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

**\*Weis CA, Padkapayeva K, Smith P, Barrett J, and Landsman V. Relationship between location of pregnancy-related and postpartum-related back pain and limitations of daily activities and work participation. *Journal of Manipulative and Physiological Therapeutics*. 2024; [epub ahead of print]. <https://doi.org/10.1016/j.jmpt.2024.02.001>**

**Biermann-Teuscher D, Thissen L, Horstman K, and Meershoek A. Safety: a collective and embedded competency. An ethnographic study of safety practices at an industrial workplace in the Netherlands. *Journal of Safety Research*. 2024; 88:93-102. <https://doi.org/10.1016/j.jsr.2023.10.012>**

Abstract: INTRODUCTION: Organizations place strong emphasis on the standardized occupational health and safety procedures to reduce work-related illnesses and workplace accidents. However, standardized procedures are not always followed up in daily work practices. Organizations must cope with the differences between standardized procedures and local adaptation by employees. METHODS: This ethnographic field study at an industrial workplace in the Netherlands provides insights into employees' everyday work practices, how these work practices are shaped, and how they relate to local occupational health and safety procedures. Acknowledging safety as a competency embedded in work practices, as introduced by Gherardi and Nicolini (2002), offers a theoretical point of view for looking beyond the dichotomy of standardization and local adaptations. RESULTS: The results show that a standardized and noncontextualized occupational health and safety management system that focuses on accident-free days and compliance actually leads to ignorance of practical and tacit competences of workers and no learning and improvement of safety procedures can take place. However, our findings also illustrate how employees in their informal everyday work practices reduce the risks produced by the safety system itself. CONCLUSION: Overall, the results indicate that social

interactions among employees, leaders, and management within the organization play an important role in workplace safety. The analysis highlights the value of vulnerability and trust in relationships at work to be able to learn and develop safety procedures that align with local demands. **PRACTICAL APPLICATIONS:** This study emphasizes the need for participatory approaches in creating safer and healthier workplaces. The cocreation of occupational health and safety (OHS) rules and procedures, however, can only function if they are combined with a responsive leadership style

**Bryan BT, Andrews G, Thompson KN, Qualter P, Matthews T, and Arseneault L. Loneliness in the workplace: a mixed-method systematic review and meta-analysis. *Occupational Medicine*. 2023; 73(9):557-567.**

<https://doi.org/10.1093/occmed/kqad138> [open access]

**Abstract:** Background: Loneliness is a risk factor for a range of mental and physical health problems and has gained increasing interest from policy-makers and researchers in recent years. However, little attention has been paid to loneliness at work and its implications for workers and employers. Aims: Identify workplace, health and personal factors associated with workplace loneliness. Methods: We searched five databases (PubMed, MEDLINE, EMBASE, PsycINFO and EBSCO Business Source Complete) for relevant articles published from 1 January 2000 to 23 February 2023. Quantitative data were synthesized using narrative synthesis and random-effects meta-analysis of correlation coefficients. Qualitative data were synthesized using thematic synthesis. Evidence quality was appraised using the Mixed-Methods Appraisal Tool. Results: We identified 49 articles meeting the inclusion criteria. Pooled results indicate that workplace loneliness was associated with lower job performance ( $r = -0.35$ , 95% CI  $-0.49, -0.21$ ), reduced job satisfaction ( $r = -0.34$ , 95% CI  $-0.44, -0.24$ ), worse worker-manager relationship ( $r = -0.31$ , 95% CI  $-0.38, -0.24$ ) and elevated burnout ( $r = 0.39$ , 95% CI  $0.25, 0.51$ ). Qualitative results suggest links between loneliness and inadequate workplace social interactions and mental health problems. As most studies used cross-sectional data and few adjusted for potential confounders, the direction and robustness of the associations remain untested. Conclusions: Our results indicate that loneliness is associated with poor occupational functioning and well-being among workers. Results also show that loneliness is associated with modifiable aspects of the work environment, suggesting that the workplace may offer a fruitful avenue for interventions targeting loneliness.

**Deshayes TA, Hsouna H, Braham MAA, Arvisais D, Pageaux B, Ouellet C, et al. Work-rest regimens for work in hot environments: a scoping review. *American Journal of Industrial Medicine*. 2024; 67(4):304-320.**

<https://doi.org/10.1002/ajim.23569>

**Abstract:** Background: To limit exposures to occupational heat stress, leading occupational health and safety organizations recommend work-rest regimens to prevent core temperature from exceeding 38°C or increasing by =1°C. This scoping review aims to map existing knowledge of the effects of work-rest regimens in hot environments and to propose recommendations for future research based on identified gaps. Methods: We performed a search of 10 databases to retrieve studies focused on work-rest regimens under hot conditions. Results: Forty-nine articles were included, of which 35 were experimental studies. Most studies were conducted in laboratory settings, in North America (71%), on healthy young adults, with 94% of the 642 participants being males. Most studies (66%) employed a protocol duration =240 min ( $222 \pm 162$  min, range: 37-660) and the time-weighted average wet-bulb

globe temperature was  $27 \pm 4^{\circ}\text{C}$  (range: 18-34). The work-rest regimens implemented were those proposed by the American Conference of Governmental and Industrial Hygiene (20%), National Institute of Occupational Safety and Health (11%), or the Australian Army (3%). The remaining studies (66%) did not mention how the work-rest regimens were derived. Most studies (89%) focused on physical tasks only. Most studies (94%) reported core temperature, whereas only 22% reported physical and/or mental performance outcomes, respectively. Of the 35 experimental studies included, 77% indicated that core temperature exceeded  $38^{\circ}\text{C}$ . Conclusions: Although work-rest regimens are widely used, few studies have investigated their physiological effectiveness. These studies were mainly short in duration, involved mostly healthy young males, and rarely considered the effect of work-rest regimens beyond heat strain during physical exertion

**Galarneau JM, Durand-Moreau Q, and Cherry N. Reported harassment and mental ill-health in a Canadian prospective cohort of women and men in welding and electrical trades. *Annals of Work Exposures and Health*. 2024; 68(3):231-242.**

<https://doi.org/10.1093/annweh/wxad083> [open access]

Abstract: OBJECTIVES: Experience of psychosocial environments by workers entering trade apprenticeships may differ by gender. We aimed to document perceived harassment and to investigate whether this related to mental ill-health. METHODS: Cohorts of workers in welding and electrical trades were established, women recruited across Canada and men from Alberta. Participants were recontacted every 6 months for up to 3 years (men) or 5 years (women). At each contact, they were asked about symptoms of anxiety and depression made worse by work. After their last regular contact, participants received a "wrap-up" questionnaire that included questions on workplace harassment. In Alberta, respondents who consented were linked to the administrative health database that recorded diagnostic codes for each physician contact. RESULTS: One thousand eight hundred and eighty five workers were recruited, 1,001 in welding trades (447 women), and 884 in electrical trades (438 women). One thousand four hundred and nineteen (75.3%) completed a "wrap up" questionnaire, with 1,413 answering questions on harassment. Sixty percent of women and 32% of men reported that they had been harassed. Those who reported harassment had more frequently recorded episodes of anxiety and depression made worse by work in prospective data. In Alberta, 1,242 were successfully matched to administrative health records. Those who reported harassment were more likely to have a physician record of depression since starting their trade. CONCLUSIONS: Tradeswomen were much more likely than tradesmen to recall incidents of harassment. The results from record linkage, and from prospectively collected reports of anxiety and depression made worse by work, support a conclusion that harassment resulted in poorer mental health

**Heggebo, K and Elstad JI. Health-related exit from employment before and during the COVID-19 pandemic in Norway: analysis of population-wide register data 2013-2021. *SSM - Population Health*. 2024; 25:101598.**

<https://doi.org/10.1016/j.ssmph.2023.101598> [open access]

Abstract: People with health problems experience various labor market disadvantages, such as hiring discrimination and heightened risk of firing, but the impact of deteriorating economic conditions on health-related labor market mobility remains poorly understood. The strength of the downturn/crisis will most likely make a difference. During minor downturns, when few employees are made

redundant, health-related exit may occur frequently since employers prefer to keep those with good health on the payroll. However, during major economic crises, when large-scale downsizing and firm closures abound, there will be less discretionary room for employers. Thus, some mechanisms that usually are damaging for people with health problems (e.g., seniority rules and negative connotations), can be neutralized, ultimately leading to smaller health differentials in labor market outcomes. The current study used population-wide administrative register data, covering the years 2013-2021, to examine health-related exit from employment (to unemployment/social assistance) before and during the COVID-19 pandemic in Norway. The pandemic spurred a major crisis on the Norwegian labor market and led to a record-high unemployment rate of 10.6 percent in March 2020. Restricting the analytical samples to labor market insiders, linear probability models showed that previous recipients of health-related benefits had a higher unemployment likelihood in the pre-crisis year 2019. The relative importance of poor health changed non-negligibly, however, during the COVID-19 pandemic. When identical statistical analyses were run on the crisis year 2020, health-related exit from employment was dampened. Yet, this labor market equalization was not followed by smaller health differentials in work income in 2021, mainly because people with good health retained or regained decent-paying jobs when the economic conditions improved again. In conclusion, major economic crises can lead to an equalization of labor market disadvantages for people with health problems, but health-related inequalities may reemerge when the economy recovers

**Inge KJ, Wehman P, Avellone L, Broda M, and McDonough J. The impact of customized employment on the competitive integrated employment outcomes of transition age youth with intellectual and developmental disabilities: a randomized controlled trial study. *Work*. 2024; 77(3):721-729.**

<https://doi.org/10.3233/WOR-246003>

Abstract: BACKGROUND: Customized employment (CE) is recognized in the Workforce Innovation and Opportunity Act (2014) as a strategy for promoting competitive integrated employment. However, the existing body of evidence supporting CE is mainly descriptive rather than experimental research. OBJECTIVE: This study examined the impact of CE on the employment outcomes, hours worked per week, and wages of transition-age youth with intellectual and developmental disabilities. METHOD: The outcomes of transition-age youth participating in a CE intervention were compared to those receiving treatment-as-usual using a randomized controlled trial design. RESULTS: Participants receiving CE were significantly more likely to secure competitive integrated employment than controls who received treatment-as-usual. Participants in the intervention and control conditions earned similar wages. Participants in the control condition worked more hours per week than those in CE. CONCLUSION: The findings from this study demonstrate the effectiveness of CE to assist transition-age youth with intellectual and developmental disabilities in obtaining competitive integrated employment, but future research is needed to examine factors impacting weekly hours and wages of participants in CE

**Kazi-Aoul S, van Panhuys C, Brener M, and Ruggia-Frick R. Extending coverage to migrant workers to advance universal social protection. *International Social Security Review*. 2023; 76(4):111-136.**

<https://doi.org/10.1111/issr.12343> [open access]

**Khan TH and MacEachen E. Examining the health and wellness of solo self-employed workers through narratives of precarity: a qualitative study. BMC Public Health. 2024; 24(1):717.**

<https://doi.org/10.1186/s12889-024-18179-5> [open access]

**Abstract:** BACKGROUND: In recent decades, there has been a significant transformation in the world of work that is characterized by a shift from traditional manufacturing and managerial capitalism, which offered stable full-time employment, to new forms of entrepreneurial capitalism. This new paradigm involves various forms of insecure, contingent, and non-standard work arrangements. Within this context, there has been a noticeable rise in Self-Employed individuals, exhibiting a wide range of -working arrangements. Despite numerous investigations into the factors driving individuals towards Self-Employment and the associated uncertainties and insecurities impacting their lives and job prospects, studies have specifically delved into the connection between the precarious identity of Self-Employed workers and their overall health and well-being. This exploratory study drew on a 'precarity' lens to make contributions to knowledge about Self-Employed workers, aiming to explore how their vulnerable social position might have detrimental effects on their health and well-being. METHODS: Drawing on in-depth interviews with 24 solo Self-Employed people in Ontario (January - July 2021), narrative thematic analysis was conducted based on participants' narratives of their work experiences. The dataset was analyzed with the support of NVIVO qualitative data analysis software to elicit narratives and themes. FINDINGS: The findings showed that people opt into Self-Employment because they prefer flexibility and autonomy in their working life. However, moving forward, in the guise of flexibility, they encounter a life of precarity, in terms of job unsustainability, uncertainties, insecurities, unstable working hours and income, and exclusion from social benefits. As a result, the health and well-being of Self-Employed workers are adversely affected by anger, anomie, and anxiety, bringing forward potential risks for a growing population. CONCLUSION AND IMPLICATIONS: Neoliberalism fabricates a 'precariat' Self-Employed class. This is a social position that is vague, volatile, and contingent, that foreshadows potential threats of the health and wellbeing of a growing population in the changing workforce. The findings in this research facilitate some policy implications and practices at the federal or provincial government level to better support the health and wellbeing of SE'd workers

**Kim SY, Chang HK, Kwon O, Park J, and Myong JP. Asbestos exposure and ovarian cancer: a meta-analysis. Safety and Health at Work. 2024; 15(1):1-8.**

<https://doi.org/10.1016/j.shaw.2023.11.002> [open access]

**Abstract:** Background: The International Agency for Research on Cancer (IARC) Monograph conducted a systematic review of the relationship between asbestos and ovarian cancer. However, there may have been information bias due to the undue weight given to few articles. To address this limitation, the present study performed a meta-analysis integrating studies published both before and after the 2012 IARC Monograph on Asbestos, with the aim of investigating the association between asbestos exposure and ovarian cancer. Methods: A comprehensive search of major journal databases was conducted to identify studies examining the relationship between asbestos exposure and ovarian cancer, including those featured in the 2012 IARC Monograph on Asbestos. A meta-analysis on asbestos exposure and cancer risk was performed. Results: The meta-analysis of studies published after the 2012 IARC Monograph on Asbestos found a summary Standardized Mortality Ratio (SMR) of 2.04 (95% CI: 1.03-4.05;  $p = 0.0123$ ; 5 studies), with a significant degree of heterogeneity among the studies ( $I^2 = 72.99\%$ ). The combined analysis of 15 studies before and after the 2012 IARC Monograph

showed an overall summary SMR of 1.72 (95% CI: 1.43-2.06;  $p = 0.0349$ ; 15 studies), with a moderate degree of heterogeneity ( $I^2 = 42.99\%$ ). Conclusion: This meta-analysis provides evidence of a significant association between asbestos exposure and ovarian cancer mortality. While the possibility of misdiagnosis in earlier studies cannot be completely ruled out, recent findings suggest a robust correlation between asbestos exposure and ovarian cancer. This highlights the importance of sustained efforts to minimize asbestos exposure and protect public health.

**Meyer SC and Tisch A. Exploring the relationship between techno-unreliability at work and burnout. *Journal of Occupational & Environmental Medicine*. 2024; 66(3):185-191.**

<https://doi.org/10.1097/JOM.0000000000003008> [open access]

Abstract: OBJECTIVE: With the growing dissemination of digital technologies in the workplace, technologies itself and related factors are increasingly discussed as an additional source of work stress, often referred to as technostress. This article explores whether techno-unreliability as a dimension of technostress is associated with burnout. METHODS: We perform linear regression analyses based on a large representative sample of German employees collected in 2019. We distinguish between information and communication technology users ( $n = 4702$ ) and tool users ( $n = 1953$ ). Interaction models explore whether individual and workplace-related factors might moderate the relationship. RESULTS: The results indicate that the more frequently employees experience techno-induced interruptions (as an indicator for techno-unreliability), the stronger their burnout symptoms. Interaction models reveal that social support and job autonomy might buffer this association. CONCLUSIONS: Ensuring reliable technology and technical support can reduce employee stress

**Pereira-Barriga MC, Borrero-Hernandez JM, Garcia-Iglesias JJ, Lopez-Lopez D, Ruiz-Frutos C, Allande-Cusso R, et al. A review of the injuries caused by occupational footwear. *Occupational Medicine*. 2024; [epub ahead of print].**

<https://doi.org/10.1093/occmed/kqae003>

Abstract: BACKGROUND: Occupational footwear is intended to provide protection against the risks associated with work activities. The choice of footwear is complex due to the welfare, health and safety conditions of workers. AIMS: To identify the injuries and problems caused by occupational footwear through a systematic review of the existing literature. METHODS: A literature search was carried out in the Cumulative Index to Nursing and Allied Health Literature, Dialnet Plus, Pubmed, Scientific Electronic Library Online, Medline, Scopus and Web of Science databases over the period 2000-23, following the PRISMA Declaration guidelines. RESULTS: A total of 27 studies were included in the review. The results indicated that there is a wide variety of injuries caused by occupational footwear: from dermal injuries (e.g. calluses) and injuries to the nail apparatus to inflammatory pathologies such as plantar fasciitis or bursitis. In addition, inappropriate footwear can cause pain in the ankle and foot, knees, hips and lower back. Other results include the discomfort derived from the footwear itself. CONCLUSIONS: Inappropriate footwear can cause injuries to the foot and other related bone structures. Further studies are needed on the detection of foot injuries caused by occupational footwear and the levels of action at this level to improve the worker's health, the adaptability of the footwear to the wearer, and the worker's comfort and adherence to the footwear



**Sit G, Orsi L, Iwatsubo Y, Dananche B, Orsi F, Goldberg M, et al. Chronic occupational exposures to irritants and asthma in the CONSTANCES cohort. *Occupational & Environmental Medicine*. 2024; 81(3):129-135.**

<https://doi.org/10.1136/oemed-2023-109100>

**Abstract:** Objectives: The impact of chronic occupational exposures to irritants on asthma remains discussed. We studied the associations between occupational exposures and asthma, with specific interest for chronic exposure to irritants, including disinfectants and cleaning products (DCPs) and solvents. Methods: Cross-sectional analyses included 115 540 adults (55% women, mean age 43 years, 10% current asthma) working at inclusion in the French population-based CONSTANCES cohort (2012-2020). Current asthma was defined by ever asthma with symptoms, medication or asthma attacks (past 12 months), and the asthma symptom score by the sum of 5 respiratory symptoms (past 12 months). Both lifetime and current occupational exposures were assessed by the Occupational Asthma-specific Job-Exposure Matrix. Associations were evaluated by gender using logistic and binomial negative regressions adjusted for age, smoking status and body mass index. Results: In women, associations were observed between current asthma and lifetime exposure to irritants (OR 1.05, 95% CI 1.00 to 1.11), DCPs (1.06, 95% CI 1.00 to 1.12) and solvents (1.06, 95% CI 0.98 to 1.14). In men, only lifetime exposure to DCPs (1.10, 95% CI 1.01 to 1.20) was associated with current asthma. Lifetime exposure to irritants was associated with higher asthma symptom score both in women (mean score ratio: 1.08, 95% CI 1.05 to 1.11) and men (1.11, 95% CI 1.07 to 1.15), especially for DCPs (women: 1.09, 95% CI 1.06 to 1.13, men: 1.21, 95% CI 1.15 to 1.27) and solvents (women 1.14, 95% CI 1.10 to 1.19, men: 1.10, 95% CI 1.05 to 1.15). For current exposures, no consistent associations were observed with current asthma and asthma symptom score. Conclusions: Lifetime occupational exposures to irritants were associated with current asthma and higher asthma symptom score. These exposures should be carefully considered in asthma management.

**Wallmann-Sperlich B, Bucksch J, Lendt C, Biallas B, Bipp T, and Froboese I. Home office shift and sedentary behaviour in Germany during the COVID-19 pandemic: descriptives and related socioecological correlates. *Ergonomics*. 2024; 67(1):1-12.**

<https://doi.org/10.1080/00140139.2023.2202841>

**Abstract:** COVID-19 working restrictions resulted in a location shift of white-collar workers into their home office (HO). Little is known about how the proportion of HO affects sitting and physical activity (PA) behaviour during working hours, and potential correlates are not well understood. A cross-sectional sample of currently working adults in HO (n = 575) completed questionnaires regarding HO proportion before and during the pandemic, work-related sitting and PA, and socioecological factors regarding HO sitting time. The reported HO proportion increased by  $46.7 \pm 40.6\%$  during COVID-19 working restrictions. Workday sitting proportion correlates positively with HO proportion. The regression model identified gender, education level, working hours, working environment to stand during work, and transport and leisure PA as correlates of the workday sitting proportion in HO. This study provides findings that high HO proportions are related to higher work-related sitting times and adds insights into possible correlates of sitting time in HO. Practitioner summary: Working in the home office (HO) is a common characteristic of flexible work in white-collar workers. This study found that the workday sitting proportion correlates positively with HO proportion and identified correlates

of the workday sitting in HO. Practitioners should consider the potential impacts of HO on work-related sedentary behaviour in future workplace health promotion.

**Yagil D and Cohen M. Self-employed workers with chronic health conditions: a qualitative study. Journal of Health Psychology. 2024; [epub ahead of print].**

<https://doi.org/10.1177/13591053241239462>

Abstract: Chronic health conditions affect many individuals of working age, who cope with physical, psychological, and social difficulties that often involve limited work ability. This qualitative study explored experiences of self-employed individuals with chronic health conditions to advance our understanding of the effect of chronic illness on work. In-depth semi-structured interviews were conducted with 23 self-employed individuals coping with cancer, heart disease, inflammatory bowel disease, lung disease, or asthma. Data were analyzed with thematic analysis. Analysis of the interviews revealed four themes: uncertainty in planning work and committing to customers, acceptance versus denial of reduced work abilities, disclosure of health status to workers and customers, and temporal substitutes as a source of both support and concern. The results indicate that self-employed workers with a chronic health condition cope with unique challenges due to the need to sustain their business in the face of illness and a sense of sole responsibility

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