using a job-exposure matrix (JEM). The JEM was assigned to occupational titles from a national register in 2006. Follow-up survey data on frequent MSP (a few or more times a week) were collected from 2010. Logistic regressions produced sex-specific ORs with 95% CIs and were adjusted for education, health conditions, psychological distress, smoking, BMI, leisure-time physical activity and decision authority. RESULTS: Associations were observed between several aspects of heavy PWL and frequent MSP for men (eg, OR 1.57, 95% CI 1.13 to 2.20, among those in the highest exposure quartile compared with those in the lowest quartile for heavy lifting) and women (eg, OR 1.76, 95% CI 1.35 to 2.29, among those in the highest exposure quartile compared with those in the the lowest quartile for physically strenuous work). Small changes were observed in the OR after adjustment, but most of the ORs for



PWL exposures among the men were no longer statistically significantly increased. **CONCLUSION:** A high level of exposure to heavy PWL was associated with increased frequency of MSP 4 years later for men and women with baseline occasional pain

Bjornshagen V. The mark of mental health problems. A field experiment on hiring discrimination before and during COVID-19. Social Science & Medicine. 2021; 283:114181.

<https://doi.org/10.1016/j.socscimed.2021.114181>

Abstract: Mental health problems are associated with poor labour market outcomes. Based on data from a field experiment, this article investigates the extent to which hiring discrimination limits the job opportunities of young applicants who disclose a history of mental health problems. From September 2019 to December 2020, 1398 job applications were sent in pairs to 699 employers with job openings in a broad selection of occupations in the Norwegian labour market. The applicants were equally qualified except that, in each pair, one applicant informed about mental health problems as an explanation for a past employment break. The results show that applicants who disclose mental health problems are discriminated against in hiring processes. Applicants with mental health problems have about 27% lower probability of receiving an invitation to a job interview and about 22% lower probability of receiving any positive employer response. These results do not seem to have been driven by the COVID-19 crisis that unfolded during the course of the study. As such, the study provides suggestive evidence that uncertain economic times might not necessarily increase the level of discrimination against applicants with mental health problems

Chen C, Reniers G, Khakzad N, and Yang M. Operational safety economics: foundations, current approaches and paths for future research. Safety Science. 2021; 141:105326.

<https://doi.org/10.1016/j.ssci.2021.105326>

Connor A, Tilman A, Isaacs M, and Sung C. Parental and professional perspectives on comprehensive post-secondary transition needs of youth with disabilities: an interagency case study. Journal of Vocational Rehabilitation. 2021; 55(1):1-13.

<https://doi.org/10.3233/JVR-211142>



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers

Devi KR, Lee LJ, Yan LT, Syafinaz AN, Rosnah I, and Chin VK. Occupational exposure and challenges in tackling *M. bovis* at human-animal interface: a narrative review. International Archives of Occupational & Environmental Health. 2021; 94(6):1147-1171.

<https://doi.org/10.1007/s00420-021-01677-z> [open access]

Abstract: Zoonotic tuberculosis caused by *Mycobacterium bovis* (*M. bovis*), a member of *Mycobacterium tuberculosis* complex (MTBC) has increasingly gathered attention as a public health risk, particularly in developing countries with higher disease prevalence. *M. bovis* is capable of infecting multiple hosts encompassing a number of domestic animals, in particular cattle as well as a broad range of wildlife reservoirs. Humans are the incidental hosts of *M. bovis* whereby its transmission to humans is primarily through the consumption of cattle products such as unpasteurized milk or raw meat products that have been contaminated with *M. bovis* or the transmission could be due to close contact with infected cattle. Also, the transmission could occur through aerosol inhalation of infective droplets or infected body fluids or tissues in the presence of wound from infected animals. The zoonotic risk of *M. bovis* in humans exemplified by miscellaneous studies across different countries suggested the risk of occupational exposure towards *M. bovis* infection, especially those animal handlers that have close and unreserved contact with cattle and wildlife populations. These animal handlers comprising of livestock farmers, abattoir workers, veterinarians and their assistants, hunters, wildlife workers as well as other animal handlers are at different risk of contracting *M. bovis* infection, depending on the nature of their jobs and how close is their interaction with infected animals. It is crucial to identify the underlying transmission risk factors and probable transmission pathways involved in the zoonotic transmission of *M. bovis* from animals to humans for better designation and development of specific preventive measures and guidelines that could reduce the risk of transmission and to protect these different occupational-related/populations at risk. Effective control and disease management of zoonotic tuberculosis caused by *M. bovis* in humans are also hindered by various challenges and factors involved at animal-human interface. A closer look into factors affecting proper disease control and management of *M. bovis* are therefore warranted. Hence, in this narrative review, we



have gathered a number of different studies to highlight the risk of occupational exposure to *M. bovis* infection and addressed the limitations and challenges underlying this context. This review also shed lights on various components and approaches in tackling *M. bovis* infection at animal-human interface

Estevez Cores S, Sayed AA, Tracy DK, and Kempton MJ. Individual-focused occupational health interventions: a meta-analysis of randomized controlled trials. Journal of Occupational Health Psychology. 2021; 26(3):189-203.

<https://doi.org/10.1037/ocp0000249>

Abstract: Employee stress and related psychological strain is not only damaging for those that experience it, but is also costly for employers and society at large. This study aims to evaluate the effectiveness of individual-focused occupational health interventions in a comprehensive meta-analysis, improving the interpretability of results by analyzing the interventions' impact on specific outcome measures. A literature search of randomized control trials (RCTs) of stress management, health or wellness interventions in healthy workers was completed using PubMed, Scopus, Web of Science, PsycINFO, and PsycARTICLES. The following outcome measures were meta-analyzed: (a) Perceive Stress Scale (PSS), (b) General Health Questionnaire (GHQ), (c) State-Trait Anxiety Inventory (STAI), (d) Maslach Burnout Inventory (MBI), and (e) absenteeism. Forty-nine studies met the inclusion criteria and were included in a random-effects meta-analysis. There was a beneficial effect of interventions across all outcome measures (all $p < .05$) except for the MBI Personal Accomplishment subscale and absenteeism. The largest effect size ($g = -0.65$, $p < .001$) was observed with the PSS scale. For separate subanalyses considering intervention types, multimodal interventions had the largest impact on reducing state anxiety ($g = -1.01$, $p = .02$), followed by relaxation interventions reducing PSS levels ($g = -0.75$, $p < .001$) and cognitive interventions reducing PSS levels ($g = -0.66$, $p < .001$). This meta-analysis provides evidence that individual-focused occupational health interventions can have a significant effect on stress-related outcomes postintervention and at follow-up. It also suggests that the intervention's effectiveness varies based on the outcome measures used. (PsycInfo Database Record (c) 2021 APA, all rights reserved)



Janssens KME, van Weeghel J, Dewa C, Henderson C, Mathijssen JJP, Joosen MCW, et al. Line managers' hiring intentions regarding people with mental health problems: a cross-sectional study on workplace stigma. Occupational & Environmental Medicine. 2021; 78(8):593-599.

<https://doi.org/10.1136/oemed-2020-106955> [open access]

Abstract: Objectives: Stigma may negatively affect line managers' intention to hire people with mental health problems (MHP). This study aims to evaluate line managers' knowledge and attitudes concerning job applicants with MHP, and to assess which factors are associated with the intention (not) to hire an applicant with MHP. **Methods:** A sample of Dutch line managers (N=670) filled out a questionnaire on their knowledge, attitudes and experiences concerning applicants/employees with MHP. Descriptive analyses and multiple regression analyses were used. **Results:** The majority (64%) was reluctant to hire a job applicant with MHP, despite the fact that only 7% had negative and 52% had positive personal experiences with such employees. Thirty per cent were reluctant to hire an applicant if they knew the applicant had past MHP. Associated with higher reluctance to hire an applicant with MHP were the concerns that it will lead to long-term sickness absence (β (95% CI)=0.39 (0.23 to 0.55)), that the employee cannot handle the work (β (95% CI)=0.16 (0.00 to 0.33)) that one cannot count on the employee (β (95% CI)=0.41 (0.23 to 0.58)) and higher manager education level (β (95% CI)=0.25 (0.05 to 0.44)). Conversely, associated with positive hiring intentions was being in favour of diversity and/or inclusive enterprise (β (95% CI)=-0.64 (-0.87 to -0.41)). **Conclusions:** As the majority of managers were reluctant to hire applicants with MHP, and even 30% were reluctant to hire applicants who had past MHP, these findings have major implications for social inclusion in the Netherlands, where about 75% of employees would disclose MHP at work.

Kachadourian LK, Feder A, Murrough JW, Feingold JH, Kaye-Kauderer H, Charney D, et al. Transdiagnostic psychiatric symptoms, burnout, and functioning in frontline health care workers responding to the COVID-19 pandemic: a symptomics analysis. Journal of Clinical Psychiatry. 2021; 82(3):[epub ahead of print].



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers

<https://doi.org/10.4088/JCP.20m13766>

Abstract: Objective: The coronavirus disease 2019 (COVID-19) pandemic has led to an increased risk of psychiatric symptoms among frontline health care workers (FHCWs). In the current study, a novel "symptomics" approach was employed to examine the association between acute transdiagnostic symptoms of posttraumatic stress disorder (PTSD), major depressive disorder (MDD), and generalized anxiety disorder (GAD) and burnout and work and relationship difficulties in FHCWs at an urban tertiary care hospital in New York City. **Methods:** Symptoms of COVID-19-related PTSD (4-item PTSD Checklist-5), MDD (Patient Health Questionnaire-8), GAD (Generalized Anxiety Disorder-7), burnout (Single-Item Mini-Z Burnout Assessment), and functional difficulties (Brief Inventory of Psychosocial Functioning) were assessed. Relative importance analyses were conducted to identify PTSD, MDD, and GAD symptoms associated with burnout and functional difficulties. **Results:** The total number of eligible participants included 6,026 presumed FHCWs, of which 3,360 (55.8%) completed the survey and 2,579 (76.8%) of whom endorsed directly treating patients with COVID-19 and provided sufficient responses to our outcome variables for analysis. Feeling tired/having little energy, being easily annoyed or irritable, and feeling nervous, anxious, or on edge were most strongly associated with burnout; feeling tired/having little energy accounted for the greatest amount of explained variance (> 15%). Negative expectations of oneself or the world, trouble concentrating, and feeling easily annoyed or irritable were most strongly associated with work difficulties; negative expectations of oneself or the world accounted for the greatest amount of explained variance (> 9%). Feeling easily annoyed or irritable, negative expectations about oneself or the world, and feeling bad about oneself were most strongly associated with relationship difficulties; feeling easily annoyed or irritable accounted for the greatest amount of explained variance (> 10%). **Conclusions:** Results of this study underscore the importance of a transdiagnostic, symptom-based approach when examining associations between acute psychopathology and burnout and functional difficulties in FHCWs. Further work is needed to determine if early interventions aimed at ameliorating specific psychiatric symptoms may help mitigate risk for



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers

peri- and posttraumatic burnout and functional difficulties in this population.

Keles E, Bektemur G, and Baydili KN. COVID-19 deaths among nurses: a cross-sectional study. Occupational Medicine. 2021; 71(3):131-135.

<https://doi.org/10.1093/occmed/kqab035> [open access]

Abstract: BACKGROUND: Nurses who are one of the pivotal elements of countries' strategic responses to COVID-19 are being exposed to COVID-19. AIMS: To investigate the underlying characteristics of nurses who died due to COVID-19. METHODS: On 1 September 2020, a grey literature search was conducted. Data obtained through Medscape, Google, PubMed, government and non-government websites. The search strategy was carried out using variants and combinations of keywords related to 'nurse' and 'COVID-19' in English. Abstracted data included age, gender, type of nurse, department of nursing, country, date of death and publication characteristics. RESULTS: Out of reported 1518 COVID-19-related nurse deaths, details of age, gender and department of nursing were available for 766 (50%), 945 (62%) and 153 (10%) of nurses, respectively. The median age of the nurses was 56 years. The majority of deaths were reported in the 46- to 65 (32%)-year age range. While the registered nurses had the highest number of deaths according to types of nurses (680/957; 71%), they are mental health nurses (42/153; 28%) in the department of nursing. The countries with the most reported nurse deaths were USA, South Africa, Mexico and Russia. CONCLUSIONS: The predominance of deceased mental health nurses among nursing departments can be examined in future studies. Supportive health policies can be developed to increase the motivation of nurses

Lorenz F, Whittaker L, Tazzeo J, and Williams A. Availability of caregiver-friendly workplace policies: an international scoping review follow-up study. International Journal of Workplace Health Management. 2021; 14(4):459-476.

<https://doi.org/10.1108/IJWHM-10-2019-0136> [open access]

Abstract: Purpose The purpose of this scoping review was to identify the availability of caregiver-friendly workplace policies (CFWPs) from January 2015 to June 2019. Design/methodology/approach In order



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers

to determine changes over time, the present review is consistent with the methodology used in a scoping review of CFWPs conducted by the same research group five years earlier. This included applying an iterative database search to identify relevant articles, applying inclusion-exclusion criteria and performing qualitative thematic analysis on eligible articles. Both academic literature and literature that is not peer-reviewed were considered. Findings A total of 80 papers were included, with 82 unique workplaces identified. Three main qualitative themes were discussed: (1) inclusivity, (2) generosity and (3) culture. The finance, education, healthcare and technology industries were most generous. The most common CFWPs offered were support services; paid leave; backup adult care and flexible work arrangements. Practical implications This review narrows the gap in the literature by providing a comprehensive synthesis of CFWPs availability to better understand how workplaces are currently supporting caregiver-employees (CEs) while providing recommendations on how to support CEs moving forward. Originality/value This paper discusses significant differences from the first scoping review undertaken by the same research group five years ago, suggesting that progress has been made in the workplace culture needed to accommodate carer-employees

Luites JWH, Kuijer PPFM, Hulshof CTJ, Kok R, Langendam MW, Oosterhuis T, et al. The Dutch multidisciplinary occupational health guideline to enhance work participation among low back pain and lumbosacral radicular syndrome patients. Journal of Occupational Rehabilitation. 2021; [epub ahead of print].

<https://doi.org/10.1007/s10926-021-09993-4>

Abstract: Purpose Based on current scientific evidence and best practice, the first Dutch multidisciplinary practice guideline for occupational health professionals was developed to stimulate prevention and enhance work participation in patients with low back pain (LBP) and lumbosacral radicular syndrome (LRS). Methods A multidisciplinary working group with health care professionals, a patient representative and researchers developed the recommendations after systematic review of evidence about (1) Risk factors, (2) Prevention, (3) Prognostic factors and (4) Interventions. Certainty of the evidence was rated with GRADE and the Evidence to Decision (EtD) framework was used to formulate recommendations.



High or moderate certainty resulted in a recommendation "to advise", low to very low in a recommendation "to consider", unless other factors in the framework decided differently. Results An inventory of risk factors should be considered and an assessment of prognostic factors is advised. For prevention, physical exercises and education are advised, besides application of the evidence-based practical guidelines "lifting" and "whole body vibration". The stepped-care approach to enhance work participation starts with the advice to stay active, facilitated by informing the worker, reducing workload, an action plan and a time-contingent increase of work participation for a defined amount of hours and tasks. If work participation has not improved within 6 weeks, additional treatments should be considered based on the present risk and prognostic factors: (1) physiotherapy or exercise therapy; (2) an intensive workplace-oriented program; or (3) cognitive behavioural therapy. After 12 weeks, multi-disciplinary (occupational) rehabilitation therapy need to be considered. Conclusions Based on systematic reviews and expert consensus, the good practice recommendations in this guideline focus on enhancing work participation among workers with LBP and LRS using a stepped-care approach to complement existing guidelines focusing on recovery and daily functioning

Marklund S, Gustafsson K, Bergstrom G, and Leineweber C. Reasons for presenteeism in different occupational branches in Sweden: a population based cross-sectional study. International Archives of Occupational & Environmental Health. 2021; 94(6):1385-1395.

<https://doi.org/10.1007/s00420-021-01701-2> [open access]

Abstract: OBJECTIVE: To compare the prevalence and reasons for presenteeism in occupations in three branches defined as employees handling people, handling things or handling symbols. METHOD: A cross-sectional population-based cohort study was conducted. The study group was drawn from a representative sample (n=6230) aged 16-64, who had been interviewed in 2015 or in 2017 for the Swedish Work Environment Surveys (SWES). The odds ratios (ORs) stratified by occupational category for reasons of presenteeism, with 95% confidence intervals (CI), were estimated using binomial multiple logistic regression analysis. RESULTS: The study showed that presenteeism was more common among employees handling people



(74%), when compared to employees handling things (65%) or handling symbols (70%). The most common reason for presenteeism among employees handling people was "I do not want to burden my colleagues", while "Because nobody else can carry out my responsibilities" was most common in the other two categories. After control for socio-demography, work environments and health, the differences in reasons mostly remained significant between the three occupational categories. CONCLUSION: The differences between occupational categories are important for prevalence and reasons for presenteeism. As presenteeism affects the future health of employees and the productivity of the work unit, attempts to reduce presenteeism may be important. Because the reasons vary between occupations, customized preventive measures should be applied in different occupational settings. Among employees handling people, covering up for absence in work team is relevant, while among employees handling symbols and handling things the corresponding focus could be on shared responsibilities for specific tasks

Oginska-Bulik N and Juczynski Z. Burnout and posttraumatic stress symptoms in police officers exposed to traumatic events: the mediating role of ruminations. International Archives of Occupational & Environmental Health. 2021; 94(6):1201-1209. <https://doi.org/10.1007/s00420-021-01689-9> [open access]

Abstract: Purpose: Police work carries the risk of burnout in the form of exhaustion and disengagement from work. Police officers are also exposed to traumatic events and the development of PTSD. The main aim of the cross-sectional study was to determine the mediating role played by rumination in the relationship between burnout and PTSD among police officers. It also examines whether burnout is a significant prognostic factor for PTSD symptoms. Methods: Data were obtained from a sample of 120 police officers. Of these one hundred, mostly men (83%), aged 23-47 years ($M = 33.06$, $SD = 5.61$), confirmed the experience of traumatic events in connection with their professional work. Three standard measuring tools were used: The Posttraumatic Checklist for DSM-5, The Oldenburg Burnout Inventory OBI, and The Event-Related Rumination Inventory. Results: The introduction of intrusive ruminating as an intermediary variable made the relationship between job burnout and PTSD non-significant, which indicates full mediation. The introduction of deliberate rumination as a



mediator weakens the relationship between burnout and PTSD, which indicates partial mediation. It indicates that police officers who are burnout and who additionally tend to ruminate about experienced traumatic events are more likely to PTSD than police officers who are only burned out. Conclusion: Intervention programs for police officers should focus on strengthening stress management resources in the form of developing deliberate ruminations, thus allowing the experienced situations to be given a new meaning and to allow better coping.

Rosenstrom T, Harma M, Kivimaki M, Ervasti J, Virtanen M, Hakola T, et al. Patterns of working hour characteristics and risk of sickness absence among shift-working hospital employees: a data-mining cohort study. *Scandinavian Journal of Work, Environment & Health*. 2021; 47(5):395-403.

<https://doi.org/10.5271/sjweh.3957> [open access]

Abstract: OBJECTIVES: Data mining can complement traditional hypothesis-based approaches in characterizing unhealthy work exposures. We used it to derive a hypothesis-free characterization of working hour patterns in shift work and their associations with sickness absence (SA). METHODS: In this prospective cohort study, complete payroll-based work hours and SA dates were extracted from a shift-scheduling register from 2008 to 2019 on 6029 employees from a hospital district in Southwestern Finland. We applied permutation distribution clustering to time series of successive shift lengths, between-shift rest periods, and shift starting times to identify clusters of similar working hour patterns over time. We examined associations of clusters spanning on average 23 months with SA during the following 23 months. RESULTS: We identified eight distinct working hour patterns in shift work: (i) regular morning (M)/evening (E) work, weekends off; (ii) irregular M work; (iii) irregular M/E/night (N) work; (iv) regular M work, weekends off; (v) irregular, interrupted M/E/N work; (vi) variable M work, weekends off; (vii) quickly rotating M/E work, non-standard weeks; and (viii) slowly rotating M/E work, non-standard weeks. The associations of these eight working-hour clusters with risk of future SA varied. The cluster of irregular, interrupted M/E/N work was the strongest predictor of increased SA (days per year) with an incidence rate ratio of 1.77 (95% confidence interval 1.74-1.80) compared to regular M/E work,



weekends off. **CONCLUSIONS:** This data-mining suggests that hypothesis-free approaches can contribute to scientific understanding of healthy working hour characteristics and complement traditional hypothesis-driven approaches

Schellewald V, Kleinert J, and Ellegast R. Effects of two types of dynamic office workstations (DOWs) used at two intensities on cognitive performance and office work in tasks with various complexity. Ergonomics. 2021; 64(6):806-818.

<https://doi.org/10.1080/00140139.2020.1862308>

Abstract: This study examines the possible effects on objective work performance while using two types of dynamic office workstations (DOWs). 20 participants each used one type with three intensities (seated, light, moderate) and completed a task battery assessing cognitive performance and office work with two levels of complexity. Repeated measures MANOVA showed a significant interaction effect for work performance between the type of workstation and intensity for the simple level and a significant main effect for intensity for the complex level. Comparing the types of DOWs to each other, accuracy of text processing differed when working sedentary. Using both devices with light and moderate intensity had a significant detrimental effect on mouse tasks compared to working sedentary, but none comparing the intensities. No further results indicated neither a detrimental nor an enhancing effect of using DOWs on cognitive performance and office-work related tasks, regardless of the intensity of use or the task complexity. **Practitioner Summary:** By using DOWs, light physical activity can be integrated while working at a desk. Results showed that using different types of DOWs with different intensities does have a detrimental effect on tasks requiring a high motor control, but not on cognitive or further office work-related tasks of various complexity. **Abbreviations:** DOW: dynamic office workstation; aLT: activeLife Trainer; DB: deskbike; RPE: rated perceived exertion; MANOVA: multivariate analysis of variance; ANOVA: analysis of variance

Shepherd R, Lorente L, Vignoli M, Nielsen K, and Peiro JM. Challenges influencing the safety of migrant workers in the construction industry: a qualitative study in Italy, Spain, and the UK. Safety Science. 2021; 142:105388.



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers

<https://doi.org/10.1016/j.ssci.2021.105388> [open access]

Abstract: The construction industry is notoriously high risk for accidents, injuries, and deaths, particularly for non-national or migrant workers, who comprise a significant proportion of the workforce. This paper presents an international, qualitative study focused on exploring the challenges which influence the safety of migrant construction workers in Italy, Spain, and the UK. Based on a comprehensive review of the literature, we formulated two research questions about the challenges relating to safety that migrant workers face and the challenges to safety training effectively improving migrant workers' safety behaviours. We present our template analysis of semi-structured interviews and focus groups with 88 participants from four occupational groups across all three countries. This identified commonalities and differences in interpretations of the primary challenges to migrant workers' safety, amongst participants from the various occupational groups (workers, site supervisors, safety trainers and safety experts) in Italy, Spain, and the UK. These were associated with: increased use of subcontractors; dilution of safety standards down the supply chain; pressure to breach safety regulations on site; differing safety-related attitudes and behaviours due to national cultural differences, language barriers and issues relating to training (provision, delivery, language, content and transfer). Finally, we summarise the contributions and limitations of our study, arguing further interventions related to safety training are needed, along with ethnographic studies to explore how both macro-level and contextual factors affect safety outcomes for migrant construction workers.

Sun Y, Liu F, Wang Y, Zhou M, Yang B, and Cao F. Mindfulness improves health worker's occupational burnout: the moderating effects of anxiety and depression. *International Archives of Occupational & Environmental Health*. 2021; 94(6):1297-1305.

<https://doi.org/10.1007/s00420-021-01685-z>

Abstract: **Objective:** This study aims to test whether health workers experiencing both depression, anxiety and burnout would show severer burnout symptoms, and the potential moderating effect of anxiety and depression on mindfulness improving burnout. **Methods:** This study was conducted in a comprehensive hospital of China in 2016. A total of 924 healthcare professionals were included in this



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers

cross-sectional study with a response rate of 82.0%. Maslach Burnout Inventory, Patient Health Questionnaire-9, Generalized Anxiety Disorder, Perceived Stress Scale and Short Inventory of Mindfulness Capability were used to measure burnout, depression, anxiety, perceived stress and mindfulness. Univariate analysis, correlation analysis, mediation analysis and moderated mediation analysis were conducted. Results: Burnout and anxiety group (BA) and burnout and depression group (BD) reported significantly higher burnout scores compared to the burnout-only group (BO) (59.90 ± 15.700 , 56.20 ± 13.190 , and 49.99 ± 11.955 , respectively). Perceived stress was a mediator between mindfulness and occupational burnout, and depression and anxiety significantly moderated the mediation path between mindfulness and occupational burnout (β for stress in moderated mediation models with depression and anxiety respectively: $\beta = 1.8088$, $p < 0.001$, and $\beta = 1.7908$, $p < 0.001$). For participants who experienced a high level of depression, less occupational burnout was reduced as mindfulness increased. Indirect effect of mindfulness reducing occupational burnout was greater among participants who experienced less anxiety. Conclusions: Depression and anxiety weakened the mindfulness ability on relieving occupational burnout, which could be the potential mechanism of the worsening effect of depression and anxiety.

Wild P, Bovio N, and Guseva Canu I. Part-time work and other occupational risk factors for suicide among working women in the Swiss National Cohort. International Archives of Occupational & Environmental Health. 2021; 94(5):981-990.

<https://doi.org/10.1007/s00420-020-01629-z> [open access]

Abstract: OBJECTIVE: The aim of this study was to describe the factors associated with mortality by suicide among working women focusing on work-related factors. METHODS: The study population consisted in all Swiss residents recorded in the 1990 and/or the 2000 compulsory national censuses and were linked to emigration and mortality registers. We selected all women aged 18-65 and at work at the official census dates. Following work-related variables were available: socio-economic status, weekly hours of work, the sector of activity and the job title coded according to the International Standard Classification of Occupations (ISCO). The risk of suicide was modelled using negative binomial regression. RESULTS: The cohort



comprised 1,771,940 women and 2526 deaths by suicide corresponding to 24.9 million person-years. The most significant non-occupational predictors of suicide were age, period, civil status, religion, nationality and geographical regions. Adjusted on these factors, part-time work was associated with increased suicide rates. According to job codes, health and social activities, in particular care-worker had the highest suicide risks. **CONCLUSION:** Suicide among working women depended on work-related factors even taking into account other socio-demographic factors



Institute
for Work &
Health

Research Excellence
Safe Work
Healthy Workers