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

**\*Kottner J, Beaton D, Clarke M, Dodd S, Kirkham J, Lange T, et al. Core outcome set developers should consider and specify the level of granularity of outcome domains. *Journal of Clinical Epidemiology*. 2024; 169:111307.**

<https://doi.org/10.1016/j.jclinepi.2024.111307>

**\*Maxwell LJ, Jones C, Bingham CO, Boers M, Boonen A, Choy E, Christensen R, Conaghan PG, D'Agostino MA, Doria AS, Grosskleg S, Hill CL, Hofstetter C, Horgan B, Kroon F, Leung YY, Mackie S, Meara A, Shea BJ, Simon LS, Touma Z, Tugwell P, Wells GA, Beaton DE. Defining domains: developing consensus-based definitions for foundational domains in OMERACT core outcome sets. *Seminars in Arthritis and Rheumatism*. 2024; 66:152423.**

<https://doi.org/10.1016/j.semarthrit.2024.152423>

Abstract: OBJECTIVE: To develop a set of detailed definitions for foundational domains commonly used in OMERACT (Outcome Measures in Rheumatology) core domain sets. METHODS: We identified candidate domain definitions from prior OMERACT publications and websites and publications of major organizations involved in outcomes research for six domains commonly used in OMERACT Core Domain Sets: pain intensity, pain interference, physical function, fatigue, patient global assessment, and health-related quality of life. We conducted a two-round survey of OMERACT working groups, patient research partners, and then the OMERACT Technical Advisory Group to establish their preferred domain definitions. Results were presented at the OMERACT 2023 Methodology Workshop, where participants discussed their relevant lived experience and identified potential sources of variability giving the needed detail in our domain definitions. RESULTS: One-hundred four people responded to both rounds of the survey, and a preferred definition was established for each of the domains except for patient global assessment for which no agreement was reached. Seventy-five

participants at the OMERACT 2023 Methodology Workshop provided lived experience examples, which were used to contextualise domain definition reports for each of the five domains.

**CONCLUSION:** Using a consensus-based approach, we have created a detailed definition for five of the foundational domains in OMERACT core domain sets; patient global assessment requires further research. These definitions, although not mandatory for working groups to use, may facilitate the initial domain-match assessment step of instrument selection, and reduce the time and resources required by future OMERACT groups when developing core outcome sets

**Abraham KG, Hershbein B, Houseman SN, and Truesdale BC. The independent contractor workforce: new evidence on its size and composition and ways to improve its measurement in household surveys. ILR Review. 2024; 77(3):336-365.**

<https://doi.org/10.1177/00197939241226945> [open access]

**Abstract:** Good data on the size and composition of the independent contractor workforce are elusive. The authors carried out a series of focus groups to learn how independent contractors speak about their work. Based on those findings, they designed and fielded a telephone survey to elicit more accurate and complete information on independent contractors. Roughly 1 in 10 workers who initially reported working for an employer on one or more jobs (and thus were coded as employees) were independent contractors on at least one of those jobs. Incorporating these miscoded workers into estimates of main job work arrangements nearly doubles the share who are independent contractors to approximately 15% of all workers. Taking these workers into account substantively changes the demographic profile of the independent contractor workforce. Probing in household surveys to clarify a worker's employment arrangement and identify all low-hours work is critical for accurately measuring independent contractor work.

**Aust B, Leduc C, Cresswell-Smith J, O'Brien C, Rugulies R, Leduc M, et al. The effects of different types of organisational workplace mental health interventions on mental health and wellbeing in healthcare workers: a systematic review. International Archives of Occupational & Environmental Health. 2024; 97(5):485-522.**

<https://doi.org/10.1007/s00420-024-02065-z>

**Abstract:** **OBJECTIVE:** To determine if and which types of organisational interventions conducted in small and medium size enterprises (SMEs) in healthcare are effective on mental health and wellbeing. **METHODS:** Following PRISMA guidelines, we searched six scientific databases, assessed the methodological quality of eligible studies using QATQS and grouped them into six organisational intervention types for narrative synthesis. Only controlled studies with at least one follow-up were eligible. **RESULTS:** We identified 22 studies (23 articles) mainly conducted in hospitals with 16 studies rated of strong or moderate methodological quality. More than two thirds (68%) of the studies reported improvements in at least one primary outcome (mental wellbeing, burnout, stress, symptoms of depression or anxiety), most consistently in burnout with eleven out of thirteen studies. We found a strong level of evidence for the intervention type "Job and task modifications" and a moderate level of evidence for the types "Flexible work and scheduling" and "Changes in the physical work environment". For all other types, the level of evidence was insufficient. We found no studies conducted with an independent SME, however five studies with SMEs attached to a larger organisational structure. The effectiveness of workplace mental health interventions in these SMEs was mixed. **CONCLUSION:** Organisational interventions in healthcare workers can be effective in

improving mental health, especially in reducing burnout. Intervention types where the change in the work environment constitutes the intervention had the highest level of evidence. More research is needed for SMEs and for healthcare workers other than hospital-based physicians and nurses

**Braarud PO. Measuring cognitive workload in the nuclear control room: a review. *Ergonomics*. 2024; 67(6):849-865.**

<https://doi.org/10.1080/00140139.2024.2302381>

Abstract: Despite the substantial literature and human factors guidance, evaluators report challenges in selecting cognitive workload measures for the evaluation of complex human-technology systems. A review of 32 articles found that self-report measures and secondary tasks were systematically sensitive to human-system interface conditions and correlated with physiological measures. Therefore, including a self-report measure of cognitive workload is recommended when evaluating human-system interfaces. Physiological measures were mainly used in method studies, and future research must demonstrate the utility of these measures for human-system evaluation in complex work settings. However, indexes of physiological measures showed promise for cognitive workload assessment. The review revealed a limited focus on the measurement of excessive cognitive workload, although this is a key topic in nuclear process control. To support human-system evaluation of adequate cognitive workload, future research on behavioural measures may be useful in the identification and analysis of underload and overload

**Ercan S, Ince Parpucu T, Baskurt Z, and Baskurt F. Ergonomic risks and problems of the musculoskeletal system for physiotherapists: comparison of employees in the fields of pediatric and adult care. *International Journal of Occupational Safety & Ergonomics*. 2024; 30(2):543-548.**

<https://doi.org/10.1080/10803548.2024.2323334>

Abstract: Objectives. The aim of this study is to compare the ergonomic risk levels, musculoskeletal complaints and quality of life of physiotherapists (PTs) according to their field of work. Methods. A total of 107 volunteer PTs participated in the study, whose information was recorded. Ergonomic risk levels were determined using rapid entire body assessment (REBA). Complaints about the musculoskeletal system of PTs were evaluated with the Cornell musculoskeletal discomfort questionnaire (CMDQ) and quality of life was evaluated by the Nottingham health profile. Results. PTs who worked with pediatric patients (Group pediatric; n = 47) were younger ( $p < 0.001$ ). PTs who worked with adult patients (Group adult; n = 60) had a higher daily number of patients ( $p < 0.001$ ). The REBA score did not make a difference between the groups ( $p = 0.379$ ). The difference was found in the upper back region of the CMDQ ( $p < 0.05$ ). There was no difference between groups for quality of life ( $p > 0.05$ ). Conclusions. Group pediatric may be working in ergonomically demanding positions, although there is no statistical difference. The injury sites of the musculoskeletal system can differ. However, the reflection of musculoskeletal system problems on quality of life does not show any difference between the groups of PTs.

**Han C and Jizu L. Impact of job embeddedness on miners' safety performance: the role of perceived insider status and safety climate. *International Journal of Occupational Safety & Ergonomics*. 2024; 30(2):496-505.**

<https://doi.org/10.1080/10803548.2024.2320995>

Abstract: The present study aims to explore the mechanism for the impact of job embeddedness on safety performance, the mediating role of perceived insider status and the cross-level moderating role

of safety climate among miners. The questionnaire data used for analysis in this study were collected from 310 miners in 38 coal mine production teams in China. Bootstrap analysis was performed to explore the mediating role of perceived insider status, and multilevel linear analysis was performed to explore the cross-level moderating role of safety climate. The results showed that job embeddedness was positively related to miners' safety performance; perceived insider status mediating the relationship between job embeddedness and miners' safety performance; and safety climate moderating the relationship between perceived insider status and miners' safety performance across levels

**Hansen KS, Moreno-Tertero JD, and Osterdal LP. Quality- and productivity-adjusted life years: from QALYs to PALYs and beyond. *Journal of Health Economics*. 2024; 95:102885.**

<https://doi.org/10.1016/j.jhealeco.2024.102885> [open access]

Abstract: We develop a unified framework for the measurement and valuation of health and productivity. Within this framework, we characterize evaluation functions allowing for compromises between the classical quality-adjusted life years (QALYs) and its polar productivity-adjusted life years (PALYs). Our framework and characterization results provide a new normative basis for the economic evaluation of health care interventions, as well as occupational health and safety policies, aimed to impact both health and productivity of individuals

**Kamaja V and Nordquist H. The recovery processes among paramedics who encountered violence during work: a narrative interview study. *Journal of Occupational Medicine and Toxicology*. 2024; 19(1):17.**

<https://doi.org/10.1186/s12995-024-00417-6> [open access]

Abstract: Background: Almost all paramedics encounter workplace violence (WPV) during their careers. The most common form of WPV is verbal, and the perpetrator is usually the patient. It is known that paramedics suffer from post-traumatic stress disorder and other mental health problems, and WPV is one of the reasons behind that. Nevertheless, little is known about the recovery processes paramedics have had after encountering WPV. The research question was: What kind of recovery processes have paramedics had after encountering WPV? Methods: A qualitative, narrative interview study was done. Data was collected in individual interviews with Finnish paramedics (n = 18). Paramedics were from different parts of Finland, and their ages varied from 24 to 49 years. They had been working in EMS for an average of 10.5 years (range 1.5 to 25 years). Interviews were conducted with a narrative approach, which enabled paramedics to narrate their experiences and speak on their own terms about the subject to the extent of their choosing. The data was analyzed using thematic analysis. Results: Ten recovery process themes were identified: Strong psychological and physical reactions in a short time frame, Questioning one's profession and actions, Various support structures aided in recovery, Dysfunctional processes hindered recovery, Personal resources provided support, The support of the workcommunity as a lifeline, Left to cope alone, Permanent changes to work routines, Resulting in professional growth and Eternal crack in the shell. Conclusions: Many internal and external factors affect paramedics' recovery processes. While some receive adequate help, others struggle to get appropriate support, especially from their organization and supervisors. The findings of this study suggest that clear protocols should be established to help paramedics recover after encountering WPV and that an individual aspect should be kept in mind, as not everybody reacts in the same way.

**Kazlou A, Lerpold L, and Sjoberg O. Trade unions, refugees and immigrant labour: has the attitude changed? The stance of Swedish blue-collar trade unions as evidenced by sentiment analysis. *Industrial Relations Journal*. 2024; 55(3):222-239.**

<https://doi.org/10.1111/irj.12424> [open access]

Abstract: The attitude of trade unions towards migration and migrants, be it of asylum seekers or those in search of jobs and better incomes, differs substantially across European countries. No matter the original stance, a common current pattern is that of the willingness to accept migrants being eroded over time. To see whether this is the case also in a country that both proved welcoming to labour migrants and refugees during the opening decades of the new millennium, we set out to explore the attitudes of blue-collar trade unions in Sweden. Based on a diverse set of material issuing from the unions themselves, we use sentiment analysis to assess whether there are any changes to be discerned in the opinions of the representatives of 12 blue-collar trade unions and their national confederation. At its most general, the trend appears to turn more negative over time, yet the influence of defining events and legal changes is not so easily observed at the aggregate level. The union representing workers in the industry with the largest proportion of immigrant labour, the Hotel and Restaurant Workers' Union, is therefore selected for closer analysis. To the extent that changes can, or cannot, be observed, we relate those to major events and policy changes that have taken place over the 2010s.

**Lewkowski K, Heyworth JS, McCausland K, Williams W, and Fritschi L. Sources of noise exposure across Australian workplaces: cross-sectional analysis and modelling the impact of a targeted noise-source reduction initiative. *Annals of Work Exposures and Health*. 2024; [epub ahead of print].**

<https://doi.org/10.1093/annweh/wxae029>

Abstract: CONTEXT: Workplace noise regulations and guidance follow the hierarchy of control model that prioritizes eliminating or reducing noise at its source. OBJECTIVES: To determine the main sources of workplace noise exposure in the Australian working population and estimate the reduction of workers exposed over the noise limit ( $LA_{eq,8h} > 85$  dB) if noise levels of specific tools or equipment were reduced by 10 dB. METHODS: Information on the tools used and tasks performed during each participant's last working shift was collected from 4,977 workers via telephone survey. Using a predetermined database of task-based noise levels, partial noise exposures (Pa2h) were determined for each noisy activity performed by the workers and their daily noise exposure level ( $LA_{eq,8h}$ ) was estimated. Partial exposures were categorized into 15 tool/task groups and the tally, average, and sum (Pa2h) for each group were calculated. The impacts of 5 different scenarios that simulated a reduction of 10 dB in noise emissions for specific tool groups were modelled. RESULTS: Powered tools and equipment were responsible for 59.3% of all noise exposure (Pa2h); vehicles for 10.6%; mining, refineries, and plant equipment for 5.1%; and manufacturing and food processing for 4.2%. Modelling demonstrated that a 10 dBA noise-level reduction of all powered tools and equipment would lead to a 26.4% (95% confidence interval: 22.7% to 30.3%) reduction of workers with an  $LA_{eq,8h} > 85$  dB. This could represent over 350,000 Australian workers no longer exposed above the workplace limit daily. CONCLUSIONS: A universal reduction of 10 dB to power tools and equipment would substantially reduce the future burden of hearing loss, tinnitus, workplace injuries, and other health effects. Initiatives to reduce the noise emissions of specific powered tool groups are warranted

**Nunez-Cortes R, Espin A, Perez-Alenda S, Lopez-Bueno R, Cruz-Montecinos C, Vincents-Seeberg KG, et al. Association between pain coping and symptoms of anxiety and depression, and work absenteeism in people with upper limb musculoskeletal disorders: a systematic review and meta-analysis. Archives of Physical Medicine & Rehabilitation. 2024; 105(4):781-791.**

<https://doi.org/10.1016/j.apmr.2023.07.003> [open access]

**Abstract:** OBJECTIVE: To determine the prospective association of pain coping strategies and symptoms of anxiety and depression with work absenteeism in people with upper limb musculoskeletal disorders. DATA SOURCES: A systematic search of PubMed, Web of Science, Embase, Cochrane Library, and Scopus databases was conducted from inception to September 23, 2022. STUDY SELECTION: Prospective observational studies of adults with upper limb musculoskeletal disorders were included. Included studies had to provide data on the association of pain coping strategies (catastrophizing, kinesiophobia, self-efficacy or fear avoidance) or symptoms of anxiety and depression with work absenteeism. DATA EXTRACTION: Study selection, data extraction, and assessment of methodological quality (Newcastle Ottawa Scale) were performed by 2 independent authors. Random-effects models were used for quantitative synthesis. DATA SYNTHESIS: Eighteen studies (n=12,393 participants) were included. Most studies (77.8%) reported at least 1 significant association between 1 or more exposure factors (pain coping strategies or symptoms of anxiety and depression) and work absenteeism. Meta-analyses showed a statistically significant correlation between the exposure factors of catastrophizing ( $r=0.28$ , 95% confidence interval [CI]: 0.15 to 0.40;  $P<.0001$ ) and symptoms of anxiety and depression ( $r=0.23$ , 95% CI: 0.10 to 0.34;  $P=.0003$ ) with work absenteeism. The correlation between self-efficacy and work absenteeism was non-significant ( $r=0.24$ , 95% CI: -0.02 to 0.47;  $P=.0747$ ). CONCLUSIONS: Rehabilitation teams should consider assessing catastrophizing and symptoms of anxiety and depression to identify patients at risk for work absenteeism. Addressing these variables may also be considered in return-to-work programs for individuals with upper limb disorders

**Pettinger CB and Nelson B. Daily planning conversations and AI: keys for improving construction culture, engagement, planning, and safety. American Journal of Industrial Medicine. 2024; [epub ahead of print].**

<https://doi.org/10.1002/ajim.23619>

**Abstract:** The construction industry is known for its inherent risks, contributing to ~170,000 workplace injuries and illnesses annually in the United States. Engaging in prejob safety discussions presents a crucial chance to safeguard workers by proactively recognizing hazards and ensuring that crews are well-oriented with safety protocols before commencing work each day. However, research shows prejob meetings are often conducted hastily without the depth required to fully uncover risks. This study examines the characteristics that distinguish high-impact, high-quality prejob safety conversations from lower- quality counterparts. Strategies are provided for improving engagement, psychological safety, hazard analysis, accountability, and leadership support to transform safety talks into dynamic interactions that empower employees to operate safely. Additionally, this study reviews leading-edge artificial intelligence techniques, enabling construction firms to capture, analyze, and optimize their daily planning conversations at scale to drive safety excellence. Implementing the evidence-based strategies discussed allows organizations to realize the immense potential of prejob conversations for preventing injuries and fatalities



**Poli A, Heuer A, and Motel-Klingebiel A. Differential older workers' experience with technology-related changes during the COVID-19 pandemic. *Nordic Journal of Working Life Studies*. 2024; 14(S12):7-24.**

<https://doi.org/10.18291/njwls.145236> [open access]

Abstract: Many workers, including older ones, experienced changes at work during the COVID-19 pandemic, among which was a sudden increase in the use of digital technologies. This paper aims at understanding older workers' satisfaction with digital technology-related changes at work during the COVID-19 pandemic in the Nordics. Based on novel survey data collected in Sweden in 2020–2021, we analyzed the experience with digital technology-related changes at work and modeled the (dis)satisfaction with such changes among older workers (aged 50+). Our findings show that groups of older, less educated, reporting concurrent workload changes and digital technology-related difficulties had an increased likelihood of being dissatisfied with digital technology-related changes at work during the COVID-19 pandemic. The results have implications for the theoretical understanding of late working life and for the redefinition of working life policies and age management strategies in times of work digitalization of work.

**Rahmani H and Weckman GR. Working under the shadow of drones: investigating occupational safety hazards among commercial drone pilots. *IISE Transactions on Occupational Ergonomics and Human Factors*. 2024; 12(1-2):55-67.**

<https://doi.org/10.1080/24725838.2023.2251009>

Abstract: TECHNICAL ABSTRACT Background: Commercial drones are rapidly transforming business operations, however there is a paucity of research evaluating occupational hazards and risks associated with drone deployment in the workplace. Purpose: We aimed to identify challenges of human-drone collaborations and assess drone pilot perceptions of workplace safety. Methods: An online questionnaire was generated and sent to 308 drone pilots working in different industries. A total of 75 of responses were included for data analysis. Descriptive statistics, principal component analysis, and association rule mining were employed to extract knowledge from the obtained data. Results: Our results indicate that human factors are the main contributors to workplace drone mishaps. Poor communication, information display, and control modes were found to be chief obstacles to effective human-drone collaboration. Drone pilots indicated a propensity for complying with and participating in safety practices. Following safety procedures, receiving technical training, and flying outdoors may all be associated with a lower risk of drone mishaps. Conclusions: Offering professional training to pilots and following safety procedures could decrease the risks associated with occupational drones

**Selinheimo S, Gluschkoff K, Kausto J, Turunen J, Koskinen A, and Vaananen A. The association of sociodemographic characteristics with work disability trajectories during and following long-term psychotherapy: a longitudinal register study. *Social Psychiatry and Psychiatric Epidemiology*. 2024; 59(4):621-630.**

<https://doi.org/10.1007/s00127-023-02523-y> [open access]

Abstract: Purpose: This register-based study examined the trajectories of depression or anxiety disorder-related work disability during and following long-term psychotherapy and identified sociodemographic factors that indicate membership in different trajectory groups. Methods: Data were drawn from national registers (Statistics Finland, Social Insurance Institution of Finland).

Participants included a random sample of Finnish working-age individuals (18-55 years) who started psychotherapy treatment between 2011 and 2014 and were followed for 5 years: 1 year before and 4 years after the onset of psychotherapy (N = 3 605 individuals; 18 025 person-observations across five time points). Group-based trajectory modeling was applied to assign individuals to work disability trajectories by the number of annual mental health-related work disability months. Multinomial logistic regression was used to examine the associations between trajectory group membership and baseline sociodemographic factors of age, gender, occupational status, and geographical area of residence. Results: Four mental health-related work disability trajectories were identified: stable very low (72%), decrease (11%), persistent low (9%) and persistent high (7%). Those with older age, female gender, lower occupational status, and living in sparsely populated geographical areas were more likely to belong to the most unfavorable trajectory group of persistent high work disability. The presence of multiple risk characteristics substantially increased the probability of belonging to the most adverse trajectory group. Conclusions: Sociodemographic factors were associated with the course of mental health-related work disability in association with psychotherapy. Rehabilitative psychotherapy does not function as an equal support resource for work ability in all parts of the population.

**Da Silva B, Constant A, Briere M, and Schnebelen C. Commuting and acceptance of worksite physical activity opportunities: insights from a French university hospital. *Workplace Health & Safety*. 2024; 72(4):153-160.**

<https://doi.org/10.1177/21650799231217308>

**Abstract:** Background: Recent research suggests a need for worksite programs that promote structured physical activity (PA) among hospital staff. The objectives of this study were to assess the hospital employees' acceptance of PA opportunities that could be implemented at the worksite, and the association between worksite PA and commuting and other sociocognitive factors. Method: Acceptance of seven PA opportunities from the WHO guidelines was correlated with commuting and socio-cognitive factors through an online survey conducted among the workforce of the University Hospital of Angers, France (N = 6874) between April 25 and May 22, 2022. Results: Only three PA opportunities in the seven proposed reached high approval rates among at least 50% of the 1,427 participants, namely, provide cycle facilities onsite, create a fitness room onsite, and establish partnerships with private associations or sports clubs, albeit rates decreased significantly with commuting distance for the first and the last proposals. The number of approved PA opportunities was positively related to the perceived negative influence of commuting on well-being and self-rated concerns with current PA level. It was negatively related to older age, long commuting, and flexible rest days. Conclusion: Based on these results, we recommend raising PA awareness and self-efficacy before implementing an easily accessible fitness center for employees. Providing cycle facilities and a more walkable environment in the hospital setting while encouraging active traveling between home and work for short commuters could additionally increase the level of physical activity on an equitable and sustainable basis.



**Wadhwa S, Taouk Y, Spittal MJ, and King T. Workplace injury compensation and mental health and self-harm outcomes: a systematic review. *New Solutions*. 2024; [epub ahead of print].**

<https://doi.org/10.1177/10482911241254836> [open access]

Abstract: Workers' compensation systems aim to financially support injured workers. However, seeking compensation often leads to poorer physical and mental health outcomes. This review examines previous studies to investigate the relationship between workers' compensation and mental health and self-harm outcomes. A three-tiered search strategy across five databases identified studies that examined workers' compensation claims as an exposure or risk factor, with outcomes related to mental health, self-harm and suicidality. Nine full-text studies were included; however, heterogeneity limited generalizability. Most studies supported an association between pursuing compensation and poorer mental health and self-harm outcomes. Some studies attributed this to specific aspects of the system such as justice perception and navigation of the claims system. Findings suggest an association between workers' compensation and mental health or self-harm outcomes. Inconclusive findings highlight the need for further research. Understanding the psychiatric impacts of pursuing compensation is crucial to help formulate a more accessible compensation system

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