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

***Jetha A, Tucker L, Vahid Shahidi F, Backman C, Kristman VL, Hazel EM, Perlin L, Proulx L, Chen C, and Gignac MAM. How does job insecurity and workplace activity limitations relate to rheumatic disease symptom trajectories in young adulthood? A longitudinal study. *Arthritis Care & Research*. 2022; [epub ahead of print].**

<https://doi.org/10.1002/acr.24982> [open access]

Abstract: Background Workplace and labor market conditions are associated with the health of the working population. A longitudinal study was conducted among young adults with rheumatic disease to examine workplace activity limitations and job insecurity and their relationship with disease symptom trajectories. Methods Three online surveys were administered to young adults with rheumatic disease over 27-months. Self-reported pain, fatigue and disease activity were collected. Workplace activity limitations and job insecurity were measured. Group-based discrete mixture models determined pain, fatigue, and disease activity trajectory groups. Robust Poisson regression models were fitted to examine the relationship among workplace activity limitations, job insecurity and trajectory group membership. Results 124 participants (mean age=29 years±4.5) with rheumatic disease were recruited. At baseline, participants reported considerable workplace activity limitations (10.35±5.8) and 36% indicated job insecurity. We identified two latent rheumatic disease symptom trajectory groups. The first had severe persistent pain, fatigue, or disease activity; the second had less severe disease symptoms over time. Greater workplace activity limitations were associated with an increased relative risk of membership in the persistent severe pain (RR=1.02, 95%CI 1.01-1.03), fatigue (RR=1.02, 95%CI 1.01-1.03) and disease

activity trajectory groups (RR=1.02, 95%CI 1.01-1.03). Job insecurity was associated with an increased relative risk of membership in the persistent severe pain (RR=1.14, 95%CI 1.04-1.25) and disease activity trajectory groups (RR=1.11, 95%CI 1.00-1.22). Conclusion Workplace activity limitations and job insecurity represent working conditions that are associated with the health of young adults with rheumatic disease and should be examined as potential targets for intervention.

Chan PE, Hakala A, Katsiyannis A, Counts J, and Carlson A. Litigation on accommodating teachers with disabilities. *Journal of Disability Policy Studies*. 2022; 33(2):112-121.

<https://doi.org/10.1177/10442073211036899>

Dong S, Hoeflich C, and Sirota PV. An examination of the psychosocial factors impacting workplace accommodation requests in individuals with mental disabilities. *Work*. 2022; 72(3):865-874.

<https://doi.org/10.3233/WOR-210518>

Abstract: BACKGROUND: Individuals with mental health issues experience profound stigma and discrimination, which may contribute to a lack of accommodation utilization to address functional limitations of their work. OBJECTIVES: This study examined how psychosocial factors may predict the request of accommodations by employed individuals with mental disabilities through the framework of social cognitive career theory. METHODS: In the United States, 148 employed adults with mental disabilities completed an online questionnaire to ascertain self-efficacy, outcome expectation, affect, and workplace support. Logistic regression analyses were conducted to examine associations between respondents' psychosocial factors and request of accommodations. RESULTS: Psychosocial factors (i.e., self-efficacy in accommodation request, outcome expectancy in employers' compliance with accommodation request, and non-person cost associated with request) were associated with impacting decisions to request accommodations among individuals with mental disabilities. CONCLUSIONS: A focus on bolstering self-efficacy and outcome expectation may assist rehabilitation professionals with facilitating positive occupational outcomes for individuals with mental disabilities. Incorporating increased education on the possible implications of mental disabilities in the workplace may also promote successful employment outcomes

Drouot M, Le Bigot N, Bricard E, Bougrenet JL, and Nourrit V. Augmented reality on industrial assembly line: impact on effectiveness and mental workload. *Applied Ergonomics*. 2022; 103:103793.

<https://doi.org/10.1016/j.apergo.2022.103793>

Abstract: Studies examining the potential of augmented reality (AR) to improve assembly tasks are often unrepresentative of real assembly line conditions and assess mental workload only through subjective measurements and leads to conflicting results. We proposed a study directly carried out in industrial settings, to compare the impact of AR-based instructions to computerized instructions, on assembly effectiveness (completion time and errors) and

mental workload using objective (eye tracking), subjective (NASA-TLX) and behavioral measurements (dual task paradigm). According to our results, AR did not improve effectiveness (increased assembly times and no decrease in assembly errors). Two out of three measurements indicated that AR led to more mental workload for simple assembly workstation, but equated computer instructions for complex workstation. Our data also suggest that, AR users were less able to detect external events (danger, alert), which may play an important role in the occurrence of work accidents

Fletcher L and Beauregard TA. The psychology of diversity and its implications for workplace (in)equality: looking back at the last decade and forward to the next. *Journal of Occupational and Organizational Psychology*. 2022; 95(3):577-594.

<https://doi.org/10.1111/joop.12388>

Gross DP, Rachor GS, Krebs BK, Yamamoto SS, Dick BD, Brown CA, et al. Risk factors for developing concurrent posttraumatic stress injury after work-related musculoskeletal injury: a case-control study. *Journal of Occupational & Environmental Medicine*. 2022; [epub ahead of print].

<https://doi.org/10.1097/JOM.0000000000002621> [open access]

Abstract: OBJECTIVE: This study aimed to study risk factors for developing concurrent posttraumatic stress injury (PTSI) among workers experiencing work-related musculoskeletal injury (MSI). METHODS: A case-control study was conducted using workers' compensation data on injured workers undergoing rehabilitation programs for concurrent MSI and PTSI (cases) and MSI only (controls). A variety of measures known at the time of the compensable injury were entered into logistic regression models. RESULTS: Of the 1948 workers included, 215 had concurrent MSI and PTSI. Concurrent MSI and PTSI were predicted by type of accident (adjusted odds ratio [OR], 25.8), experiencing fracture or dislocation fracture or dislocation (adjusted OR, 3.7), being public safety personnel (adjusted OR, 3.1), and lower level of education (adjusted OR, 1.9). CONCLUSIONS: Experiencing a concurrent PTSI diagnosis with MSI after work-related accident and injury appears related to occupation, type of accident, and educational background

Harrell E, Langton L, Petosa J, Pegula SM, Zak M, Derk S, et al. Indicators of workplace violence, 2019. NCJ 250748; NIOSH 2022-124. Bureau of Justice Statistics, Office of Justice Programs, U.S. Department of Justice; Bureau of Labor Statistics, Office of Safety, Health, and Working Conditions, U.S. Department of Labor; National Institute for Occupational Safety and Health; 2022.

<https://doi.org/10.26616/NIOSHPUB2022124>

Labberton AS, Godoy A, Elgersma IH, Strand BH, Telle K, Arnesen T, et al. SARS-CoV-2 infections and hospitalisations among immigrants in Norway-significance of occupation, household crowding, education, household income and medical risk: a nationwide register study. *Scandinavian Journal of Public Health*. 2022; 50(6):772-781.

<https://doi.org/10.1177/14034948221075029>

Abstract: BACKGROUND: As in other countries, the COVID-19 pandemic has affected Norway's immigrant population disproportionately, with significantly higher infection rates and hospitalisations. The reasons for this are uncertain. METHODS: Through the national emergency preparedness register, BeredtC19, we have studied laboratory-confirmed infections with SARS-CoV-2 and related hospitalisations in the entire Norwegian population, by birth-country background for the period 15 June 2020 to 31 March 2021, excluding the first wave due to limited test capacity and restrictive test criteria. Straightforward linkage of individual-level data allowed adjustment for demographics, socioeconomic factors (occupation, household crowding, education and household income), and underlying medical risk for severe COVID-19 in regression models. RESULTS: The sample comprised 5.49 million persons, of which 0.91 million were born outside of Norway, there were 82,532 confirmed cases and 3088 hospitalisations. Confirmed infections in this period (per 100,000): foreign-born 3140, Norwegian-born with foreign-born parents 4799 and Norwegian-born with Norwegian-born parent(s) 1011. Hospitalisations (per 100,000): foreign-born 147, Norwegian-born with foreign-born parents 47 and Norwegian-born with Norwegian-born parent(s) 37. The addition of socioeconomic and medical factors to the base model (age, sex, municipality of residence) attenuated excess infection rates by 12.0% and hospitalisations by 3.8% among foreign-born, and 10.9% and 46.2%, respectively, among Norwegian-born with foreign parents, compared to Norwegian-born with Norwegian-born parent(s). CONCLUSIONS: There were large differences in infection rates and hospitalisations by country background, and these do not appear to be fully explained by socioeconomic and medical factors. Our results may have implications for health policy, including the targeting of mitigation strategies

MacEachen E, Meyer SB, Majowicz S, Hopwood P, Crouch M, Amoako J, et al. Perceived COVID-19 health and job risks faced by digital platform drivers and measures in place to protect them: a qualitative study. *American Journal of Industrial Medicine*. 2022; 65(9):731-742.

<https://doi.org/10.1002/ajim.23409> [open access]

Abstract: INTRODUCTION: As they deliver food, packages, and people across cities, digital platform drivers (gig workers) are in a key position to become infected with COVID-19 and transmit it to many others. The aim of this study is to identify perceived COVID-19 exposure and job risks faced by workers and document the measures in place to protect their health, and how workers responded to these measures. METHODS: In 2020-2021, in-depth interviews were conducted in Ontario, Canada, with 33 digital platform drivers and managers across nine platforms that delivered food, packages, or people. Interviews focused on

perceived COVID-19 risks and mitigation strategies. Audio recordings were transcribed verbatim and uploaded to NVivo software for coding by varied dual pairs of researchers. A Stakeholder Advisory Committee played an instrumental role in the study. RESULTS: As self-employed workers were without the protection of employment and occupational health standards, platform workers absorbed most of the occupational risks related to COVID-19. Despite safety measures (e.g., contactless delivery) and financial support for COVID-19 illnesses introduced by platform companies, perceived COVID-19 risks remained high because of platform-related work pressures, including rating systems. We identify five key COVID-19 related risks faced by the digital platform drivers. CONCLUSION: We situate platform drivers within the broad context of precarious employment and recommend organizational- and government-level interventions to prevent digital platform worker COVID-19 risks and to assist workers ill with COVID-19. Measures to protect the health of platform workers would benefit public health aims by reducing transmission by drivers to families, customers, and consequently, the greater population

Perera GN, Hey LA, Chen KB, Morello MJ, McConnell BM, and Ivy JS. Checklists in healthcare: operational improvement of standards using safety engineering: project CHOI. *Applied Ergonomics*. 2022; 103:103786.

<https://doi.org/10.1016/j.apergo.2022.103786>

Abstract: The CHOISSE multi-stage framework for evaluating the effects of electronic checklist applications (e-checklists) on surgical team members' perception of their roles, performance, communication, and understanding of checklists is introduced via a pilot study. A prospective interventional cohort study design was piloted to assess the effectiveness of the framework and the sociotechnical effects of the e-checklist. A Delphi process was used to design the stages of the framework based on literature and expert consensus. The CHOISSE framework was applied to guide the implementation and evaluation of e-checklists on team culture for ten pilot teams across the US over a 24-week period. The pilot results revealed more engagement by surgeons than non-surgeons, and significant increases in surgeons' perception of communication and engagement during surgery with a small sample. Mixed methods analysis of the data and lessons learned were used to identify iterative improvements to the CHOISSE framework and to inform future studies

Ropponen A, Wang M, Farrants K, Narusyte J, and Svedberg P. Psychosocial working conditions and subsequent sickness absence-effects of pain and common mental disorders in a population-based Swedish twin sample. *Journal of Occupational & Environmental Medicine*. 2022; 64(6):451-457.

<https://doi.org/10.1097/JOM.0000000000002501> [open access]

Abstract: OBJECTIVE: To investigate pain and/or common mental disorders (CMDs) in the associations between psychosocial working conditions and sickness absence (SA) while controlling familial confounding. METHODS: Prospective Prospective twin cohort study included survey data for pain and CMD, register data for SA and psychosocial working

conditions. The follow-up from 2005 to 2016 of 28,916 twin individuals for first incident SA spell measured as the main International Classification of Diseases version 10 (ICD-10) diagnosis groups (F00-F99, I00-I99, and M00-M99), or the duration. We used regression models to obtain odds ratio (OR), incidence rate ratio (IRR), or relative risk ratio (RRR) with 95% confidence intervals (CI). RESULTS: The covariate adjusted models of 9156 SA spells indicated almost no statistically significant associations between psychosocial working conditions and SA. CONCLUSIONS: Psychosocial working conditions were not associated with SA while familial confounding could not be ruled out

Sirbu E, Varga MG, Rata AL, Amaricai E, and Onofrei RR. Work-related musculoskeletal complaints in massage practitioners. *Work*. 2022; 72(3):901-907.

<https://doi.org/10.3233/WOR-205306>

Abstract: BACKGROUND: Work-related musculoskeletal complaints (WMSCs) are induced or aggravated by work activities and/or work conditions. OBJECTIVE: The aim was to evaluate the impact of work as a massage practitioner, with a special emphasis on WMSCs. METHODS: Massage practitioners were invited to participate in the study through an advert in the rehabilitation medical clinics. The participants completed a self-administered questionnaire, collecting general data and questions about WMSCs. RESULTS: Thirty-seven subjects (88.09%) reported pain in at least one body part in the last 4 weeks. The most common WMSCs was pain in the neck region (69.04%), followed by pain in the shoulder region (54.76%), upper back (52.38%), lower back (40.48%), wrist-hand (33.33%) and elbow (21.43%). The massage practitioners aged between 21 and 30 years old reported significantly more frequently WMSCs localized in neck, shoulders, wrist-hand, upper back and lower back. CONCLUSIONS: This study shows that WMSCs are widely reported among massage practitioners. The most common complaints were reported in the neck and shoulder regions, especially in younger massage practitioners

Taylor JA, Murray RM, Davis AL, Brandt-Rauf S, Allen JA, Borse R, et al. Model policies to protect U.S. fire-based EMS responders from workplace stress and violence. *New Solutions*. 2022; 32(2):119-131.

<https://doi.org/10.1177/10482911221085728> [open access]

Abstract: The stress and violence to fire-based emergency medical service responders (SAVER) Systems-Level Checklist is an organizational-level intervention to address stress and violence in emergency medical service (EMS), focused on the development of policy and training. Fire and EMS leadership, first responders, dispatchers, and labor union representatives participated in the SAVER Model Policy Collaborative to develop model policies that resulted from the most feasible checklist items. Think Lets technology was employed to achieve consensus on the model policies, and an Action SWOT analysis was then conducted to assess facilitators and barriers to policy implementation. The resultant model policies are a systems-level workplace violence intervention for the U.S. fire and rescue service that is ready for implementation. Expected improvements to organizational outcomes

such as burnout, job engagement, and job satisfaction are anticipated, as are decreasing assaults and injuries. The SAVER Model Policies have the potential to inform national standards and regulations on workplace violence in EMS

Ward L, Le A, Shannon C, and Rosemberg MA. Interventions targeting health and wellbeing among nail salon workers: a scoping review. *Annals of Work Exposures and Health*. 2022; 66(7):827-837.

<https://doi.org/10.1093/annweh/wxac011>

Abstract: OBJECTIVES: To identify existing interventions targeting the health and wellbeing of nail salon workers. METHODS: Arksey and O'Malley's framework on reviews guided this project. The databases MEDLINE, EMBASE, Scopus, CINAHL, and Web of Science were searched. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) chart was used to capture the inclusion protocol. RESULTS: Four interventions were identified, of which one was a randomized controlled trial. Across the four interventions, there were about 424 participants that were recruited through cosmetology schools and 34 from nail salons. Interventions varied from pamphlet distribution and inspections to full-day training sessions. Intervention effectiveness was determined via pre- and post-tests and infractions frequency. Maximum follow-up time was 8 months. Outcomes included increased knowledge on exposures, fewer infractions, increased adherence to infection control practices and use of personal protective equipment, and behavior and attitude changes. CONCLUSIONS: There is a need for further research on interventions targeting vulnerable workers in nail salons who face numerous hazards on the job. Two of the four interventions targeted nail technician trainees and their instructors, indicating the potential of early interventions before the workers officially enter the workforce

Yuan B, Zhang T, and Li J. Late-Life working participation and mental health risk of retirement-aged workers: how much impact will there be from social security system? *Journal of Occupational & Environmental Medicine*. 2022; 64(7):e409-e416.

<https://doi.org/10.1097/JOM.0000000000002561>

Abstract: PURPOSE: Increasing retirement-aged workers are encouraged to stay in the labor market, as delayed retirement initiative is proposed. This study investigates the interplay of late-life working participation and social security on the mental health risk of retirement-aged workers. METHOD: We applied data from the China Health and Retirement Longitudinal Study (CHARLS-2018), and the instrumental variables regression was conducted. RESULTS: Late-life working could alleviate depression, as did the beneficiary status of employment-based social health insurance and the pensionable phase of social pension participation. Besides, the role of late-life working in alleviating depression became more salient when late retirees were not insured by the employment-based social health insurance and still in the pension contribution phase. CONCLUSIONS: It is suggested that the current social security

system in China has not been sufficiently well designed to protect the mental health of retirement-aged workers

Zhang W, Chin T, Peng JB, Shan YN, and Agbanyo GK. The moderating effect of occupational burn-out on the link of career competencies to career sustainability amid the COVID-19 pandemic: a mixed-method study. *Frontiers in Psychology*. 2022; 13:916669.

<https://doi.org/10.3389/fpsyg.2022.916669> [open access]

Abstract: Due to the COVID-19 pandemic, most employees face increasing career-related stress, particularly those who work in multinational corporations (MNCs), because the international travel constraints prevent them from going back to their families. Hence, it is imperative to investigate the critical impact of employees' occupational burnout (OB) on career-related outcomes. In response, this research explores the moderating effect of OB on the relationships between career competencies (CCs) and career sustainability (CS). To achieve a more comprehensive understanding of relevant issues, we adopted a mixed-method research design that includes both qualitative and quantitative analyses. Findings indicate that all the three dimensions of CCs (i.e., reflective, communicative, and behavioral career competencies; RC, CC, and BC) were positively related to CS; moreover, OB negatively moderated the individual relationships of CC and BC with CS. The main contribution of this study is to enrich the existing career literature by addressing the critical moderating role of OB in the links of CC and BC individually with CS. Practical implications are also discussed in this study

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