

IWH Research Alert
November 12, 2021

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***Johansson F, Cote P, Hogg-Johnson S, and Skillgate E. Depression, anxiety and stress among Swedish university students during the second and third waves of COVID-19: a cohort study. *Scandinavian Journal of Work, Environment & Health*. 2021; 49(7):750-754.**

<https://doi.org/10.1177/14034948211031402> [open access]

Abstract: AIMS: This study aims to describe the mean trajectories of depression, anxiety and stress symptoms among Swedish university students before and during the second and third waves of the COVID-19 pandemic. **METHODS:** We recruited 1835 participants in September 2020, of whom 81% provided follow-ups in December 2020-January 2021 and 77% provided follow-ups in March-April 2021. The short-form Depression, Anxiety and Stress Scale was used to measure mental health symptoms. Generalized estimating equations were used to estimate the mean differences in symptom levels over the three time periods. **RESULTS:** Compared with September, mean depression was 0.91 points of 21 higher (95% confidence interval (CI) 0.70-1.13) in December 2020-January 2021 and 0.66 points higher (95% CI 0.43-.88) in March-April 2021. Anxiety levels were 0.20 points higher (95% CI 0.05-0.34) in December 2020-



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January 2021 and 0.17 points higher (95% CI 0.02-0.33) in March-April 2021. Stress levels were 0.21 points higher (95% CI 0.00-0.41) in December 2020-January 2021 and 0.16 points lower (95% CI -0.38 to 0.05) in March-April 2021. CONCLUSIONS: Our results indicate relatively stable levels of mental health among Swedish university students during the second and third waves of COVID-19 compared with before the second wave. Mean depression symptom scores increased slightly, but the importance of this small increase is uncertain

***Tomba E, Mofidi A, Song C, Arrandale V, Jardine KJ, Davies H, et al. Break-even analysis of Respirable Crystalline Silica (RCS) exposure interventions in the construction sector. Journal of Occupational & Environmental Medicine. 2021; 63(11):e792-e800. <https://doi.org/10.1097/JOM.0000000000002375>**

Abstract: OBJECTIVE: We investigated long-term economic impacts of respirable crystalline silica (RCS) removal interventions in the construction at the societal level. METHODS: We estimated costs and benefits of two RCS exposure interventions, use of "respirators" and "wet method," over a 30-year time period. We identified economic impacts of the interventions under four different scenarios. RESULTS: Under current practices, we estimated that approximately 125 lung cancer cases attributable to RCS exposure would arise in 2060. Under the full exposure removal scenario, we estimated there would be 53 new cases. Over the 30-year time period, the estimated cumulative averted cases are 787 and 482 for respirators and wet method, respectively, which amount to net benefits of \$422.13 and \$394.92 million. CONCLUSIONS: Findings provide important information for policymakers seeking to reduce the economic burden of occupational lung cancer in society

Amoako J and MacEachen E. Understanding the blended impacts of COVID-19 and systemic inequalities on sub-Saharan African immigrants in Canada. Canadian Journal of Public Health. 2021; 112(5):862-866.

<https://doi.org/10.17269/s41997-021-00558-9> [open access]

Abstract: The COVID-19 pandemic poses a grave health threat and has serious socio-economic implications for all. However, crises are not experienced equally; the pandemic has disproportionately



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affected immigrants in several countries, including Canada and the United States. The effects of COVID-19 have exposed the realities of societal and structural inequities, worsened the socio-economic status of many immigrants, and placed them at higher risks of poor health outcomes. Emerging research on COVID-19 and race in Canada addresses the structural inequities that shape the disproportionate harms of COVID-19 on immigrants. For sub-Saharan African immigrants, these inequities are worse due to the intersecting systems of race, gender, and class marginalization. They tend to be more exposed and less protected amid the pandemic. Given the lack of research on sub-Saharan African immigrants' experiences in Canada, this paper discusses how multiple axes of inequities shape their health and livelihood during COVID-19. The objective is to provide a broader scientific understanding of issues related to systemic inequities and health for sub-Saharan African immigrants in Canada and the related implications for public health advocates, policymakers, and the public

Chan VCH, Ross GB, Clouthier AL, Fischer SL, and Graham RB. The role of machine learning in the primary prevention of work-related musculoskeletal disorders: a scoping review. *Applied Ergonomics*. 2022; 98:103574.

<https://doi.org/10.1016/j.apergo.2021.103574> [open access]

Abstract: To determine the applications of machine learning (ML) techniques used for the primary prevention of work-related musculoskeletal disorders (WMSDs), a scoping review was conducted using seven literature databases. Of the 4,639 initial results, 130 primary research studies were deemed relevant for inclusion. Studies were reviewed and classified as a contribution to one of six steps within the primary WMSD prevention research framework by van der Beek et al. (2017). ML techniques provided the greatest contributions to the development of interventions (48 studies), followed by risk factor identification (33 studies), underlying mechanisms (29 studies), incidence of WMSDs (14 studies), evaluation of interventions (6 studies), and implementation of effective interventions (0 studies). Nearly a quarter (23.8%) of all included studies were published in 2020. These findings provide insight into the breadth of ML techniques used for primary WMSD



prevention and can help identify areas for future research and development

Easter C, Thompson JA, Eldridge S, Taljaard M, and Hemming K. Cluster randomized trials of individual-level interventions were at high risk of bias. Journal of Clinical Epidemiology. 2021; 138:49-59.

<https://doi.org/10.1016/j.jclinepi.2021.06.021> [open access]

Abstract: OBJECTIVES: To describe the prevalence of risks of bias in cluster-randomized trials of individual-level interventions, according to the Cochrane Risk of Bias tool. STUDY DESIGN AND SETTING: Review undertaken in duplicate of a random sample of 40 primary reports of cluster-randomized trials of individual-level interventions. RESULTS: The most common reported reasons for adopting cluster randomization were the need to avoid contamination (17, 42.5%) and practical considerations (14, 35%). Of the 40 trials all but one was assessed as being at risk of bias. A majority (27, 67.5%) were assessed as at risk due to the timing of identification and recruitment of participants; many (21, 52.5%) due to an apparent lack of adequate allocation concealment; and many due to selectively reported results (22, 55%), arising from a mixture of reasons including lack of documentation of primary outcome. Other risks mostly occurred infrequently. CONCLUSION: Many cluster-randomized trials evaluating individual-level interventions appear to be at risk of bias, mostly due to identification and recruitment biases. We recommend that investigators carefully consider the need for cluster randomization; follow recommended procedures to mitigate risks of identification and recruitment bias; and adhere to good reporting practices including clear documentation of primary outcome and allocation concealment methods

Hill MacEachern K, Venugopal J, Varin M, Weeks M, Hussain N, and Baker MM. Applying a gendered lens to understanding self-reported changes in alcohol and cannabis consumption during the second wave of the COVID-19 pandemic in Canada, September to December 2020. Health Promotion and Chronic Disease Prevention in Canada. 2021; 41(11):331-339.

<https://doi.org/10.24095/hpcdp.41.11.03>

Abstract: INTRODUCTION: Increased alcohol and cannabis



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consumption and related harms have been reported since the beginning of the COVID-19 pandemic. Existing evidence shows that substance use and related harms differ by gender. Yet, no Canadian study has applied a gendered lens to alcohol and cannabis consumption use during this time. Our objectives were to (1) provide gender-specific prevalence estimates of self-reported increased alcohol and cannabis use; and (2) examine gender-specific associations between sociodemographic and mental health variables and alcohol and cannabis use. METHODS: Using data from the Survey on COVID-19 and Mental Health, we calculated nationally representative, gender-specific prevalence estimates and disaggregated them by sociodemographic and mental health variables. Four logistic regression models were used to assess the likelihood of self-reported increased alcohol and cannabis use. RESULTS: The prevalence of self-reported increase in alcohol use (16.2% women; 15.2% men) and cannabis use (4.9% women; 5.8% men) did not differ by gender. For both genders, income, racialized group membership, working in the past week, being a parent/legal guardian of a child aged under 18 and screening positive for depression and anxiety were associated with increased alcohol use. Men and women who were between the ages of 18 to 44, screened positive for depression, or both, were more likely to report increased cannabis use. For women, education was significantly associated with increased alcohol use. For men, being a parent/legal guardian was significantly associated with lower odds of increased cannabis use. CONCLUSION: Sociodemographic factors, as well as depression and anxiety, were similarly associated with increased alcohol and cannabis use for both men and women in the second wave of the pandemic

Hoffmann F, Allers K, Rombey T, Helbach J, Hoffmann A, Mathes T, et al. Nearly 80 systematic reviews were published each day: observational study on trends in epidemiology and reporting over the years 2000-2019. Journal of Clinical Epidemiology. 2021; 138:1-11.

<https://doi.org/10.1016/j.jclinepi.2021.05.022> [open access]

Abstract: BACKGROUND: Systematic reviews (SRs) are useful tools in synthesising the available evidence, but high numbers of overlapping SRs are also discussed in the context of research waste.



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Although it is often claimed that the number of SRs being published is increasing steadily, there are no precise data on that. We aimed to assess trends in the epidemiology and reporting of published SRs over the last 20 years. **METHODS:** A retrospective observational study was conducted to identify potentially eligible SRs indexed in PubMed from 2000 to 2019. From all 572,871 records retrieved, we drew a simple random sample of 4,000. The PRISMA-P definition of SRs was applied to full texts and only SRs published in English were included. Characteristics were extracted by one reviewer, with a 20% sample verified by a second person. **RESULTS:** A total of 1,132 SRs published in 710 different journals were included. The estimated number of SRs indexed in 2000 was 1,432 (95% CI: 547-2,317), 5,013 (95% CI: 3,375-6,650) in 2010 and 29,073 (95% CI: 25,445-32,702) in 2019. Transparent reporting of key items increased over the years. About 7 out of 10 named their article a SR (2000-2004: 41.9% and 2015-2019: 74.4%). In 2000-2004, 32.3% of SRs were based in the UK (0% in China), in 2015-2019 24.0% were from China and 10.8% from the UK. Nearly all articles from China (94.9%) conducted a meta-analysis (overall: 58.9%). Cochrane reviews (n=84; 7.4%) less often imposed language restrictions, but often did not report the number of records and full texts screened and did not name their article a SR (22.6% vs. 73.4%). **CONCLUSIONS:** We observed a more than 20-fold increase in the number of SRs indexed over the last 20 years. In 2019, this is equivalent to 80 SRs per day. Over time, SRs got more diverse in respect to journals, type of review, and country of corresponding authors. The high proportion of meta-analyses from China needs further investigation. **STUDY REGISTRATION:** Open Science Framework (<https://osf.io/pxjrv/>)

Huang C, Greig D, and Cheng H. Allergic contact dermatitis in healthcare workers. Occupational Medicine. 2021; 71(6-7):294-297.

<https://doi.org/10.1093/occmed/kqab118>

Abstract: **BACKGROUND:** Allergic contact dermatitis is a common occupational skin disease among healthcare workers (HCWs). **AIMS:** This study describes causes of allergic contact dermatitis in New Zealand HCWs. **METHODS:** All HCWs undergoing patch testing between July 2008 and January 2020 at a public hospital patch test clinic and between June 2019 and January 2020 at a private



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dermatology clinic were included. Data collected included patient demographics, occupation, results of patch testing and pre- and post-patch test diagnoses. RESULTS: Out of 837 patients tested, 67 were HCWs. The mean age of HCWs was 41 years (SD 14) and 58 (87%) were female. The most common occupations were nurses (40%), allied health (22%) and doctors (18%). Forty-six (69%) patients had a background of atopic dermatitis. Hand dermatitis was the most common presentation (49%), followed by facial/neck dermatitis (25%). Thirty-eight (57%) had at least one positive reaction on patch testing, including 19 (28%) with a positive result of current relevance. There were 16 relevant reactions to rubber accelerators, 11 to fragrances, 10 to preservatives and 6 to corticosteroids. The most frequent relevant allergens were methylisothiazolinone/methylchloroisothiazolinone (4%), hydroxyisohexyl 3-cyclohexene carboxaldehyde (4%) and methylisothiazolinone (4%). CONCLUSIONS: The most common allergens in HCWs were rubber chemicals, fragrances, preservatives and topical corticosteroids. Important allergens for patch testing HCWs are outlined, in particular, those with hand dermatitis should be tested to a rubber series

Karstad K, Rasmussen CDN, Rasmussen CL, Rugulies R, Sogaard K, Burdorf A, et al. The influence of organizational factors, eldercare worker characteristics and care situation on the use of assistive devices during resident handling in eldercare work. *Applied Ergonomics*. 2022; 98:103533.

<https://doi.org/10.1016/j.apergo.2021.103533> [open access]

Abstract: We evaluated the influence of organization, eldercare worker and care situation on the use of assistive devices during resident handling in eldercare work. We conducted a multi-level study among 20 nursing homes, 126 wards within the nursing homes, 549 eldercare workers within the wards, who performed a total of 1306 care episodes including 3695 resident handlings. The influence of organization (i.e. nursing home and ward), eldercare worker and care situation (i.e. care episode and resident handling) on the use of assistive devices was evaluated using variance components analysis and multivariate generalized linear mixed model. Nursing homes, wards, eldercare workers, care episodes and 'within care episode' all contributed to the total variance in use of assistive devices.



Organizational factors and care situation factors were significantly associated with use of assistive devices. All levels of the nursing homes, but in particular care situation, influence the use of assistive devices during resident handling

Leivas EG, Correa LA, and Nogueira LAC. The relationship between low back pain and the basic lumbar posture at work: a retrospective cross-sectional study. International Archives of Occupational & Environmental Health. 2021; [epub ahead of print].

<https://doi.org/10.1007/s00420-021-01778-9>

Abstract: Purpose: This study aimed to analyze the relationship between work-related lumbar posture (sitting, standing, walking, alternating posture) and LBP in workers. Methods: This is a retrospective study comprising 529 records of adult workers from a database of a private company. Predominant work-related lumbar posture was classified based on time spent in each posture. A total of 22 personal, occupational, clinical, and psychosocial covariates were evaluated. LBP symptoms in the last 12 months and during the last 7 days were the outcomes of the study. The multivariate analysis model evaluated the independent relationship between the work-related lumbar posture classification and other potential exposure factors with LBP. Results: The adjusted logistic regression model indicated that predominant walking reduced the likelihood to report LBP during the last 12 months when compared to standing (OR = 0.54; 95% CI 0.30, 0.99; $p = 0.048$), but there is no association between work-related postures and recent LBP. The adjusted analyses also revealed an association between LBP during the last 12 months and female sex, blue-collar task, frequently feeling tiredness, pain at any other body region previous 12 months, previous LBP, and monotonous work. Recent LBP was associated with female sex, pain at any other body region last 7 days, and previous LBP. Conclusions: Standing posture increases the likelihood to report LBP during the last 12 months when compared to walking. LBP over previous year and during the previous 7 days was associated with personal and clinical factors.

Moldvik I, Stahl C, and Mussener U. Work ethics and societal norms influence sick leave and return to work: tales of



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transformation. Disability and Rehabilitation. 2021; 43(21):3031-3040.

<https://doi.org/10.1080/09638288.2020.1728398>

Abstract: PURPOSE: This study's purpose was to explore how people on sick leave manage societal norms and values related to work, and how these influence their perspectives of themselves throughout the rehabilitation process. MATERIALS AND METHODS: This was a longitudinal interview study with a narrative approach, comprising 38 interviews with 11 individuals on long-term sick leave. Data collection was conducted in two phases and analysed iteratively through content analysis. RESULTS: The results suggest that work ethics and societal norms influence individuals' views of themselves and the sick leave and rehabilitation process. Conforming one's personal values to the work norm can create internal conflicts and cause feelings of shame for not being able to live up to the established norm. The strong work norm may create unrealistic expectations, which in some cases may result in constraining the return to work process. CONCLUSION: To transform a sick leave narrative into a positive one, societal norms and their influence on identity needs to be recognised. Stakeholders involved in the process can contribute to a positive transformation by not only supporting return to work, but also to acknowledge and help people manage their self-image as having a disability that limits their ability to work. IMPLICATIONS FOR REHABILITATION Stakeholders involved in the sick leave and rehabilitation process need to support sick listed individuals by acknowledging and helping people manage their self-image. Full RTW is not always the best option from a quality of life and wellbeing perspective. Treatment and support from stakeholders should be viewed as meaningful and legitimate, even if it does not lead to RTW

Nardon L, Zhang H, Szkudlarek B, and Gulanowski D. Identity work in refugee workforce integration: the role of newcomer support organizations. Human Relations. 2021; 74(12):1994-2020.

<https://doi.org/10.1177/0018726720949630>

Persaud E, Afable A, Geer LA, and Landsbergis P. Opioids and the workplace prevention and response awareness training:



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mixed methods follow-up evaluation. *New Solutions*. 2021; 31(3):271-285.

<https://doi.org/10.1177/10482911211010343>

Abstract: The National Institute of Environmental Health Sciences Worker Training Program piloted an Opioids and the Workplace: Prevention and Response training tool and program in 2019. The pilot trainees (N = 97) were surveyed (n = 27) and interviewed (n = 6) six months posttraining, and those who downloaded the training tool from the Worker Training Program website (n = 87) were surveyed (n = 19) and interviewed (n = 1) two to six months postdownload, to evaluate the impact of the training program. Workplace policy and program-level actions were reported less frequently than individual-level actions by trainees, except for planning and conducting training and education. Barriers to taking actions included not being able to make changes on their own without supervisor support and lack of upper management support and approval. We found some evidence that the Opioids in the Workplace training program and materials contributed to helping workers introduce policies and programs related to opioids within their workplace or union.

Taouk Y, Spittal MJ, Disney G, and LaMontagne AD. Changes in job control and perceptions of general health: a longitudinal analysis of Australian Workers, 2005 to 2017. *Journal of Occupational & Environmental Medicine*. 2021; 63(10):813-820.

<https://doi.org/10.1097/JOM.0000000000002259>

Abstract: OBJECTIVE: This longitudinal study of Australian workers explores a possible causal relationship between job control and general health. METHODS: Our sample included 105,017 observations (18,574 persons) over 13 annual waves from working age participants with information on job control, general health, and other sociodemographic and health factors. Three complementary longitudinal modeling approaches were used to explore the causal relationship. RESULTS: There was a strong stepwise, mostly exposure to outcome, relationship between increasing job control and general health. Cumulative exposure to low job control resulted in increasingly worse general health. Taken together, these findings provide good evidence of a causal relationship between low job control and general health. CONCLUSION: This analysis with improved causal inference over previous research showed that



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change in job control is strongly associated with change in general health

Wong JJ, Cote P, Tricco AC, Watson T, and Rosella LC. Effect of back problems on healthcare utilization and costs in Ontario, Canada: a population-based matched cohort study. Pain. 2021; 162(10):2521-2531.

<https://doi.org/10.1097/j.pain.0000000000002239>

Abstract: We assessed the effect of back problems on healthcare utilization and costs in a population-based sample of adults from a single-payer health system in Ontario. We conducted a population-based cohort study of Ontario respondents aged 18 years of the Canadian Community Health Survey (CCHS) from 2003 to 2012. The CCHS data were individually linked to health administrative data to measure healthcare utilization and costs up to 2018. We propensity score-matched (hard matched on sex) adults with self-reported back problems to those without back problems, accounting for sociodemographic, health-related, and behavioural factors. We evaluated cause-specific and all-cause healthcare utilization and costs adjusted to 2018 Canadian dollars using negative binomial and linear (log transformed) regression models. After propensity score matching, we identified 36,806 pairs (women: 21,054 pairs; men: 15,752 pairs) of CCHS respondents with and without back problems (mean age 51 years, standard deviation = 18). Compared with propensity score matched adults without back problems, adults with back problems had 2 times the rate of cause-specific visits (rate ratio [RR]women 2.06, 95% confidence interval [CI] 1.88-2.25; RRmen 2.32, 95% CI 2.04-2.64), slightly more all-cause physician visits (RRwomen 1.12, 95% CI 1.09-1.16; RRmen 1.10, 95% CI 1.05-1.14), and 1.2 times the costs (women: 1.21, 95% CI 1.16-1.27; men: 1.16, 95% CI 1.09-1.23). Incremental annual per-person costs were higher in adults with back problems than those without back problems (women: \$395, 95% CI \$281-\$509; men: \$196, 95% CI \$94-\$300). This corresponded to \$532 million for women and \$227 million for men (adjusted to 2018 Canadian dollars) annually in Ontario given the high prevalence of back problems. Given the high health system burden, new strategies to effectively prevent and treat back problems and thus potentially reduce the long-term costs are warranted



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