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

***Biswas A and Prince SA. Does remote work promote exercise and cardiovascular health? Current evidence and future directions. [Editorial]. Canadian Journal of Cardiology. 2024; [epub ahead of print].**

<https://doi.org/10.1016/j.cjca.2024.09.029>

***O'Reilly H and Van Eerd D. Including the ergonomist's voice in integrating MSD prevention and psychological health and safety: challenges, tools, and considerations. Applied Ergonomics. 2025; 122:104405.**

<https://doi.org/10.1016/j.apergo.2024.104405> [open access]

Abstract: The purpose of this study was to gather ergonomists' perspectives and experiences, describing current challenges and contextual considerations in risk assessment, exploring how ergonomists are currently integrating the multiple domains of ergonomics for MSD and/or psychological health and safety and highlighting key considerations in the design and format of future tools. In-depth, semi-structured interviews were conducted with twenty Canadian ergonomists to explore risk assessment tool use, favoured characteristics and format of tools, commonly addressed risk factors in their practice, and tools relating to both MSD prevention and psychological health and safety. The range of practitioner years of experience highlighted differing needs and approaches to the use and formatting of risk assessment tools. Practitioners reported using quantitative outcomes (levels of risk, values) from traditional physical tools complemented by a general observation of psychosocial or organizational factors. Though many respondents had not yet encountered the need for psychological injury assessment in their sectors it was identified as a quickly emerging area citing a need for valid and reliable tools. Practitioners noted a lack of available tools that integrated cognitive and psychosocial items presenting a future challenge for integrated tools that covered multiple

ergonomic domains. Along with recommendations for future tool development, the authors reflect on the process of qualitative inquiry as an essential step in the risk assessment process. Future studies will be needed to develop and evaluate measurement properties of integrating psychosocial factors and their respective tools in traditional MSD assessment.

Amin-Esmaeili M, Susukida R, Byregowda H, Zhou ZE, Mitchell CS, and Johnson RM. Maryland opioid overdose deaths from 2018 to 2022: occupational patterns and their sociodemographic variations. Occupational and Environmental Medicine. 2024; 81(9):462-470.

<https://doi.org/10.1136/oemed-2024-109536>

Abstract: Introduction: We aimed to describe the occupational pattern of opioid overdose deaths in Maryland between 2018 and 2022 and determine the occupations at higher risk of opioid overdose death. Methods: The sample included undetermined or unintentional opioid overdose deaths among those aged 16 years or older in Maryland, drawn from the State Unintentional Drug Overdose Reporting System. We calculated population-based incidence overdose rates by occupation, stratified by sex and race. We further calculated the incidence rate ratios (IRRs) comparing each occupation with all other groups combined and estimated the IRRs among males versus females and non-Hispanic whites versus other racial/ethnic groups. Results: The pooled sample included 11 455 opioid overdose decedents (72% male and 55% non-Hispanic whites) of whom 80% were employed. The three occupation groups with the highest incidence rates were 'construction and extraction', 'transportation and material moving' and 'installation/maintenance and repair' with 291, 137 and 133 deaths per 100 000 workers in these respective occupational groups. Incidence rates were significantly higher in males than females in all categories except those 'Not in Labour Force' (IRR=0.51, $p<0.001$). Non-Hispanic whites relative to other racial/ethnic groups had a lower incidence of opioid overdose death in 'Military-Specific' occupations (IRR=0.53, $p=0.031$). Conclusion: Opioid overdose deaths vary by type of occupation and certain occupations are at higher risk of overdose death. The findings highlight the need for priority setting in the implementation and expansion of existing strategies to target the workers most impacted by opioid overdose.

Chung J, Yoon JE, Park S, Won H, Ha S, and Koo SH. Design development and evaluation of arm movement-assistive suits for lifting and movement for industrial workers considering wearability. International Journal of Industrial Ergonomics. 2024; 103:103616.

<https://doi.org/10.1016/j.ergon.2024.103616>

Gerlach M, Blozik E, Meichtry A, Hagerbaumer M, Kilcher G, and Golz C. Factors of presenteeism and its association with detrimental effects among employees in Switzerland working in different sectors: a cross-sectional study using a multi-item instrument. International Archives of Occupational & Environmental Health. 2024; 97(7):767-778.

<https://doi.org/10.1007/s00420-024-02083-x>

Abstract: Purpose: Presenteeism, the phenomenon of employees working despite illness, is a significant issue globally, impacting individual well-being and organizational efficiency. This study examines presenteeism among Swiss employees, exploring its occurrence, primary factors, reasons, and impact on employees' health. Methods: This study used cross-sectional data from 1,521 employees in different sectors in Switzerland. Descriptive statistics and multiple linear models for influencing factors and detrimental effects, such as burnout symptoms, job satisfaction, general health, and quality of life, were calculated for data analysis. Presenteeism was measured using the

Hägerbäumer multi-item scale, ranging from 1 = "Never in case of illness" - 5 = "Very often in case of illness." Results: The employees reported that in case of illness, they rarely worked in the last 12 months $M = 2.04$ ($SD = 1.00$). A positive approach to presenteeism in the team was associated with less presenteeism ($\beta = -0.07$) and problematic leadership culture in dealing with presenteeism with increased presenteeism ($\beta = 0.10$). In addition to well-known factors, presenteeism was significant for burnout symptoms ($\beta = 1.49$), general health status ($\beta = -1.5$), and quality of life ($\beta = -0.01$). Conclusion: The study offers insights into the phenomenon of presenteeism among Swiss employees in various sectors by applying a multi-item scale for presenteeism. The findings indicate that a positive team dynamic and organizational culture may significantly reduce presenteeism. Presenteeism behavior is a significant factor of adverse outcomes. This highlights the importance of acknowledging presenteeism in the context of occupational health.

Heezen T and van Berkel J. How do occupational physicians address employees' financial problems? An exploratory interview study into current practice and potential improvements. *Journal of Occupational & Environmental Medicine*. 2024; 66(10):785-792.

<https://doi.org/10.1097/JOM.0000000000003165> [open access]

Abstract: Objective Problematic debt poses a considerable challenge in the Netherlands, impacting health and work-related outcomes. Occupational physicians play a vital role in guiding absent employees and identifying work-related risk factors for illness. This study investigates how occupational physicians address financial issues among employees and proposes improvements. Methods Semistructured interviews were conducted with a diverse group of 12 occupational physicians and residents. Results Thematic content analysis revealed that while physicians do not routinely inquire about financial problems, they approach socioeconomic concerns cautiously and consider multiple (structural and individual) risk factors. Current interventions include budget coaching and lifestyle enhancements. Conclusions Despite awareness, current interventions focus on immediate advice targeting downstream factors (ie, social determinants at the individual level), thereby overlooking structural, upstream factors (ie, social determinants on a societal and systemic level) of employees' financial problems. Exploring systems approaches, targeting both individual and structural factors, and more attention for this subject in occupational physicians education, are considered crucial for future effective approaches.

Hubner FCL, Telles RW, Giatti L, Machado LAC, Griep RH, Viana MC, et al. Job stress and chronic low back pain: incidence, number of episodes, and severity in a 4-year follow-up of the ELSA-Brasil Musculoskeletal cohort. *Pain*. 2024; 165(11):2554-2562.

<https://doi.org/10.1097/j.pain.0000000000003276> [open access]

Abstract: We investigated the association between job stress, as assessed by the effort-reward imbalance model, and the incidence of chronic low back pain (CLBP) over a 4-year period. A total of 1733 participants from the ELSA-Brasil Musculoskeletal cohort, who were free from LBP at baseline (2012-2014), were included. Episodes of LBP in the past 30 days, intensity, and the presence of disability were investigated in annual telephone follow-ups (2015-2018). Chronic LBP was defined as episodes of LBP lasting >3 months with at least moderate intensity. We analyzed the incidence of at least one episode of CLBP (yes/no), the number of CLBP episodes (0, 1, ≥ 2), and CLBP severity/disability (absent, nondisabling, severe/disabling). The association between these outcomes and tertiles of the effort-to-reward ratio, as well as each dimension of the effort-reward imbalance

model, was investigated using multinomial logistic and Poisson regression models adjusting for sociodemographic and occupational variables. The cumulative incidence of CLBP over 4 years was 24.8%. High effort-reward imbalance increased the chances of experiencing multiple CLBP episodes and severe/disabling CLBP by 67% (95% confidence interval [CI]: 1.12-2.47) and 70% (95% CI: 1.14-2.53), respectively. High overcommitment increased the incidence of CLBP by 23% (95% CI: 1.01-1.50) and the chances of multiple CLBP episodes and severe/disabling CLBP by 67% (95% CI: 1.11-2.50) and 57% (95% CI: 1.05-2.34), respectively. These results indicate that exposure to job stress is associated with a higher incidence, a greater number of episodes, and increased severity of CLBP over a 4-year period. If this association is causal, measures aimed at reducing exposure to job stress are likely to alleviate the burden of CLBP

Inoue S, Kajiki S, Shimoda H, Fujita A, and Mori K. Sampling targets to assess occupational health in occupational health and safety management system audits: a mixed-methods research in Japan. *Journal of Occupational Health*. 2024; 66(1):uia050.

<https://doi.org/10.1093/jocuh/uiae050> [open access]

Abstract: Background: Occupational health and safety management systems (OHSMS) are the foundation of occupational health and safety activities within an organization. An important element of these systems is audits. However, OHSMS auditors often lack confidence in conducting occupational health audits compared with their proficiency in conducting occupational safety audits. For occupational health to be effectively managed by OHSMS, the sampling competence of auditors engaged in third-party audits should be improved. Therefore, we conducted this study to identify appropriate sampling targets for occupational health related to International Organization for Standardization (ISO) 45001. Methods: We adopted a mixed methods approach to identify appropriate sampling targets. This involved conducting focus group discussions with experts in occupational health and performing systematic text condensation analysis. The validity of our findings was further reinforced through confirmation by external auditors who specialize in ISO 45001. Results: In the qualitative phase, 6 occupational health sampling targets were identified, and of these, 5 were subsequently validated in the quantitative phase: (1) Health issues, legal requirements, and occupational health goals identified by the organization; (2) Occupational health risk assessment and control processes; (3) Processes related to occupational health and documented information showing the results of efforts; (4) Organizational roles and functions of occupational health professionals and opportunities for their professional development; and (5) Processes to ensure commitment to occupational health issues and objectives. Conclusion: To ensure effective and comprehensive occupational health audits, auditors should review these targets. This study will enhance the competence of auditors by identifying appropriate occupational health sampling targets.

Keller E, Guardiano M, and Li J. Discrimination in the workplace linked to psychological distress: a longitudinal study in the United States. *Journal of Occupational & Environmental Medicine*. 2024; 66(10):803-809.

<https://doi.org/10.1097/JOM.0000000000003175>

Abstract: Objective This study aimed to explore the relationship between workplace discrimination and psychological distress across 9 years using data from the Midlife in the United States study. Methods Workplace discrimination was measured with a validated six-item scale at baseline with three categories (low, intermediate, and high), and psychological distress was measured with the

Kessler 6 scale at baseline and follow-up. In total, 1,546 workers were analyzed by linear regression. Results High levels of workplace discrimination were significantly associated with increased psychological distress at follow-up (crude $\beta = 0.633$; 95% CI, 0.307–0.959). After adjusting for demographic factors, socioeconomic status, and health-related behaviors, associations were slightly attenuated (fully adjusted $\beta = 0.447$; 95% CI, 0.115–0.780). Conclusions High workplace discrimination was longitudinally associated with higher levels of psychological distress. Organizations should actively prevent discrimination, which may improve workers' mental health consequently.

Lee WJ, Jeong J, Bang YJ, and Kim YM. Healthy worker hire and survivor effects in a cohort of medical radiation workers. *International Journal of Epidemiology*. 2024; 53(5):dyae130.

<https://doi.org/10.1093/ije/dyae130> [open access]

Abstract: Background: The healthy worker effect may distort the association between exposure and health effects in workers. However, few studies have investigated both the healthy worker hire and survival effects simultaneously, and they are limited to mortality studies in male workers. Methods: We utilized a data set comprising South Korean diagnostic medical radiation workers registered in the National Dose Registry between 1996 and 2011, and merged it with mortality and cancer incidence data. Standardized mortality ratios (SMRs) and standardized incidence ratios (SIRs) were computed for comparison with the general population. To account for time-varying confounders influenced by prior occupational radiation exposure, we applied g-estimation using structural nested accelerated failure time models and compared the outcomes with those from Weibull regression. Results: A total of 1831 deaths and 3759 first primary cancer cases were identified among 93 918 workers. Both male (SMR = 0.44; 95% CI: 0.42, 0.46) and female workers (SMR = 0.53; 95% CI: 0.46, 0.60) showed lower mortality rates compared with national rates. In the SIR analysis, male workers exhibited reduced risks of solid cancer whereas female workers had increased risks. The g-estimation-derived hazard ratios (HRs) from radiation exposure exceeded those from Weibull regression estimates for all-cause death (HR = 2.55; 95% CI: 1.97, 3.23) and all-cancer incidence (HR = 1.96; 95% CI: 1.52, 2.55) in male workers whereas female workers showed the opposite results. Conclusions: Comprehensive consideration of the healthy worker effect by sex is essential for estimating the unbiased impact of occupational exposure on health outcomes, notably in studies focusing on male mortality.

Mohamed N, He C, Rahman N, Faherty C, Chan C, DePierro JM, et al. Coping mechanisms and their associations with depression and anxiety among healthcare workers in the aftermath of COVID-19 pandemic. *Journal of Occupational & Environmental Medicine*. 2024; 66(10):857-862.

<https://doi.org/10.1097/JOM.0000000000003196>

Abstract: OBJECTIVE: This study investigated the associations between anxiety, depression, and coping in healthcare workers (HCWs) during COVID-19. METHODS: A survey used the Generalized Anxiety Disorder-2 to assess anxiety, the Patient Health Questionnaire-2 to assess depression, and the Brief COPE scale to evaluate coping mechanisms. RESULTS: Of the 1,172 participants who provided data, 24.7% screened positive for anxiety and 15.7% for depression. Logistic regression indicated that avoidance coping (OR = 3.92 (95% CI: 2.91-5.29), $p < .001$) and substance use coping (OR = 1.39 (95% CI: 1.00-1.90), $p = .049$) were associated with higher odds of depression. Avoidance coping (OR = 2.81 (95% CI: 2.15-3.67), $p < .001$), and social support coping (OR = 1.59 (95% CI: 1.22-2.08), $p = .001$) were associated with higher odds of anxiety. CONCLUSIONS: Interventions are needed to improve HCWs' coping and wellbeing

Rodriguez A, Chavez L, Wagner T, and Howe C. Effectiveness of trained community lay workers on glycemic control, knowledge, and self-efficacy among agricultural workers with diabetes in the Texas Panhandle. *Journal of Immigrant & Minority Health*. 2024; 26(5):841-849.

<https://doi.org/10.1007/s10903-024-01603-8> [open access]

Abstract: Systemic health barriers, economic challenges, and lack of follow-up care exacerbate self-management of chronic diseases like diabetes among Hispanic agricultural workers. The primary objective of this pilot project was to determine the benefit of using community coaches to decrease A1C levels and increase diabetes knowledge among agricultural workers with diagnosed diabetes in the Texas Panhandle. A longitudinal study design with two phases was used to create, deliver, and evaluate a diabetes coaching program. Phase 1 was the development of the program and community coaches training (n = 4). In Phase 2, the coaches then delivered the program over 12 weeks to thirteen clients. Phase 1: All coaches were Hispanic females, 28.3 (SD 3.8) years of age, half had at most a high school education level and the other half had a vocational certification (n = 4). Mean DKQ-24 score was 54.2% (SD = 29.7) at baseline and 75.0% (SD = 31.4) after training (t (4) = 4.6, P < 0.05). We observed a very large difference between mean baseline and exit DKQ-24 scores relative to the pooled standard deviation, resulting in an effect size estimate of 0.59 indicative of a medium to large learning effect. Phase 2: Clients were Hispanic Spanish-speaking, predominantly female (55%), 44.4 (SD 6.8) years of age with at most a high school level of education (88.9%) and occupations varied from dairy farm worker (33.3%), meat processing worker (33.3%), and other agriculture or manufacturing position (33.3%). The mean SKILLD score was 40.0% (SD = 28.7) at baseline, increasing to 72.2% (SD = 25.4) at 12 weeks upon completion of the coaching program (t (9) = 2.956, P < 0.05). We observed a very large difference between mean baseline and exit SKILLD scores relative to the pooled standard deviation, resulting in an effect size estimate of 1.13 indicative of a large learning effect. The mean A1C levels at baseline screening was 8.3% (SD = 3.0) and 7.6% (SD = 3.0) at exit screening, representing a 0.7% decrease (p = 0.4730). No statistically significant differences were observed between depression (p = 0.786) or anxiety (p = 1.000) measures at baseline compared to exit. Training and coaching programs for hard-to-reach agricultural and meat processing workers must be culturally, linguistically, and literacy appropriate for both coaches and clients. The program must be feasible and sustainable, focus on empowering community members, capitalize on technological advances and persisting new-normals from the COVID-19 pandemic as well as dismantle common systemic barriers to health and understanding lived-experiences of agricultural working populations in rural regions.

Sanders NE, Sener E, and Chen KB. Robot-related injuries in the workplace: an analysis of OSHA Severe Injury Reports. *Applied Ergonomics*. 2024; 121:104324.

<https://doi.org/10.1016/j.apergo.2024.104324>

Abstract: Industrial robots are increasingly commonplace, but research on prototypical accidents and injuries has been sparse, hindering evidence-based safety strategies. Using Severe Injury Reports (SIRs) from the U.S. Occupational Safety and Health Administration (OSHA), we identified 77 robot-related accidents from 2015-2022. Of these, 54 involved stationary robots, resulting in 66 injuries, mainly finger amputations and fractures to the head and torso. Mobile robots caused 23 accidents, leading to 27 injuries, mainly fractures to the legs and feet. A two-stage deductive-inductive thematic analysis was performed using text data from the final narratives in the reports to discover patterns in tasks, precipitating mechanisms, and contributing factors. Findings highlight the need for guards and

collision avoidance systems that detect individual extremities. Post-contact strategies should focus on mitigating finger amputations. More structured and detailed narratives in the SIRs are needed

Utzet M, Llorens-Serrano C, Ayala-Garcia A, Esteve-Matali L, Navarro-Gine A, and Bacigalupe A. Women working as cleaners in Spain: working conditions and use of psychotropic drugs. Occupational and Environmental Medicine. 2024; 81(9):433-438.

<https://doi.org/10.1136/oemed-2024-109456>

Abstract: Goals: To describe the exposure to psychosocial risks at work and the consumption of psychotropic drugs and opioids among women working as cleaners; and to analyse the association between their exposure to psychosocial risks and drug use. Methods: Observational cross-sectional study based on an online survey (collected during April and May 2021) from the wage-earning population in Spain. In this study, only women working in manual occupations were included (n=3430). Working conditions and drug consumption of cleaning workers were compared with those of other manual workers through bivariate analysis. The adjusted prevalence ratios and the corresponding 95% CIs were estimated using Poisson regression models with robust variance. Results: Cleaning workers were older and had more problems making ends meet than other manual workers and were significantly more exposed to low possibilities for development (85.2 (95% CI 81.8 to 88.0)), high strain (51.9 (95% CI 47.3 to 55.9)) and low social support from colleagues (72.0 (95% CI 68.1 to 75.7)) and supervisors (61.7 (95% CI 57.3 to 65.6)). They also scored higher prevalence rates for the use of tranquillisers (37.7 (95% CI 32.0 to 43.3)) and opioids (33.3 (95% CI 27.9 to 38.6)) consumption indicators. This consumption was associated significantly with high strain exposure and high insecurity over working conditions. Discussion: Under the umbrella of the 2012 labour reform, cleaning companies shift the pressure and burden they have on ordinary cleaning staff in the form of low wages and precarious working conditions. Our results imply that addressing adverse working conditions, mainly high strain and insecurity over working conditions, may significantly contribute to reducing the gender and social inequalities among cleaning workers.

Zwettler C, Straub C, and Spurk D. Kicking off a gig work career: unfolding a career learning cycle of gig workers. Journal of Career Assessment. 2024; 32(4):650-677.

<https://doi.org/10.1177/10690727231212188> [open access]

Abstract: We observe gig workers' retrospective sense-making of their career development, from creating an account on online labor platforms to managing gigs successfully. Our data reveals that gig workers advance through three career stages in their initial career learning cycle. We identify each stage as characterized by stage-specific emotions and that they react with specific behaviors to gig work challenges. Gig work challenges that occur in the platform environment are namely the newbie challenge, the positioning and relational challenge, and the balancing challenge, which workers need to overcome in order to transition to the next stage. In line with contemporary career and protean career theory on career learning cycles, gig workers need to build a set of specialized skills and meta-competencies to successfully navigate their careers. As an outcome of the here-described career learning cycle, gig workers develop an entrepreneurial identity aspiration, as they are empowered and can use the platform as a playground or stepping stone for entrepreneurial activities. Our paper, thus, develops an understanding of gig workers' initial career learning cycle by examining the factors that enable gig workers to kick off a career and allow them to thrive and advance on the platforms professionally

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