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Journal articles marked with an asterisk indicate an IWH scientist or adjunct scientist is included in the list of authors.

**\*Hunt C, MacKenzie H, Dosaj A, Zych J, Tartaglia C, Bayley M, Wilcock R, Zabjek K, Burke M, Kristman V, et al. CONNECTing concussion care with research across Ontario. Canadian Journal of Neurological Sciences. 2024; [epub ahead of print].**

<https://doi.org/10.1017/cjn.2023.326> [open access]

Abstract: Common data elements (CDEs) for concussion, as established by international bodies, are not being widely used in Ontario, resulting in significant variability in the data being assessed and collected across clinics. CDEs support standardization of care as well as large-scale data sharing for high impact research. A collaborative network - Concussion Ontario Network: Neuroinformatics to Enhance Clinical care and Translation (CONNECT) - comprised of health care professionals, researchers, members from advocacy groups, and patients was formed to establish and implement CDEs for concussion care and research. While the seeds have been planted and initial effectiveness demonstrated, future challenges exist

**\*Queiroga F, Cembalo SM, Epstein J, Maxwell L, Buttell T, Copenhaver C, Cross M, Hunter D, King L, Callahan L, March L, Beaton DE, et al. Assessing domain match and feasibility of candidate instruments matching with OMERACT endorsed domains to measure flare in knee and hip osteoarthritis. Seminars in Arthritis and Rheumatism. 2024; 65:152371.**

<https://doi.org/10.1016/j.semarthrit.2024.152371>

Abstract: PURPOSE: To evaluate the domain match (truth) and feasibility of candidate instruments assessing flare in knee and hip osteoarthritis (OA) according to the identified domains. MATERIAL AND METHODS: From a literature review (575 papers), instruments were selected and evaluated using the truth and feasibility elements of the OMERACT Filter 2.2. These were evaluated by 26 experts, including patients, in two Delphi survey rounds. The final selection was obtained by a vote. RESULTS:

44 instruments were identified. In Delphi Round 1, five instruments were selected. In Round 2, all instruments obtained at least 75 % in terms of content match with the endorsed domains and feasibility. In the final selection, the Flare-OA questionnaire obtained 100 % favorable votes. CONCLUSION: Through consensus of the working group, the Flare-OA questionnaire was selected as the best candidate instrument to move into a full assessment of its measurement properties using the OMERACT Filter 2.2

**Anderson O, McLennan V, Buys N, and Randall C. Injured worker participation in assessment during the acute phase of workers compensation rehabilitation: a scoping review. Disability and Rehabilitation. 2024; [epub ahead of print].**

<https://doi.org/10.1080/09638288.2024.2337101>

Abstract: PURPOSE: Rates of return to work (RTW) are declining in the Australian workers compensation system alongside significant economic and social costs, disputes, and secondary psychological injury. Non-medical assessment of workplace injuries now considers psychosocial and workplace factors, and worker participation in the assessment process is limited. This scoping review examines studies regarding non-medical assessment during the acute phase of rehabilitation in terms of costs, disputes, secondary psychological injury, and worker participation. METHOD: An electronic and manual search of relevant articles across four databases was conducted using PRISMA guidelines, followed by quality assessment. RESULTS: Of the 1,630 studies retrieved, 12 met the inclusion criteria with most focused on assessment for risk of obstructed or delayed RTW. CONCLUSIONS: Non-medical assessment in the acute stage of rehabilitation identifies risk for delayed or complicated RTW, overlooking potential for the process of assessment to contribute to disputes and development of secondary psychological injury. Doubt around the capacity of workers to participate objectively in assessment persists. These are aspects of assessment worthy of further exploration for their impact on RTW outcomes

**Blustein DL, Allan B, Mazur A, Sharone O, Autin K, Cinamon RG, et al. An evaluation of an integrative intervention for work and mental health: the WIN program. Journal of Career Assessment. 2024; 32(2):343-362.**

<https://doi.org/10.1177/10690727231196143> [open access]

Abstract: The purpose of this study was to describe the development of a new intervention for jobseekers and to assess its efficacy using a naturalistic, pre-post intervention design. In contrast to existing work-based interventions, the Work Intervention Network (WIN) intervention targets multiple intersecting domains through four modules and via six group sessions: deepening and sustaining relationships; fostering social awareness and reducing self-blame; building emotional resilience and self-care; and planning, exploring, and engaging in the job search. To evaluate the intervention, we first recruited a sample of 33 jobseekers to provide feedback on the program. Integrating their feedback into the design of the program, we then recruited a sample of 108 jobseekers who filled out surveys before and after the six-session intervention, which assessed work and mental health functioning across the four domains. Results revealed that participants were highly satisfied with the intervention and reported large increases in social support, belonging, psychological well-being, job search engagement, and work hope as well as decreases in isolation and self-blame. This study provides strong support for the WIN intervention and has implications for how to support jobseekers in an increasingly precarious labor environment.

**Dang THA, Starke KR, Liebers F, Burr H, Seidler A, and Hegewald J. Impact of sitting at work on musculoskeletal complaints of German workers: results from the study on mental health at work (S-MGA). *Journal of Occupational Medicine and Toxicology*. 2024; 19(1):9.**

<https://doi.org/10.1186/s12995-024-00408-7> [open access]

**Abstract:** Introduction: Sedentary behavior (including prolonged sitting) is a form of physical inactivity that has a negative impact on health, possibly including musculoskeletal complaints (MSCs). The purpose of this study was to determine the extent to which time spent sitting at work is associated with the one-year prevalence of MSCs in the neck, shoulder, upper back/thoracic spine, and lower back among workers from the Study of Mental Health in the Workplace (S-MGA). In addition, the study also examined whether leisure time, physical activity, and sex modify the relationship between occupational sitting and MSCs. Methods: For this analysis, we used the S-MGA, a 5-year prospective study in Germany. The S-MGA is a nationwide representative employee cohort study with a baseline survey in 2012 and a follow-up survey in 2017. Sitting at work was measured using a question asked at baseline. The Nordic Musculoskeletal Questionnaire was used to determine the one-year prevalence of MSCs in the neck, shoulder, upper back, and lower back pain (yes/no). The assessment of MSCs was only conducted at the 2017 follow-up. Adjusted Poisson regression models were used to determine the association of baseline level of weekly hours spent sitting at work with MSCs during follow-up. In addition to unadjusted models, models were adjusted for demographic (age, sex, body mass index and occupational skill level), occupational (heavy lifting at work), psychological disorders and lifestyle factors (smoking status and leisure time physical activity), as well as preexisting musculoskeletal conditions reported at baseline. To examine whether the relationship between sitting time and pain was modified by sex and leisure time physical activity, the models were stratified for both these variables. Results: Among the participants analyzed (n = 2,082), 49.8% were male, while 50.2% were female, and more than 60% of the study population spent over half of their working hours in a sitting position. Exposure to increased sitting at work reported at baseline was not consistently associated with 12-month prevalence of MSCs in the upper body at follow-up. However, differences in the association between occupational sitting and MSCs were dependent on the intensity of leisure time physical activity. Prevalence ratios (PRs) indicated an increased prevalence of MSC in the neck (PR = 1.46; 95% CI = 1.18-1.80) and shoulder (PR = 1.30; 95% CI = 1.03-1.64) in workers without leisure time physical activity who spent 25 to < 35 weekly working hours sitting. Discussion: These findings suggest that leisure time physical activity interacts with the relationship between sitting at work and MSCs. The relationship between sitting at work and musculoskeletal pain needs further investigation, but we found indications that leisure time physical activity may counter the effects of sitting at work.

**Derbyshire DW, Jeanes E, Khedmati ME, Reh S, and Rogers M. Employer-focused interventions targeting disability employment: a systematic review. *Social Science & Medicine*. 2024; 347:116742.**

<https://doi.org/10.1016/j.socscimed.2024.116742> [open access]

**Abstract:** There are a wide range of interventions that are designed to influence employer behaviour with respect to the employment of people with disabilities. This study presents the results of a systematic review looking at employer-focused interventions to improve disability employment, focusing on interventions or policies taking place in high-income countries as per the OECD. This systematic review focuses on a broad range of potential employment-related outcomes, including the employment rate, time to return to work and length of sickness absence. The results of 71 papers that evaluate the effectiveness of a range of interventions were synthesised into a narrative review.

Interventions are grouped into six broad categories: anti-discrimination legislation, quota systems, part-time sick leave, graded return to work and wage subsidy schemes. Anti-discrimination legislation is not effective at improving the employment prospects of people with disabilities. There is mixed evidence with respect to quota systems and wage subsidy schemes. However, the availability of part time sick leave or graded return to work are both consistently associated with improved work participation for people with disabilities

**van Gerven M, Malava T, Saikku P, and Mesiaislehto M. Towards a new era in the governance of integrated activation: a systematic review of the literature on the governance of welfare benefits and employment-related services in Europe (2010-21). *Social Policy & Administration*. 2024; 58(3):329-343.**

<https://doi.org/10.1111/spol.12960> [open access]

Abstract: This article presents the results of a systematic literature review of research articles (N = 72) to study the governance logic of integrated activation policies and the problems relating to reintegrating welfare benefits with services. The inductive study of the problems indicated in the literature demonstrates both the vertical and horizontal aspects of the governance of integrated activation at the street level: challenges are tied to the top-down activation policy; requirements and strategies of delivering benefits and services; collaboration and coordination in delivery chains; and risks and inequality that street-level bureaucrats are trying to deal with in their work. The results point primarily to flaws in the vertical governance of activation, such as frontline work problems and collaborative practices between different actors and agencies. Moreover, some problems relating to collaboration and coordination, pointed towards the challenges in horizontal governance of activation. The article, however, demonstrates how the governance of integrated activation requires a coupling of these different streams of governance and understanding governance as a complex network of interdependencies and causal connections between institutions, organisations, and co-production with end users.

**Giusti EM, Ferrario MM, Veronesi G, D'Amato A, Gianfagna F, and Iacoviello L. Perceived work stressors and the transition to burnout among nurses in response to the pandemic: implications for healthcare organizations. *Scandinavian Journal of Work, Environment & Health*. 2024; 50(3):158-167.**

<https://doi.org/10.5271/sjweh.4148> [open access]

Abstract: OBJECTIVES: This study aimed to assess the associations of pre-pandemic perceived work stressors and work satisfaction among nurses, including nurse assistants, with burnout profiles and their transitions in response to the pandemic. METHODS: Three hundred and thirty-seven nurses working in an Italian University hospital participated in a longitudinal study including a survey in August 2019 investigating perceived work stressors (assessed using the HSE Indicator Tool), work satisfaction (Work Satisfaction Scale), and burnout (Maslach Burnout Inventory), and a second survey in December 2020 assessing burnout. Using latent transition analysis, we identified burnout profiles and then estimated the associations between work stressors and satisfaction on profiles and transitions. RESULTS: We identified three pre-pandemic profiles, namely engaged (67%), ineffective (15%), and burnout (18%); and three pandemic profiles, namely engaged (37%), exhausted (51%), and severe burnout (12%). The severe burnout profile consisted of 70% nurses classified in the burnout profile before the pandemic. Overall, work stressors and satisfaction were associated with both pre-

pandemic and pandemic burnout profiles. Among nurses not in the burnout profile prior to COVID-19, pre-pandemic hostile relationships increased [odds ratio (OR) 1.19, 95% confidence interval (CI) 1.05-1.34] and work satisfaction decreased (OR 0.82, 95% CI 0.68-0.98) the probability to transition to exhausted. Moreover, work satisfaction (OR 0.54, 95% CI 0.32-0.91) and participation in work organization (OR 0.69, 95% CI 0.51-0.93) protected from transitioning to severe burnout. The association between peer support and the transition to exhausted needs further investigation. CONCLUSIONS: Pre-pandemic work stressors and satisfaction were associated with pandemic burnout and burnout transitions. To enhance preparedness for future crises, healthcare managers should carefully assess and tackle work-related constraints affecting nurses

**Hoopsick RA, Las S, and Sun R. Differential effects of healthcare worker burnout on psychotropic medication use and misuse by occupational level. *Social Psychiatry and Psychiatric Epidemiology*. 2024; 59(4):669-679.**

<https://doi.org/10.1007/s00127-023-02496-y> [open access]

Abstract: Purpose: Burnout has been well examined among physicians and other high-wage, high-autonomy healthcare positions. However, lower-wage healthcare workers with less workplace autonomy (e.g., medical assistants, nurses' aides) represent a substantial proportion of the workforce, but remain understudied. We aimed to examine the effects of burnout on psychotropic medication use and misuse and whether these effects differed by occupational level. Methods: In March 2022, we collected data from a diverse sample of US healthcare workers (N = 200) and examined the cross-sectional relationship between burnout and changes in prescribed psychotropic medication (i.e., starting, stopping, and/or having a change in the dose/frequency) during the COVID-19 pandemic. We also separately examined the relationship between burnout and psychotropic medication misuse (i.e., without a prescription, in greater amounts, more often, longer than prescribed, and/or for a reason other than prescribed). We stratified models by occupational level (prescribers/healthcare administrators vs. other healthcare workers). Results: Greater burnout was associated with higher odds of changes in prescribed psychotropic medication among prescribers/healthcare administrators (aOR = 1.23, 95% CI 1.01, 1.48), but not among other healthcare workers (aOR = 1.04, 95% CI 0.98, 1.10). Greater burnout was not associated with psychotropic medication misuse among prescribers/healthcare administrators (aOR = 0.96, 95% CI 0.82, 1.12) but was associated with increased odds of psychotropic medication misuse among other healthcare workers (aOR = 1.07, 95% CI 1.01, 1.14). Conclusions: Potential disparities in help-seeking and healthcare access might manifest in non-medical use of prescription drugs among some healthcare workers, which has implications for worker safety and well-being.

**Iversen IB, Vestergaard JM, Ohlander J, Peters S, Bendstrup E, Bonde JPE, et al. The asbestos-asbestosis exposure-response relationship: a cohort study of the general working population. *Scandinavian Journal of Work, Environment & Health*. 2024; [epub ahead of print].**

<https://doi.org/10.5271/sjweh.4153> [open access]

Abstract: OBJECTIVES: The association between asbestos exposure and asbestosis in high-exposed industrial cohorts is well-known, but there is a lack of knowledge about the exposure-response relationship for asbestosis in a general working population setting. We examined the exposure-response relationship between occupational asbestos exposure and asbestosis in asbestos-exposed workers of the Danish general working population. METHODS: We followed all asbestos-exposed

workers from 1979 to 2015 and identified incident cases of asbestosis using the Danish National Patient Register. Individual asbestos exposure was estimated with a quantitative job exposure matrix (SYN-JEM) from 1976 onwards and back-extrapolated to age 16 for those exposed in 1976. Exposure-response relations for cumulative exposure and other exposure metrics were analyzed using a discrete time hazard model and adjusted for potential confounders. RESULTS: The range of cumulative exposure in the population was 0.001 to 18 fibers per milliliter-year (f/ml-year). We found increasing incidence rate ratios (IRR) of asbestosis with increasing cumulative asbestos exposure with a fully adjusted IRR per 1 f/ml-years of 1.18 [95% confidence interval (CI) 1.15- 1.22]. The IRR was 1.94 (95% CI 1.53-2.47) in the highest compared to the lowest exposure tertile. We similarly observed increasing risk with increasing cumulative exposure in the inception population. CONCLUSIONS: This study found exposure-response relations between cumulative asbestos exposure and incident asbestosis in the Danish general working population with mainly low-level exposed occupations, but there is some uncertainty regarding the exposure levels

**Jankowiak S, Rosnagel K, Bauer J, Schulz A, Liebers F, Latza U, et al. Night shift work and cardiovascular diseases among employees in Germany: five-year follow-up of the Gutenberg Health Study. *Scandinavian Journal of Work, Environment & Health*. 2024; 50(3):142-151.**

<https://doi.org/10.5271/sjweh.4139> [open access]

Abstract: Objective This study aimed to determine if there is an increased risk of incident cardiovascular diseases (CVD) resulting from cumulative night shift work in the German population-based Gutenberg Health Study (GHS). Methods We examined working participants of the GHS at baseline and after five years. Cumulative night shift work in the 10 years before baseline was assessed and categorized as low (1–220 nights  $\triangleq$  up to 1 year), middle (221–660 nights  $\triangleq$  1–3 years), and high (>660 nights  $\triangleq$  more than 3 years) night shift exposure. Hazard ratios (HR) were estimated for incident “quality-assured CVD events” using Cox proportional hazard models. Results At baseline, 1092 of 8167 working participants performed night shift work. During the follow-up, 202 incident cardiovascular events occurred. The crude incidence rates for CVD per 1000 person-years were 6.88 [95% confidence interval (CI) 4.80–9.55] for night shift workers and 5.19 (95% CI 4.44–6.04) for day workers. Cumulative incidence curves showed a higher cumulative incidence in workers exposed to night shift work compared to day workers after five years. The adjusted HR for incident CVD events were 1.26 (95% CI 0.68–2.33), 1.37 (95% CI 0.74–2.53) and 1.19 (95% CI 0.67–2.12) for employees in the low, middle and high night shift categories compared to employees without night shift work, respectively. Conclusions The observed tendencies indicate that night shift work might be negatively associated with cardiovascular health. We expect the continued follow-up will clarify the long-term impact of night shift work.

**Kutsuna I, Hoshino A, Morisugi A, Mori Y, Shirato A, Takeda M, et al. Relationship between duration of sick leave and time variation of words used in return-to-work programs for depression. *Work*. 2024; 77(3):981-991.**

<https://doi.org/10.3233/WOR-230083> [open access]

Abstract: Background: Return-to-work (RTW) programs are provided as rehabilitation for people who have taken sick leave from work because of mental health problems. However, methods to present this information to workplaces objectively remain limited. Objective: This study aimed to conduct an exploratory investigation of the relationship between duration of sick leave and time variation of

words used in RTW programs for depression from textual data collected from electronic medical records as a new evaluation indicator. **Methods:** The study subjects were those who had taken sick leave because of major depressive or adjustment disorder and had participated in an RTW program. The study data comprised demographic characteristics and texts. Textual data were collected from electronic medical records and classified based on the SOAP note. Thereafter, the textual data were quantified into category scores based on a standard text analysis dictionary. A generalized linear mixed model was used for the statistical analysis, with the score for each category (emotional, social, cognitive, perceptual, biological, motivational, relativity, and informal) as the dependent variable and the duration of sick leave, time, and interaction between the duration of sick leave and time as the independent variables. The level of statistical significance was set at 0.05. **Results:** In total, 42 participants were included in the analysis. The results revealed a significant interaction between the social ( $p = 0.001$ ) and emotional ( $p = 0.002$ ) categories. **Conclusion:** The findings suggest a relationship between word changes in electronic medical records and the duration of sick leave.

**Qvarfordt M and Lagrosen S. Healthcare digitalisation and its association with quality and employee health, a mixed-methods study. *International Journal of Workplace Health Management*. 2024; 17(1):1-20.**

<https://doi.org/10.1108/IJWHM-03-2022-0045> [open access]

**Abstract:** Purpose Previous research has identified associations between quality management and employee health. This study's purpose was to (1) examine those associations in a public healthcare organisation and (2) explore and describe the association between digitalisation and employee health. **Design/methodology/approach** An online questionnaire including indices to measure quality management values, employee health and digitalisation was answered by 118 managers in Swedish public healthcare. Correlation analysis was used to analyse the data. Based on the survey results, 12 qualitative, in-depth interviews were conducted with healthcare managers. **Findings** The findings show that employee health is associated with quality management and digitalisation. Categories were defined to describe the managers' views of the relationship between digitalisation and health. **Research limitations/implications** Causality was not explicitly tested and cannot be assumed. However, the results strengthen the body of research showing that quality management is related to employee health, and associations between health and digitalisation were identified. **Practical implications** The findings and model should be helpful for healthcare managers in a digitalising environment who aim to preserve or enhance employee health whilst ensuring high service quality. **Originality/value** The results were used to create an integrated conceptual model depicting the association between quality, digitalisation and health. This association has not previously been studied.

**Socias-Morales CM, Haas EJ, Gwilliam M, Yorio PL, Delaney NB, Falcon RG, et al. The association between safety climate and noncombat injury events among United States Air Force workers. *Journal of Safety Research*. 2024; 88:16-23.**

<https://doi.org/10.1016/j.jsr.2023.10.004>

**Abstract:** Introduction: Work-related injuries are a common lagging safety indicator whereas safety climate assessments can help identify constructs serving as leading indicators. The National Institute for Occupational Safety and Health (NIOSH) partnered with the U.S. Department of the Air Force (DAF) Safety Center to examine the association between perceptions of safety climate survey

constructs and the number of injury events within the DAF workforce. Methods: The DAF administers voluntary, anonymous, occupation-specific safety climate surveys to DAF workers using the internal Air Force Combined Mishap Reduction System (AFCMRS). Survey responses from 2014 to 2018 provided by DAF workers and injury events in maintenance, support, and operations occupations were shared with NIOSH. Exploratory Factor Analysis revealed five constructs: Leadership and Communication; Organizational Safety Priority; Error Management; Resource Adequacy; and Deployment/Official Travel Impact. Squadron-level analysis included bivariate correlations and estimated Rate Ratios (RRs). Results: 1,547 squadrons administered the survey, averaging 144 workers and 15.8 reportable injuries per squadron. Higher (more favorable) squadron-level construct scores were consistently correlated with fewer reported injuries ( $p < 0.001$ ). Controlling for the number of workers, RRs revealed significant reductions in injury rates with each one-unit increase in responses: Leadership and Communication RR = 0.40 (95%CI: 0.32-0.48); Organizational Safety Priority RR = 0.50 (95%CI: 0.40-0.64); Error Management RR = 0.37 (95%CI: 0.30-0.47); Deployment/Official Travel Impact RR = 0.36 (95%CI: 0.29-0.45). Resource Adequacy revealed a non-significant lower injury rate RR = 0.87 (95%CI: 0.73-1.04). Conclusions: This unique study quantified safety climate and the association with injuries across a multi-year period. While safety climate measurements may be limited by frequent turnover and the self-reported, voluntary, anonymous nature of AFCMRS, the strength of this study is in the census of injuries. Practical applications: Future research should include longitudinal analyses to examine the impact on injuries when squadron leaders are provided feedback on safety climate survey results.

**Tubbicke S and Schiele M. On the effects of active labour market policies among individuals reporting to have severe mental health problems. *Social Policy & Administration*. 2024; 58(3):404-422.**

<https://doi.org/10.1111/spol.12968> [open access]

Abstract: On the one hand, unemployment is known to have detrimental effects on individuals' mental health. On the other hand, poor mental health reduces re-employment chances quite drastically, creating a vicious cycle. Active labour market policies (ALMPs) such as training programs or wage subsidies have been shown to ameliorate negative effects on mental health and improve labour market integration on average for the general unemployed population. In the context of individuals with severe mental health issues, however, it is unclear whether these interventions can be expected to deliver similar positive effects. In fact, one may argue that they have the potential to worsen employment prospects of individuals by adding additional stress to their pre-existing mental health problems. Hence, this paper estimates the long-term causal effects of ALMPs on the labour market integration of individuals with self-reported severe mental health issues and compares estimates to individuals without such issues using unique combined survey and administrative data. Effects are estimated using the innovative double machine learning method and show that ALMPs do not only improve labour market integration of unemployed individuals with severe mental health issues, but they do so more effectively than for other unemployed individuals.



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