

**IWH Research Alert**  
**November 26, 2021**

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**Bae SW, Lee MY, Park SW, Lee G, and Leigh JH. Satisfying medical and rehabilitation needs positively influences returning to work after a work-related injury: an analysis of national panel data from 2018 to 2019. BMC Public Health. 2021; 21(1):2017. <https://doi.org/10.1186/s12889-021-12064-1> [open access]**

**Abstract:** BACKGROUND: This study examined how meeting the medical needs of injured workers after initial treatment may affect their return to work, using data from the Panel Study of Workers' Compensation Insurance. METHODS: This study was designed as a longitudinal study, which used data from the second-year, follow-up survey conducted in the secondary cohort of the Panel Study of Workers' Compensation Insurance. The odds ratio (OR) and 95% confidence interval were estimated through binomial and multinomial logistic regression analyses to examine the effects of unmet medical needs on workers' return to original work and return to work overall (including reemployment). RESULTS: The returned to original work OR of workers whose rehabilitation needs were met was 1.35 (1.12-1.63) while the return to work OR was 1.20 (1.03-1.41). The returned to original work OR of workers whose medical needs were met was 1.64 (1.18-2.27) while the return to work OR was 1.39 (1.07-1.80). In terms of disability rating, the return to work ORs of workers with mild



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disabilities whose medical/rehabilitation needs were not met and those of workers without disabilities were 1.71 (1.17-2.49) and 1.97 (1.27-3.08), respectively. In the case of regular/temporary workers, the returned-to-work ORs of workers whose medical/rehabilitation needs were not met were 1.54 (1.12-2.13) and 1.27 (1.03-1.56), respectively. CONCLUSIONS: For workers who sustained work-related injuries, providing medical accessibility and meeting rehabilitation needs were found to be important predictors of return to work after initial treatment

**Colin R, Wild P, Paris C, and Boini S. Effect of joint exposure to psychosocial and physical work factors on the incidence of workplace injuries: results from a longitudinal survey. Journal of Occupational & Environmental Medicine. 2021; 63(11):921-930. <https://doi.org/10.1097/JOM.0000000000002313>**

Abstract: OBJECTIVE: To analyze the interaction between physical and psychosocial work factors regarding the workplace injuries incidence among 6900 workers out of a longitudinal survey. METHODS: Based on responses to questionnaires, we obtained exposure groups respectively for physical factors and for psychosocial factors using hierarchical clustering. We performed multiple Poisson regression model with the workplace injuries incidence during 4 years of follow-up as the outcome and the clusters as the independent variables of interest. RESULTS: High psychosocial exposure had a deleterious effect on workplace injuries incidence, which was no longer significant when adjusting for physical factors. The difference in model-based workplace injuries rates between high and low psychosocial exposures seemed to increase (non-significantly) with increasing physical exposure. CONCLUSIONS: The risk of workplace injuries was highest among workers with high physical exposures regardless of the psychosocial exposures

**Dominic C, Gopal DP, and Sidhu A. 'It's like juggling fire daily': well-being, workload and burnout in the British NHS: a survey of 721 physicians. Work. 2021; 70(2):395-403. <https://doi.org/10.3233/WOR-205337>**

Abstract: BACKGROUND: Physicians are at higher risk for burnout than workers in other fields. Burnout negatively impacts physician



health, care delivery and healthcare cost. Existing studies quantify the workforce affected by burnout whilst qualitative studies use specific specialty groups limiting generalisability of solutions. This is important given increased stress during the COVID-19 pandemic. OBJECTIVE: The study aimed to understand the causes of work-related burnout, identify what supportive resources physicians utilise, and to propose solutions. METHODS: A questionnaire was circulated between March and May 2019 via the 'Doctors' Association UK' website and social media. RESULTS: 721 responses were received. 94% of respondents worked in the NHS, with over half being either general practitioners (GPs) or consultants. One in two (53%) respondents felt unable to raise workplace concerns regarding wellbeing, stress or workload. Almost all respondents (97%) felt the NHS has a culture of viewing excessive stress and workload as the norm. Three themes emerged from qualitative analysis: negative workplace culture; high workload and lack of resources; and generational change. CONCLUSIONS: Respondents described system-level factors which negatively impacted their wellbeing whilst organisations focused on physician-level factors. The research literature supports multi-level change beyond the individual tackling work unit and organisational factors. These include providing infrastructure to allow delegation of administrative work and physical space for relaxation and flexible work with time for leave. At a national level, there is greater urgency for an increase in healthcare funding and resourcing especially during increased clinician workloads during a pandemic where burnout rates will increase

**Hellstrom L, Pedersen P, Christensen TN, Wallstroem IG, Bojesen AB, Stenager E, et al. Vocational outcomes of the individual placement and support model in subgroups of diagnoses, substance abuse, and forensic conditions: a systematic review and analysis of pooled original data. Journal of Occupational Rehabilitation. 2021; 31(4):699-710.**

<https://doi.org/10.1007/s10926-021-09960-z>

Abstract: Purpose: To investigate the effect of Individual Placement and Support (IPS) according to diagnoses of schizophrenia, bipolar disorder, major depression, substance use disorders, or forensic psychiatric conditions. Methods: A systematic search of the literature was conducted in June 2017 and repeated in December 2020. The



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systematic review included 13 studies. Analyses of pooled original data were based on the six studies providing data (n = 1594). No studies on forensic psychiatric conditions were eligible. Hours and weeks worked were analyzed using linear regression. Employment, and time to employment was analyzed using logistic regression, and cox-regression, respectively. Results: The effects on hours and weeks in employment after 18 months were comparable for participants with schizophrenia, and bipolar disorder but only statistically significant for participants with schizophrenia compared to services as usual (SAU) (EMD 109.1 h (95% CI 60.5-157.7), 6.1 weeks (95% CI 3.9-8.4)). The effect was also significant for participants with any drug use disorder (121.2 h (95% CI 23.6-218.7), 6.8 weeks (95% CI 1.8-11.8)). Participants with schizophrenia, bipolar disorder, and any drug use disorder had higher odds of being competitively employed (OR 2.1 (95% CI 1.6-2.7); 2.4 (95% CI 1.3-4.4); 3.0 (95% CI 1.5-5.8)) and returned to work faster than SAU (HR 2.1 (95% CI 1.6-2.6); 1.8 (95% CI 1.1-3.1); 3.0 (95% CI 1.6-5.7)). No statistically significant effects were found regarding depression. Conclusions: IPS was effective regarding schizophrenia, bipolar disorder, and substance use disorder; however, the effect on hours, and weeks worked was not statistically significant regarding bipolar disorder. For people with depression the impact of IPS remains inconclusive. Non-significant results may be due to lack of power. Trial registration: PROSPERO protocol nr. CRD42017060524.

**Jacobsen G, Schaumburg I, Sigsgaard T, and Schlunssen V. Wood dust exposure levels and respiratory symptoms 6 years apart: an observational intervention study within the Danish furniture industry. *Annals of Work Exposures and Health*. 2021; 65(9):1029-1039.**

<https://doi.org/10.1093/annweh/wxab034> [open access]

Abstract: Objectives: Occupational exposure to wood dust can cause respiratory diseases, but few studies have evaluated the impact of declining exposure on health outcome. This study aimed to investigate whether a decline in wood dust exposure between two cross sectional studies performed in 1997-1998 and 2003-2004 was related to the prevalences of respiratory symptoms among woodworkers in a well-defined geographical area. Methods: Two thousand and thirty-two woodworkers from 54 plants in study 1 and



1889 woodworkers from 52 plants in study 2 returned a questionnaire on respiratory diseases and symptoms, employment and smoking habits. Current individual wood dust exposure level was assessed from 2 study specific job exposure matrix's based on task, factory size and personal passive dust measurements (2217 in study 1 and 1355 in study 2). Results: The median (range) of inhalable dust was 1.0 mg/m<sup>3</sup> (0.2-9.8), 0.6 mg/m<sup>3</sup> (0.1-4.6) in study 1 and study 2, respectively. In study 2, the prevalence's of self-reported asthma was higher and the prevalence's of respiratory symptoms were lower compared to study 1. In adjusted logistic regression analyses using GEE methodology to account for clustering, dust exposure level could explain the differences in prevalence of coughing, chronic bronchitis and nasal symptoms between study 1 and study 2, while no effect was found for asthma. Conclusions: A 40% decline in wood dust exposure in a 6 year period may serve as an explanation for the decline in most respiratory symptoms, but do not seems to impact the prevalence of self-reported asthma.

**Januario LB, Mathiassen SE, Stevens ML, Holtermann A, Bergstrom G, Rugulies R, et al. Are resident handlings in eldercare wards associated with musculoskeletal pain and sickness absence among the workers? A prospective study based on onsite observations. Scandinavian Journal of Work, Environment & Health. 2021; 47(8):609-618.**

<https://doi.org/10.5271/sjweh.3979> [open access]

Abstract: OBJECTIVES: We aimed to identify eldercare wards with different types of resident handling characteristics ('phenotypes') and determine the prospective association between these characteristics and musculoskeletal pain and sickness absence among workers during a one-year follow-up. METHODS: Our study was based on the DOSES cohort, including 467 workers at 103 eldercare wards. At baseline, resident handlings were assessed using onsite observations. Workers' self-reported musculoskeletal pain and sickness absence were assessed during the following year using text messages. Observations of the frequency of handlings per shift, use of assistive devices, assistance from others, and barriers (interruptions and impediments) were estimated for each worker, aggregated at ward level, and entered into a latent profile analysis, identifying ward phenotypes. We then used generalized estimating



equations to determine associations between ward phenotypes, musculoskeletal pain and sickness absence. RESULTS: We identified four ward phenotypes: 'turbulent' (many handlings with devices and assistance, many barriers), 'strained' (many handlings without devices or assistance, some barriers), 'unpressured' (few handlings, yet without devices or assistance, few barriers) and 'balanced' (some handlings with devices and assistance, some barriers). Compared to workers in balanced wards, workers in turbulent wards had more days with neck-shoulder and low-back pain (LBP); and those working in strained wards had more days with LBP and higher pain intensities. CONCLUSION: We found that ward phenotypes based on resident handling characteristics were predictive of musculoskeletal pain and sickness absence over one year. This shows that organizational factors related to resident handling are important determinants of musculoskeletal health among eldercare workers

**Liu Y, Wang X, and Wang D. How leaders and coworkers affect construction workers' safety behavior: an integrative perspective. Journal of Construction Engineering and Management. 2021; 147(12):04021176.**

[https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002215](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002215)

**Moreno MM, Fernandez-Cano MI, Feijoo-Cid M, Llorens Serrano C, and Navarro A. Health outcomes and psychosocial risk exposures among healthcare workers during the first wave of the COVID-19 outbreak. Safety Science. 2022; 145:105499.**

<https://doi.org/10.1016/j.ssci.2021.105499> [open access]

Abstract: The aim is to describe the health and psychosocial risk factors of Spanish healthcare workers during the COVID-19 pandemic. Methods: A cross-sectional study by means of an online questionnaire (April–May 2020). The data comes from the database resulting from the COTS project "Working conditions, insecurity, and health in the context of the COVID-19 pandemic". The sample consisted of 1989 health care workers. Results: Women, young people (doctors and nurses) and the middle-aged (assistants) had poorer health and greater exposure to psychosocial risks. Geriatric assistants were the most-affected occupational group. Conclusions:



gender, occupation, and age are focuses of inequality in the exposure of health care workers to psychosocial risks.

**Robbins R, Underwood P, Jackson CL, Jean-Louis G, Madhavaram S, Kuriakose S, et al. A systematic review of workplace-based employee health interventions and their impact on sleep duration among shift workers. Workplace Health & Safety. 2021; 69(11):525-539.**

<https://doi.org/10.1177/21650799211020961>

Abstract: Background: Shift work is associated with long-term health risks. Workplace-based health interventions hold promise for improving or maintaining the health of shift workers; yet, the impact of workplace-based interventions on shift worker sleep duration has not been assessed. We conducted a systematic review of workplace interventions on shift worker sleep. Methods: We conducted searches in PubMed, Web of Knowledge, EMBASE, Scopus, and PsycINFO (n = 6,868 records) of all studies published through May 15, 2019. Eligibility criteria included the following: (a) individuals aged  $\geq 18$  years; (b) a workplace-based employee intervention; (c) an employee population comprised predominantly of shift workers ( $>50\%$ ); and (d) sleep duration as a study outcome. Findings: Twenty workplace interventions met eligibility criteria. Mean intervention duration was 125 (SD = 187) days and mean sample size was 116 employees (SD = 256) with a mean age of 36.4 years (SD = 6.5). Interventions most commonly focused on light exposure (25%) or shift timing (25%), followed by sleep hygiene (20%). Most interventions were conducted in the health care and social assistance sector (60%). Study quality on average was 64% (SD = 7%). A majority of the studies found that a workplace-based health intervention was associated with a desirable increase in 24-hour total sleep duration (55%). The overall average increase in daily employee sleep duration achieved by interventions ranged for RCT studies from 0.34 to 0.99 hours and for non-RCT studies from 0.02 to 1.15 hours. Conclusions/applications to practice: More than half of the employee health interventions, especially yoga or mindfulness interventions, resulted in a desirable increase in sleep duration. Workplaces hold promise as an avenue for delivering programs and policies that aim to improve sleep duration among shift workers.



**Roelen CAM, van Hoffen MFA, Twisk JWR, and Heymans MW. Strategy for finding occupational health survey participants at risk of long-term sickness absence. *European Journal of Public Health*. 2021; 31(5):1003-1009.**

<https://doi.org/10.1093/eurpub/ckaa246>

Abstract: Background: When resources are limited, occupational health survey participants are usually invited to consultations based on an occupational health provider's subjective considerations. This study aimed to find health survey participants at risk of long-term (i.e., = 42 consecutive days) sickness absence (LTSA) for consultations with occupational health providers (OHPs). Methods: The data of 64 011 non-sicklisted participants in occupational health surveys between 2010 and 2015 were used for the study. In a random sample of 40 000 participants, 27 survey variables were included in decision tree analysis (DTA) predicting LTSA at 1-year follow-up. The decision tree was transferred into a strategy to find participants for OHP consultations, which was then tested in the remaining 24 011 participants. Results: In the development sample, 1358 (3.4%) participants had LTSA at 1-year follow-up. DTA produced a decision tree with work ability as first splitting variable; company size and sleep problems were the other splitting variables. A strategy differentiating by company size would find 75% of the LTSA cases in small (=99 workers) companies and 43% of the LTSA cases in medium-sized (100-499 workers) companies. For large companies (=500 workers), case-finding was only 25%. Conclusions: In small and medium-sized companies, work ability and sleep problems can be used to find occupational health survey participants for OHP consultations aimed at preventing LTSA. Research is needed to further develop a case-finding strategy for large companies.

**de Rooij MMT, Hakze-Van der Honing RW, Hulst MM, Harders F, Engelsma M, van de Hoef W, et al. Occupational and environmental exposure to SARS-CoV-2 in and around infected mink farms. *Occupational and Environmental Medicine*. 2021; 78(12):893-899.**

<https://doi.org/10.1136/oemed-2021-107443> [open access]

Abstract: OBJECTIVE: Unprecedented SARS-CoV-2 infections in farmed minks raised immediate concerns regarding transmission to humans and initiated intensive environmental investigations to assess



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occupational and environmental exposure. METHODS: Air sampling was performed at infected Dutch mink farms, at farm premises and at nearby residential sites. A range of other environmental samples were collected from minks' housing units, including bedding materials. SARS-CoV-2 RNA was analysed in all samples by quantitative PCR. RESULTS: Inside the farms, considerable levels of SARS-CoV-2 RNA were found in airborne dust, especially in personal inhalable dust samples (approximately 1000-10 000 copies/m<sup>3</sup>). Most of the settling dust samples tested positive for SARS-CoV-2 RNA (82%, 75 of 92). SARS-CoV-2 RNA was not detected in outdoor air samples, except for those collected near the entrance of the most recently infected farm. Many samples of minks' housing units and surfaces contained SARS-CoV-2 RNA. CONCLUSIONS: Infected mink farms can be highly contaminated with SARS-CoV-2 RNA. This warns of occupational exposure, which was substantiated by considerable SARS-CoV-2 RNA concentrations in personal air samples. Dispersion of SARS-CoV-2 to outdoor air was found to be limited and SARS-CoV-2 RNA was not detected in air samples collected beyond farm premises, implying a negligible risk of environmental exposure to nearby communities. Our occupational and environmental risk assessment is in line with whole genome sequencing analyses showing mink-to-human transmission among farm workers, but no indications of direct zoonotic transmission events to nearby communities

**Rosander M. Mental health problems as a risk factor for workplace bullying: the protective effect of a well-functioning organization. *Annals of Work Exposures and Health*. 2021; 65(9):1096-1106.**

<https://doi.org/10.1093/annweh/wxab040> [open access]

Abstract: This study examined a strain-stressor association, when mental health problems may lead to subsequent workplace bullying, and a mechanism of how this can happen. I hypothesized that the association between mental health problems and bullying depends on the perceived role clarity and order in the organization, and that sickness presenteeism (SP) mediates this association. The study is based on a longitudinal probability sample drawn from the total number of employees in Sweden. Workplace bullying, mental health, SP, and role clarity and order in the organization were assessed



using a questionnaire. The results showed that mental health problems are associated with an increased risk for subsequent bullying, consistent with previous findings. However, this risk depends on the level of role clarity and order in the organization. The results also show a partial indirect effect via SP. This means that if one has mental health problems and persists in coming to work although one should have stayed at home, the risk of bullying increases. The indirect effect depends also on the level of order in the organization. The findings suggest that individual deficits, such as mental health problems, are associated with subsequent bullying only if organizational deficits are also present

**Steel C, Tehrani N, Lewis G, and Billings J. Risk factors for complex posttraumatic stress disorder in UK police.**

**Occupational Medicine. 2021; 71(8):351-357.**

<https://doi.org/10.1093/occmed/kqab114>

Abstract: BACKGROUND: Police officers are frequently exposed to distressing and dangerous situations, increasing their risk of posttraumatic stress disorder (PTSD) and complex PTSD (C-PTSD). Research examining C-PTSD in police officers is sparse, particularly examination of the occupational risk factors for trauma symptoms. AIMS: This study aimed to examine the prevalence and risk factors for PTSD and C-PTSD in UK police officers. METHODS: A cross-sectional study was conducted using psychological health surveillance data from the UK National Police Wellbeing Service. Police officers were either from high-risk areas of work or had been referred for screening by occupational health practitioners regarding psychological distress. The primary outcome for this study was a positive screening of either PTSD or C-PTSD, measured using the International Trauma Questionnaire. A range of occupational, clinical and lifestyle factors was examined to establish their role as potential risk factors for PTSD and C-PTSD. RESULTS: In total, 2444 UK police officers were included, with 89% from high-risk areas of work. A prevalence of 3% for PTSD and 2% for C-PTSD was found in police officers from high-risk areas of work. Higher work stress and lower manager support were found to increase the odds of C-PTSD but not PTSD. Higher personal trauma history increased the risk for PTSD and C-PTSD equally. CONCLUSIONS: Work-related occupational factors increased the odds of PTSD and C-PTSD in



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police officers, which could be important risk factors for trauma symptoms within police officers. Efforts should be made to improve the working environment of police officers to help improve their psychological well-being

**Tran T, Harris C, and Ciccarelli M. The impact of a hand therapy workplace-based educational approach on the management of lateral elbow tendinopathy: a randomized controlled study. Journal of Hand Therapy. 2021; [epub ahead of print].**

<https://doi.org/10.1016/j.jht.2021.09.004>

Abstract: Background: Lateral elbow tendinopathy (LET) is one of the most prevalent work-related musculoskeletal conditions.

Management strategies for LET rarely consider patients' work environments and have limited focus on education regarding occupational risk factors. Workplace-based rehabilitation has shown benefits in the return to work processes for injured workers with other health conditions, but no studies have investigated the impact of a workplace-based educational approach in the management of LET.

Purposes: First, to identify the impact of an additional workplace-based educational intervention to standard hand therapy care on the outcomes of pain, grip strength, and function. Second, to identify the effectiveness of standard hand therapy on the same clinical outcomes.

Study design: A randomized controlled trial. Methods:

Forty-nine participants were randomized to the control group (n = 25) or intervention group (n = 24). The control group received standard hand therapy for 12 weeks. The intervention group received standard hand therapy for the first 12 weeks plus an additional workplace-based educational intervention, "Working Hands-ED," delivered by a hand therapist. Pain levels for provocative tests, grip strength, and function were measured using a Numeric Rating Scale, Jamar Dynamometer, and the Patient-Rated Tennis Elbow Evaluation questionnaire at baseline, weeks 6 and 12. The Patient-Specific Functional Scale was also used for the intervention group.

Results: There were no statistical differences between both groups for all clinical outcomes by 12 weeks ( $P > .05$ ). Pain levels for all provocative tests and Patient-Rated Tennis Elbow Evaluation scores statistically improved within both groups ( $P < .05$ ), however with small effect sizes observed. The Patient-Specific Functional Scale scores statistically improved for the intervention group by 12 weeks ( $P <$



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.05). Conclusion: The addition of a hand therapy workplace-based intervention did not result in superior clinical outcomes for pain, grip strength, and function. The study identified that a multimodal self-management approach used by hand therapists improved their patients' pain and function regardless of whether the education was given in the clinic or the workplace.

**Vu TV, Vo-Thanh T, Nguyen NP, Nguyen DV, and Chi H. The COVID-19 pandemic: workplace safety management practices, job insecurity, and employees' organizational citizenship behavior. Safety Science. 2022; 145:105527.**

<https://doi.org/10.1016/j.ssci.2021.105527>

**Wrangel O, Graff P, Bryngelsson IL, Fornander L, Wiebert P, and Vihlborg P. Silica dust exposure increases risk for rheumatoid arthritis: a Swedish national registry case-control study. Journal of Occupational & Environmental Medicine. 2021; 63(11):951-955.**

<https://doi.org/10.1097/JOM.0000000000002281> [open access]

Abstract: OBJECTIVE: Rheumatoid arthritis (RA) is an inflammatory disease with unknown etiology. This study examines if silica dust exposure increases the risk for seropositive and seronegative RA. METHODS: A nationwide registry case-control study was conducted that included all cases of RA in Sweden between 2005 and 2016. In total, 31,139 cases with two matched controls were included. A JEM was used to estimate exposure. RESULTS: Silica dust exposure was associated with a statistically significant increase in odds ratio (OR) for seropositive (OR 1.22, 95% CI 1.05 to 1.40) and seronegative (OR 1.23, 95% CI 1.04 to 1.46) RA among men. CONCLUSION: This study found an increased OR for RA in silica-exposed men. The OR was equal for seropositive and seronegative RA. These findings further support the hypothesis that silica dust may be a trigger for RA

