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

**Abareshi F, Rastaghi S, and Fallahi M. Nail job and women's health: assessment of ergonomics and occupational hazards. *Work*. 2022; 73(2):687-694.**

<https://doi.org/10.3233/WOR-210672>

**Abstract:** **BACKGROUND:** The nail job is a new occupation in which the number of people who choose this job is rising. Therefore, the harmful hazards affecting the health of the practitioners should be taken into account. **OBJECTIVE:** The purpose of this study is to evaluate the ergonomics and occupational health hazards among nail technicians in Iranian society. **METHODS:** The self-administered questionnaire, the Nordic Musculoskeletal Questionnaire and Novel Ergonomic Postural Assessment (NERPA) method were used to gather data from 80 female nail technicians who participated in this study. **RESULTS:** More than half of the participants (67.6%) complained of coughing and eye irritation (70%) which was the most frequently reported irritation. The final score of the NERPA was at a high-risk level and the neck pain (63.8%) was the highest in comparison with other parts of the body. There was a significant relationship between activity type with disorder in the neck, elbow, hip, knee, and ankle. Lighting intensity was not significantly associated with musculoskeletal disorders. **CONCLUSIONS:** Concerning the low work experience, the prevalence of musculoskeletal disorders and, respiratory complaints is high. Hence, the attention of policy-makers to the safety and hygiene issues of women in this occupation is necessary by setting guidelines and considering inspections of occupational health and safety professionals

**Bergman BP, Demou E, Lewsey J, and Macdonald E. A comparison of routine and case-managed pathways for recovery from musculoskeletal disorders in people in employment. *Disability and Rehabilitation*. 2022; 44(17):4648-4655.**

<https://doi.org/10.1080/09638288.2021.1912837>

**Abstract:** PURPOSE: To compare outcomes in employed people from an enhanced routine management pathway for musculoskeletal disorders within National Health Service Scotland with an existing active case-management system, Working Health Services Scotland. MATERIALS AND METHODS: The study comprised a service evaluation using anonymised routinely collected data from all currently employed callers presenting with musculoskeletal disorder to the two services. Baseline demographic and clinical data were collected. EuroQol EQ-5D(TM) scores at the start and end of treatment were compared for both groups, overall and by age, sex, socio-economic status, and anatomical site, and the impact of mental health status at baseline was evaluated. RESULTS: Active case-management resulted in greater improvement than enhanced routine care. Case-managed service users entered the programme earlier in the recovery pathway; there was evidence of spontaneous improvement during the longer waiting time of routine service clients but only if they had good baseline mental health. Those most disadvantaged through mental health co-morbidity showed the greatest benefit. CONCLUSIONS: People with musculoskeletal disorders who have poor baseline mental health status derive greatest benefit from active case-management. Case-management therefore contributes to reducing health inequalities and can help to minimise long-term sickness absence. Shorter waiting times contributed to better outcomes in the case-managed service. Implications for Rehabilitation Musculoskeletal disorders are a major cause of inability to work. Case-management is effective in helping people with musculoskeletal disorders to return to work. People who have the poorest mental health are likely to gain the greatest benefit from case-management of their musculoskeletal disorders

**Curcuruto M and Griffin MA. Upward safety communication in the workplace: how team leaders stimulate employees' voice through empowering and monitoring supervision. *Safety Science*. 2023; 157:105947.**

<https://doi.org/10.1016/j.ssci.2022.105947> [open access]

**Abstract:** The importance of employees' voice for workplace safety management is receiving growing attention. The present contribution focuses on three different categories of safety-specific voice behaviours and their links with complementary safety supervision styles: promotive voice (i.e. offering original suggestions to improve safety in work practices), preventive voice (i.e. raising personal concerns for potential risks), and proscriptive voice (i.e. speaking up against violations of safety standards). The first aim of the study is to provide evidence of the differential validity of the three categories of safety voice. Second, it intends to investigate how team leaders can stimulate these different kinds of employees' voice. A survey investigation was conducted in a multinational chemical industry (N = 192). The statistical results of the study unveil that only empowering supervision affected promotive

and preventive voices, whereas proscriptive voice was found to be affected by both empowering and monitoring supervision. Overall, the findings seem to indicate a substantial conceptual independence between the three categories of safety voice. At the same time, the study suggests that distinct supervision actions may affect these different expressions of employees' safety voice in different ways, underlining the importance of a differential approach to these constructs, not only for research advancement, but also for the design of appropriate organisational programs aimed at stimulating open safety communication in the workplace, and to develop a more articulated approach to safety supervision, in order to support employees' propensity to engage in appropriate safety voice actions, in accordance with their working situations.

**Danquah E and Asiamah N. Associations between physical work environment, workplace support for health, and presenteeism: a COVID-19 context. *International Archives of Occupational & Environmental Health*. 2022; 95(9):1807-1816.**

<https://doi.org/10.1007/s00420-022-01877-1> [open access]

Abstract: Objective: Presenteeism has, in a larger sense, been viewed as a negative behaviour, although a limited body of studies suggests and reports its positive implications in an organizational context. This study assessed the association between the physical work environment (PWE) and presenteeism as well as the moderating influence of workplace support for health (WSH) on this relationship. Methods: This study adopted the cross-sectional design alongside a sensitivity analysis and techniques against common methods bias. The study population was employees of private and public organizations in Accra, Ghana. A total of 590 employees participated in the study and hierarchical linear regression was used to present the results. Results: PWE had a positive relationship with presenteeism ( $\beta = 0.15$ ;  $t = 3.04$ ;  $p < 0.05$ ), which means that higher presenteeism was associated with larger PWE scores. WSH positively moderated the relationship between PWE and presenteeism ( $\beta = 0.23$ ;  $t = 4.84$ ;  $p < 0.001$ ). Conclusions: Organizations with more satisfactory work environments may serve as preferred protective places for employees during a pandemic, more so within organizations with higher WSH. Interventions rolled out to improve PWE and to provide WSH can attenuate the potential negative influences of presenteeism on individual health and organizational productivity.

**Gibson GE, Sanboskani H, El Asmar M, and Aramali V. Employing technology to enable remote research charrettes as a method for engaging industry and uncovering best practices: a novel approach for a post-COVID-19 world. *Journal of Construction Engineering and Management*. 2022; 148(11):04022122.**

[https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002375](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002375) [open access]

Abstract: Methods to collect data in construction engineering and management (CEM) research are evolving, informed by recent technological advancements. One such method is research charrettes that allow effective interactions and knowledge sharing between expert industry practitioners and academic researchers, all colocated in a single venue, enabling rich

data collection and live communication. A pivot point in technological evolution occurred with the COVID-19 pandemic, forcing a global shift to remote work. Hence, planned in-person research charrettes had to shift to remote sessions, relying on virtual conferencing platforms and online data collection mechanisms. Technology-enabled charrettes have allowed the authors to collect significantly richer data sets and ensure a more diverse representation of participants, while saving tremendous amounts of time. With the continuing emergence of technological applications, the world might not go back to functioning fully in person. The authors believe remote research charrettes (RRCs) will still be used in a post-COVID-19 world because of their superior performance. This paper builds on a previous publication that described traditional research charrettes as a method to enhance CEM research a decade ago; it offers a significantly updated and improved RRC method based on the knowledge gained from transitioning a dozen in-person charrettes into RRCs. It also presents performance comparisons between RRCs and traditional charrettes by quantifying metrics indicating how RRCs are more time-efficient and cost-saving, harness more participants from more diverse locations, and enable the collection of richer data sets and four times more industry comments and expert feedback. This paper also provides guidance on the integration of technology with traditional research charrettes, hence contributing to the CEM body of knowledge.

**Hopf NB, Sauvain JJ, Connell SL, Charriere N, Saverio Romolo F, and Suarez G. Measuring short-term exposures to H<sub>2</sub>O<sub>2</sub> among exposed workers; a feasibility study. *Annals of Work Exposures and Health*. 2022; [epub ahead of print].**

<https://doi.org/10.1093/annweh/wxac060>

**Abstract:** Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) is a strong oxidizing agent often used in hair coloring and as a component in disinfecting and bleaching processes. Exposures to H<sub>2</sub>O<sub>2</sub> generate reactive oxygen species (ROS) that can cause significant airway irritation and inflammation. Even though workers have reported symptoms associated with sensitivity and irritation from acute exposures below the H<sub>2</sub>O<sub>2</sub> occupational exposure levels (OELs), a lack of sensitive analytical methods for measuring airborne concentrations currently prevents evaluating low or peak H<sub>2</sub>O<sub>2</sub> exposures. To fill these gaps, we propose two different sensitive approaches: (i) luminol chemiluminescence (CL) to specifically measure H<sub>2</sub>O<sub>2</sub>; and (ii) photonic sensor method based on the ferrous-xylenol orange assay to evaluate total oxidative potential (OP), a measure of ROS in sampled air. We chose two exposure scenarios: hairdressers preparing and applying hair color to clients (both in simulated and field environments) and workers operating disinfecting cycles at a bottling company. Hair coloring took about 1 h for each client, and the application of the coloring product generated the highest H<sub>2</sub>O<sub>2</sub> concentrations. OP values were highly correlated with H<sub>2</sub>O<sub>2</sub> concentrations (CL measurement) and allowed peak measurements as low as 6 µg m<sup>-3</sup> of H<sub>2</sub>O<sub>2</sub> concentrations. The bottling company used a disinfectant containing H<sub>2</sub>O<sub>2</sub>, acetic acid and peracetic acid (PAA) in an enclosed process. The photonic sensor was immediately saturated. The CL results showed that the process operator had the highest exposures during a 15-min cycle. There is

still a need to develop these direct reading methods for operating in the field, but we believe that in the future an OEL for OP could protect workers from developing airway irritation and inflammation by reducing exposures to oxidizing chemicals.

**Hopwood P, MacEachen E, Neiterman E, Malachowski C, McKnight E, Crouch M, et al. A standpoint approach to return-to-work coordination: understanding union roles. *Journal of Occupational Rehabilitation*. 2022; 32(3):564-573.**

<https://doi.org/10.1007/s10926-022-10025-y>

**Abstract:** Purpose This study examined how the participation of union representatives impacted return-to-work (RTW) processes, and explored key activities undertaken by union representatives involved in return-to-work coordination. Methods Forty-seven RTW coordinators (RTWCs) participated in in-depth, semi-structured interviews in 2018 as part of a cross-Canadian study investigating their strategies for managing challenges in the RTW process. The study included RTWCs from a variety of organisation types, including unionized organizations. Audio-recordings were transcribed, coded, and analysed using constant case comparison and deviant case analysis leading to the development of findings themes. Results Our findings highlight the role of union representatives in RTW processes and how their activities are seen by other parties involved with work accommodation. First, we describe Union RTWC's administrative functions and the extent of their involvement in RTW accommodation negotiations. Second, we examine how Union and Non-union RTWCs framed the same RTW processes differently, according to their own accountabilities. Finally, we identify the positive ways that union participation figured into the RTW process, including playing a role in identifying viable modified work and serving as a trusted party to help reluctant workers engage with RTW plans. Conclusions We introduce a standpoint perspective to shed light on how Union and Non-union RTWCs approached accommodation issues and consider acknowledgement of power relations as a starting point for managing divergent interests

**Jaramillo NR, Trillos CE, and Julia M. The measure of precarious employment and its impact on the mental health of workers: a systematic review 2007-2020. *Work*. 2022; 73(2):639-650.**

<https://doi.org/10.3233/WOR-210064>

**Abstract:** Background: Precarious employment conditions can influence the worker's mental health; however, there is no consensus regarding the definition of precarious employment or the way it is measured. Objective: The objective is to identify existing research of the conceptual framework, the ways to measure precarious employment and its impact on the mental health of workers. Methods: A systematic review with the strategic search for observational-empirical and qualitative studies published between 2007 and 2020 in Embase, Scopus and PubMed, full text, in English and Spanish. Studies were selected and excluded, according to eligibility criteria. Two independent reviewers and one arbitrator evaluated the quality of selected papers with the STROBE guidelines for observational studies and SRQR for

qualitative ones. Results: 408 studies were obtained, 21 met inclusion criteria, in 14 studies precarious employment was measured one-dimensionally. Of these, 11 with the dimension of temporality and three with insecurity. Four studies it was measured in a multidimensional way, with the Employment Precariousness Scale (EPRES) and in three qualitative designs, with different categories of analysis. Mental health was measured with SF-36 (n = 4), GHQ-12 (n = 3) and CES-D (n = 3). Conclusions: The concept of precarious employment requires a multidimensional construct, although the tendency to measure precarious employment is one-dimensional. Regardless of how is measured, this has a negative impact on the mental health of workers. The outcomes related to this social determinant included depression, depressive symptoms, psychological distress, stress, and suicidal thoughts. Youths, women, people with low levels of education and immigrants are the groups that show the major precariousness.

**Lightfoot N, Maniowabi D, Arrandale V, Barnett N, Wabegijig-Nootchtai C, Odjig ML, et al. Workers' compensation experience in some Indigenous Northern Ontario communities. Work. 2022; 73(2):707-717.**

<https://doi.org/10.3233/WOR-210895>

Abstract: Background: There is a dearth of research about occupational health and safety experience in Indigenous communities and compensation applications from Indigenous workers appear limited. Objective: This qualitative descriptive study was designed to explore workers' compensation experiences in some Canadian Indigenous communities. Methods: A community-based participatory research approach was used to conduct focus groups (n = 25 participants) in three Northeastern Ontario (NEO) Indigenous communities and at one NEO Indigenous employment centre. Semi-structured focus group questions addressed community experience with workers' compensation, the compensation process, and discussion of a training session about the process. Reflexive thematic analysis followed Braun and Clarke procedures. Results: Discussion with study participants resulted in these themes: 1) both lack of knowledge, and knowledge, about compensation demonstrated, 2) impact of lack of compensation coverage and need for universal coverage on reserve, 3) need for community training sessions about workers' compensation, 4) workload and financial impact of workers' compensation on reserve, and 5) requirement for cultural competence training in the compensation board. Conclusions: This qualitative descriptive study revealed the: need for more information about applying for workers' compensation and navigating the process, need for universal workplace insurance coverage in Indigenous communities, demand for community-based compensation process training, community costs of compensation, and the requirement for cultural safety and competence training for compensation organization employees. More education about the workers' compensation process would be of benefit to leadership, health care providers, administrative personnel, employers, and employees on reserves. Nurses in community health centres are well situated to provide further guidance.



**Marjerrison N, Jakobsen J, Demers PA, Grimsrud TK, Hansen J, Martinsen JI, et al. Comparison of cancer incidence and mortality in the Norwegian Fire Departments cohort, 1960-2018. Occupational and Environmental Medicine. 2022; 79(11):736-743.**

<https://doi.org/10.1136/oemed-2022-108331> [open access]

**Abstract:** OBJECTIVES: Elevated risk of cancer at several sites has been reported among firefighters, although with mixed findings. The purpose of this study was to calculate standardised incidence ratios (SIRs) and standardised mortality ratios (SMRs) for cancer and compare them to assess whether use of the different measures could be a source of inconsistencies in findings. METHODS: The Norwegian Fire Departments Cohort, comprising 4295 male employees who worked at 15 fire departments across Norway, was linked to health outcome registries for the period 1960-2018. SIRs and SMRs were derived using national reference rates. RESULTS: Overall, we observed elevated incidence of colon cancer (SIR, 95% CI 1.27, 1.01 to 1.58), mesothelioma (2.59, 1.12 to 5.11), prostate cancer (1.18, 1.03 to 1.34) and all sites combined (1.15, 1.08 to 1.23). Smaller, non-significant elevations were found for mortality of colon cancer (SMR, 95% CI 1.20, 0.84 to 1.67) and mesothelioma (1.66, 0.34 to 4.86), while SMR for prostate cancer was at unity. Potential errors were observed in some of the mortality data, notably for mesothelioma cases. Among those who died of cancer, 3.7% (n=14) did not have a prior diagnosis of malignancy at the same site group. CONCLUSIONS: Assessment of incidence or mortality did not greatly influence the interpretation of results. The most prominent differences in SIR and SMR appeared to be due to inconsistencies between sites of cancer diagnosis and cause of death. The difference in SIR and SMR for prostate cancer suggested a detection bias from differential screening practices

**Perez-Rios M, Rey-Brandariz J, Galan I, Fernandez E, Montes A, Santiago-Perez MI, et al. Methodological guidelines for the estimation of attributable mortality using a prevalence-based method: the STREAMS-P tool. Journal of Clinical Epidemiology. 2022; 147:101-110.**

<https://doi.org/10.1016/j.jclinepi.2022.03.016> [open access]

**Abstract:** BACKGROUND: There is evidence of strong links between exposure to different risk factors and life-threatening diseases. Assessing the burden of a risk factor on the population's mortality due to a given disease provides a clear picture of these links. The estimation of attributable mortality to a risk factor is the most widely used procedure for doing this. Although different methods are available to estimate attributable mortality, the prevalence-based methodology is the most frequent. The main objective of this study is to develop guidelines and checklists to Strengthen the design and Reporting of Attributable Mortality Studies using a Prevalence-based method (STREAMS-P) and also to assess the quality of an already published study which uses this methodology. METHODS: The design of the guideline and checklists has been done in two phases. A development phase, where we set recommendations based on the review of the literature, and a validation phase, where we validated our recommendations against other published studies that have estimated attributable mortality using a prevalence-based method. RESULTS: We have developed and tested a guideline that includes the information required to perform a prevalence-based

attributable mortality study to a given risk factor; a checklist of aspects that should be present when a report or a paper on attributable mortality is written or interpreted and a checklist of quality control criteria for reports or papers estimating attributable mortality. CONCLUSION: To our knowledge, the STREAMS-P is the first set of criteria specifically created to assess the quality of such studies and it could be valuable for authors and readers interested in performing attributable mortality studies or interpreting their reliability

**Riddervold B, Andersen JH, and Dalboge A. Occupational lifting, carrying, pushing, pulling loads and risk of surgery for subacromial impingement syndrome: a register-based cohort study. Occupational and Environmental Medicine. 2022; 79(9):618-623.**

<https://doi.org/10.1136/oemed-2021-108166> [open access]

Abstract: Aim: The aim was to examine exposure-response relations between surgery for subacromial impingement syndrome (SIS) and intensities of lifting/carrying and pushing/pulling loads during a 10-year time window. Methods: We conducted a register-based cohort study (2003-2008), comprising persons born in Denmark (1933-1977) with ≥5 years of work experience (N=2 374 403). Information on surgery for SIS was retrieved from the Danish National Patient Register (N=14 188). Occupational mechanical exposures comprising lifting/carrying loads ≥10 kg and pushing/pulling loads ≥50 kg were assessed by combining individual register-based job codes with our expert-based Shoulder job exposure matrix. We created three intensity-specific exposure duration variables by dividing the intensity for lifting/carrying and pushing/pulling loads into three categories (low, medium and high), and summed up number of years in each exposure category for a 10-year time window. The associations were analysed using logistic regression technique equivalent to discrete survival analysis. Results: The adjusted OR (OR<sub>adj</sub>) increased with both exposure duration and intensity of lifting/carrying and pushing/pulling. For lifting/carrying, the OR<sub>adj</sub> reached a maximum of 1.78 (95% CI 1.66 to 1.89), 2.52 (95% CI 2.32 to 2.74) and 2.96 (95% CI 2.53 to 3.47) after 10 years of exposures for the three exposure intensities. For pushing/pulling, maximum OR<sub>adj</sub> was 1.44 (95% CI 1.31 to 1.58), 1.68 (95% CI 1.58 to 1.79) and 1.72 (95% CI 1.50 to 2.00), respectively. Conclusion: We found exposure-response relations for lifting/carrying and pushing/pulling across the 10-year time window. The risk was especially pronounced for lifting/carrying compared with pushing/pulling. We did not find indications of safe exposure intensities.

**Taubner H, Tideman M, and Staland Nyman C. Employment sustainability for people with intellectual disability: a systematic review. Journal of Occupational Rehabilitation. 2022; 32(3):353-364.**

<https://doi.org/10.1007/s10926-021-10020-9> [open access]

Abstract: Purpose Previous reviews about employment for people with intellectual disability (ID) have left questions about employment sustainability unanswered. Therefore, the aim of this systematic review was to identify and analyse research regarding employment sustainability for people with ID. The research questions were: What research about



employment sustainability for people with ID has been published internationally between 2010 and 2020? In the identified studies, how is employment sustainability defined and measured and what are the main findings regarding employment sustainability? Methods A systematic review was conducted using eight databases from various disciplines including medical, health, and social sciences. After a selection process, 10 articles remained, and a framework matrix was created to analyse them. An employment sustainability definition was used as an analytical tool. Results Ten articles were identified as being about employment sustainability for people with ID. Five of them used qualitative designs and five used quantitative designs. Only four out of ten contained a definition of employment sustainability, and there was an inconsistency in measurement methods. The reported findings in the studied articles were categorised into three types: proportions of long-term employed individuals within the studied population, facilitators and barriers to long-term employment. Conclusions There is only a limited amount of research about employment sustainability for people with ID. Nevertheless, a few facilitators and barriers could be identified. There is no consensus about how to define or measure employment sustainability, making comparisons difficult

**Walker-Bone K, D'Angelo S, Linaker CH, Stevens MJ, Ntani G, Cooper C, et al. Morbidities among older workers and work exit: the HEAF cohort. Occupational Medicine. 2022; 72(7):470-477.**

<https://doi.org/10.1093/occmed/kqac068>

Abstract: BACKGROUND: Governments need people to work to older ages, but the prevalence of chronic disease and comorbidity increases with age and impacts work ability. AIMS: To investigate the effects of objective health diagnoses on exit from paid work amongst older workers. METHODS: Health and Employment After Fifty (HEAF) is a population cohort of adults aged 50-64 years recruited from English GP practices which contribute to the Clinical Practice Research Datalink (CPRD). Participants have completed questionnaires about health and work at baseline and annually for 2 years: their responses were linked with their objective health diagnoses from the CPRD and data analysed using Cox regression. RESULTS: Of 4888 HEAF participants ever in paid work, 580 (25%) men and 642 (25%) women exited employment, 277 of them mainly or partly for a health reason (health-related job loss (HRJL)). Amongst HEAF participants who remained in work (n = 3666) or who exited work but not for health reasons (n = 945), there was a similar prevalence of background health conditions. In men and women, HRJL was associated with inflammatory arthritis, sleep disorders, common mental health conditions and musculoskeletal pain. There were however gender differences: widespread pain and lower limb osteoarthritis were associated with HRJL in women but hypertension and cardiovascular disease in men. CONCLUSIONS: Improved diagnosis and management of common conditions might be expected to increase working lives. Workplace well-being interventions targeting obesity and increasing mobility might

contribute to extended working lives. Employers of predominantly female, as compared with male workforces may need different strategies to retain older workers

**Wickert K, Romeo JM, Rumrill P, Sheppard-Jones K, and McCurry S. Return to work considerations in the lingering COVID-19 era: long COVID, multiple chemical sensitivity, and universal design. *Work*. 2022; 73(2):355-360.**

<https://doi.org/10.3233/WOR-223641>

Abstract: This article discusses how COVID-19 has impacted the American workforce, symptoms of Long COVID syndrome, Multiple Chemical Sensitivity, and ways to avoid triggering its symptoms when sanitizing the workplace and using Universal Design practices to increase accessibility and decrease transmission of COVID-19 among workers. Interface with healthcare providers, rehabilitation professionals, and employers is emphasized

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