IWH Research Alert
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*He JW, Diaz Martinez JP, Bingham K, Su J, Kakvan M, Tartaglia MC, Ruttan L, Beaton D, et al. Insight into intraindividual variability across neuropsychological tests and its association with cognitive dysfunction in patients with lupus. Lupus Science & Medicine. 2021; 8(1):e000511.
https://doi.org/10.1136/lupus-2021-000511   [open access]

Abstract: Objective: Dispersion, or variability in an individual's performance across multiple tasks at a single assessment visit, has been associated with cognitive dysfunction (CD) in many neurodegenerative and neurodevelopmental disorders. We aimed to compute a dispersion score using neuropsychological battery (NB) tests and determine its association with CD in patients with SLE. Methods: CD was defined as a z-score of =-1.5 on =2 domains of the NB. To compute a type of dispersion score known as the intraindividual SD (ISD), the SD of age-adjusted and sex-adjusted z-scores was calculated for each visit in each patient. To estimate the association between ISD and cognitive status (CD and non-CD), we used multilevel logistic regression, adjusting for clinically important covariates. Results: A total of 301 adult patients with SLE completed the NB at baseline, 187 of whom were reassessed at 6 months and

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189 at 12 months. CD was observed in 35.2% of patients at baseline, 27.8% at 6 months and 28.0% at 12 months. Prior to covariate adjustment, the mean ISD for non-CD was 1.10±0.31 compared with 1.50±0.70 for CD. After adjusting for ethnicity, education, employment, socioeconomic status and anxiety/depression, there was a statistically significant association between ISD and CD (OR for one-unit increase in ISD: 13.56, 95% CI 4.80 to 38.31; OR for 1/10th-unit increase in ISD: 1.30, 95% CI 1.17 to 1.44). Findings were valid across multiple sensitivity analyses. Conclusion: This is the first study to show that patients with SLE who were classified as having CD by the NB had more variability across the NB tests (ie, higher ISD score) compared with those who were not classified as having CD.

*Lee JJY, Gignac MAM, and Johnson SR. Employment outcomes in systemic sclerosis. Best Practice & Research, Clinical Rheumatology. 2021; 35(3):101667.
https://doi.org/10.1016/j.berh.2021.101667
Abstract: Work disability is highly prevalent in the systemic sclerosis (SSc) population; yet, it is an area of research that continues to be underrecognized and underexplored. In this chapter, we review the burden of this work disability by exploring the reported prevalence of work loss, the risk factors associated with reduced work participation, the impact on work productivity outcomes, and the economic consequences of work disability in individuals with SSc. Finally, we discuss the potential challenges in the workplace and strategies that may foster employment retention in this population. We subsequently present a conceptual framework for work disability in the context of SSc, which incorporates our understanding of the various work disability concepts and the potential facilitators that may accelerate a worker toward complete work loss

*Perruccio AV, Yip C, Power JD, Canizares M, Gignac MAM, and Badley EM. Understanding the association between osteoarthritis and social participation: the Canadian longitudinal study on aging. Arthritis Care and Research. 2021; [epub ahead of print].
https://doi.org/10.1002/acr.24366
Abstract: OBJECTIVE: The focus on disability in osteoarthritis (OA) has largely been on the ability to perform specific activities, which

neglects the greater implications for social participation. We investigated the association between OA and social participation, considering activity limitations and instrumental supports as intervening variables in the association. METHODS: Data were from 21,214 respondents, ages 45-85 years, from cycle 1 of the Canadian Longitudinal Study on Aging. The questionnaire elicited information regarding self-reported doctor-diagnosed OA, difficulty with 14 activities, perceived availability and receipt of instrumental supports, and 17 social participation activities. Structural equation modeling was used. The primary outcome was social participation, and the primary predictor was OA. The intervening variables included activity limitations, received instrumental supports, and perceived instrumental supports. Latent variables were developed for intervening and social participation variables. The covariates included age, sex, body mass index, income, education, smoking, and comorbidity count. RESULTS: The mean age of the respondents was 63 years, 51% were female, and 26.5% reported having OA. Two distinct social participation indicators were identified, including social participation-diversity and social participation-intensity. When intervening variables were not considered, minimal/no association was found between OA and social participation. When intervening variables were considered, unique pathways linking OA and social participation were found. The overall negative association between activity limitations and social participation was partially direct and partially buffered by both receipt of and perceived availability of instrumental supports. In the absence of activity limitations, OA was associated with greater social participation. CONCLUSION: Enhanced social participation in people with OA who do not have activity limitations may reflect proactive steps taken by those with mild OA to maintain activity and social engagement. For those with activity limitations, findings highlight the need for interventions to mitigate limitations and draw particular attention to the importance of both provision and awareness of available instrumental supports in maintaining social participation

Beckman KL, Monsey LM, Archer MM, Errett NA, Bostrom A, and Baker MG. Health and safety risk perceptions and needs of app-based drivers during COVID-19. American Journal of Industrial Medicine. 2021; 64(11):941-951.

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Abstract: BACKGROUND: App-based drivers face work disruptions and infection risk during a pandemic due to the nature of their work, interactions with the public, and lack of workplace protections. Limited occupational health research has focused on their experiences. METHODS: We surveyed 100 app-based drivers in Seattle, WA to assess risk perceptions, supports, and controls received from the company that employs them, sources of trust, stress, job satisfaction, COVID-19 infection status, and how the pandemic had changed their work hours. Data were summarized descriptively and with simple regression models. We complemented this with qualitative interviews to better understand controls and policies enacted during COVID-19, and barriers and facilitators to their implementation. RESULTS: Drivers expressed very high levels of concern for exposure and infection (86%-97% were "very concerned" for all scenarios). Only 31% of drivers reported receiving an appropriate mask from the company for which they drive. Stress (assessed via PSS-4) was significantly higher in drivers who reported having had COVID-19, and also significantly higher in respondents with lower reported job satisfaction. Informants frequently identified supports such as unemployment benefits and peer outreach among the driver community as ways to ensure that drivers could access available benefits during COVID-19. CONCLUSIONS: App-based drivers received few protections from the company that employed them, and had high fear of exposure and infection at work. There is increased need for health-supportive policies and protections for app-based drivers. The most effective occupational and public health regulations would cover employees who may not have a traditional employer-employee relationship

Burlet-Vienney D, Chinniah Y, Nokra A, and Ben Mosbah A. Safety in the Quebec construction industry: an overview of and possible improvements in hazardous energy control using lockout on construction sites by electricians, pipefitters, refrigeration mechanics and construction millwrights. Safety Science. 2021; 144:105468.
https://doi.org/10.1016/j.ssci.2021.105468

Cherrie JW, Cherrie MPC, Smith A, Holmes D, Semple S, Steinle S, et al. Contamination of air and surfaces in workplaces with SARS-CoV-2 virus: a systematic review. Annals of Work Exposures and Health. 2021; 65(8):879-892.
https://doi.org/10.1093/annweh/wxab026 **[open access]**

Abstract: OBJECTIVES: This systematic review aimed to evaluate the evidence for air and surface contamination of workplace environments with SARS-CoV-2 RNA and the quality of the methods used to identify actions necessary to improve the quality of the data. METHODS: We searched Web of Science and Google Scholar until 24 December 2020 for relevant articles and extracted data on methodology and results. RESULTS: The vast majority of data come from healthcare settings, with typically around 6% of samples having detectable concentrations of SARS-CoV-2 RNA and almost none of the samples collected had viable virus. There were a wide variety of methods used to measure airborne virus, although surface sampling was generally undertaken using nylon flocked swabs. Overall, the quality of the measurements was poor. Only a small number of studies reported the airborne concentration of SARS-CoV-2 virus RNA, mostly just reporting the detectable concentration values without reference to the detection limit. Imputing the geometric mean air concentration assuming the limit of detection was the lowest reported value, suggests typical concentrations in healthcare settings may be around 0.01 SARS-CoV-2 virus RNA copies m-3. Data on surface virus loading per unit area were mostly unavailable. CONCLUSIONS: The reliability of the reported data is uncertain. The methods used for measuring SARS-CoV-2 and other respiratory viruses in work environments should be standardized to facilitate more consistent interpretation of contamination and to help reliably estimate worker exposure

Dang JV, Rosemberg MS, and Le AB. Perceived work exposures and expressed intervention needs among Michigan nail salon workers. International Archives of Occupational & Environmental Health. 2021; 94(8):2001-2013.
https://doi.org/10.1007/s00420-021-01719-6 **[open access]**

Abstract: BACKGROUND: Nail salon workers are an underserved population exposed to various occupational hazards. Comprised primarily of women and immigrants, these workers face challenges

that further increase their workplace exposures and adverse health outcomes. Though previous studies have noted nail salon workers' exposures, these studies have yet to explore the workers' insights on intervention needs. This study among Michigan nail salon workers addresses this gap. METHODS: This qualitative study was informed by the phenomenology methodological framework anchored within critical social theory. Participants were recruited from nail salons in Southeast Michigan to partake in focus groups. Interviews were recorded, transcribed, and analyzed using content analysis. RESULTS: Three focus groups were conducted with 13 participants. Three major categories emerged. The first category, workers' perceived work-related stressors, included six themes: lack of standardized policies, regulations, education/training; disconnect between education/training and real-world practice; inadequate knowledge on exposures and safety protocols; unsafe nail products; customer pressure; and immigrant-related pressures. The second category, health issues perceived to be directly related to workplace exposures, included two themes: symptoms experienced due to contact with nail products and symptoms due to poor ergonomics. The third category, participants' perceived intervention needs, included four themes: continuing education; updates with new products; communication with key stakeholders; and partnership building and resource access. CONCLUSIONS: To our knowledge, this is the first qualitative study among U.S. nail salon workers focused in Midwest. In addition to the noted individual and organizational-level interventions, policy level implications are discussed given discrepancies in training and practices across states

Dunn KM, Campbell P, Lewis M, Hill JC, Van Der Windt DA, Afolabi E, et al. Refinement and validation of a tool for stratifying patients with musculoskeletal pain. European Journal of Pain. 2021; 25(10):2081-2093.
https://doi.org/10.1002/ejp.1821
Abstract: BACKGROUND: Patients with musculoskeletal pain in different body sites share common prognostic factors. Using prognosis to stratify and treatment match can be clinically and cost-effective. We aimed to refine and validate the Keele STarT MSK Tool for prognostic stratification of musculoskeletal pain patients. METHODS: Tool refinement and validity was tested in a prospective

cohort study, and external validity examined in a pilot cluster randomized controlled trial (RCT). Study population comprised 2,414 adults visiting U.K. primary care with back, neck, knee, shoulder or multisite pain returning postal questionnaires (cohort: 1,890 [40% response]; trial: 524). Cohort baseline questionnaires included a draft tool plus refinement items. Trial baseline questionnaires included the Keele STarT MSK Tool. Physical health (SF-36 Physical Component Score [PCS]) and pain intensity were assessed at 2- and 6-month cohort follow-up; pain intensity was measured at 6-month trial follow-up. RESULTS: The tool was refined by replacing (3), adding (3) and removing (2) items, resulting in a 10-item tool. Model fit (R^2) was 0.422 and 0.430 and discrimination (c statistic) 0.839 and 0.822 for predicting 6-month cohort PCS and pain (respectively). The tool classified 24.9% of cohort participants at low, 41.7% medium and 33.4% high risk, clearly discriminating between subgroups. The tool demonstrated model fit of 0.224 and discrimination 0.73 in trial participants. Multiple imputation confirmed robustness of findings. CONCLUSIONS: The Keele STarT MSK Tool demonstrates good validity and acceptable predictive performance and clearly identifies groups of musculoskeletal pain patients with different characteristics and prognosis. Using prognostic information for stratification and treatment matching may be clinically/cost-effective. SIGNIFICANCE: The paper presents the first musculoskeletal pain prognostic stratification tool specifically for use among all primary care patients with the five most common musculoskeletal pain presentations (back, neck, knee, shoulder or multisite pain). The Keele STarT MSK Tool identifies groups of musculoskeletal pain patients with clearly different characteristics and prognosis. Using this tool for stratification and treatment matching may be clinically and cost-effective

Fukui S, Salyers MP, Morse G, and Rollins AL. Factors that affect quality of care among mental health providers: focusing on job stress and resources. Psychiatric Rehabilitation Journal. 2021; 44(3):204-211.
Abstract: Objective: High-quality, person-centered care is a priority for mental health services. The current study conducted secondary data analysis to examine the impact of job stress (i.e., interaction with high-risk consumer cases, increased caseload, emotional exhaustion)

and resources (i.e., increased organizational and supervisory support, autonomy, role clarity) on providers' perceived quality of care. Methods: Data consisted of 145 direct care providers from an urban community mental health center. Structural equation modeling was used for testing the hierarchical regression model, sequentially adding job stress and resource variables in the prediction models for the quality of care (i.e., person-centered care, discordant care [conflict with consumers and tardiness]). Results: Person-centered care was positively associated with increased role clarity, organizational support, and larger caseload size, while a lower level of discordant care was associated with lower emotional exhaustion, smaller caseload size, less interaction with high-risk consumer cases, and with increased role clarity. Conclusions and Implications for Practice: Resources on the job may be particularly important for improved person-centered care, and lowering job stress may help reduce discordant care. The current study suggests the need for the mental health organizations to attend to both job stress and resources for providers to improve the quality of care. (PsycInfo Database Record (c) 2021 APA, all rights reserved)

Harris MA, Kim J, and Demers P. Metabolic health measurements of shift workers in a national cross-sectional study: results from the Canadian Health Measures Survey. American Journal of Industrial Medicine. 2021; 64(11):895-904.
https://doi.org/10.1002/ajim.23283

Abstract: BACKGROUND: Shift work exposure may be a concern for a range of health effects, including metabolic health outcomes such as insulin resistance, high body weight, and abdominal obesity. METHODS: We analyzed shift work and indicators of metabolic health (overweight/obesity defined by body mass index, self-reported changes in body mass index (BMI) in previous 1 and 10 years, waist circumference, waist-to-hip ratio, and insulin resistance assessed by the homeostasis model assessment 2 (HOMA-2-IR)) in the cross-sectional Canadian Health Measures Survey (CHMS). We analyzed descriptive characteristics of shift workers (regular night, evening, and rotating shift) and used multivariable linear regression to examine the association between two definitions of shift work exposure and measures of metabolic health, adjusted for age, sex, daily energy expenditure, sleep, and poor dietary quality. RESULTS: 5470

anthropometry (2637 fasting) participants in CHMS Cycles 1 and 2 were included, of whom 16.5% worked regular evening, night, or rotating shifts. Shift workers were younger and slept longer hours than non-shift workers. Bivariate associations showed inverse relationships between shift work and BMI, waist circumference, waist-to-hip ratio, and HOMA-2-IR. In adjusted analyses, BMI was inversely related to shift work, and other metabolic health outcomes showed no significant associations. CONCLUSIONS: Healthy worker effects (including self-selection of exposure) could explain inverse relationships, particularly as the cross-sectional design only allowed assessment of current exposure. Key strengths include the population-based design and measurement of metabolic health indicators. Results underscore the importance of consideration of the health of shift workers following departure from the exposed population

Iskander N and Lowe N. Turning rules into resources: worker enactment of labor standards and why it matters for regulatory federalism. ILR Review. 2021; 74(5):1258-1282.
https://doi.org/10.1177/0019793921994822

Jackson H, Young NAE, and Taylor D. Beyond question wording: how survey design and administration shape estimates of disability. Disability and Health Journal. 2021; 14(4):101115.
https://doi.org/10.1016/j.dhjo.2021.101115
Abstract: BACKGROUND: Between 2008 and 2014, annual estimates of disability prevalence among U.S. adults varied somewhat across federal surveys that use a standardized measure of disability, but trends over-time were relatively stable and consistent. In 2014, however, estimates of disability from the Survey of Income and Program Participation (SIPP) increased markedly relative to previous years and were much higher than disability estimates from other federal surveys. OBJECTIVE: To examine why disability prevalence among adults aged 40 and older substantially increased in the first wave of the 2014 SIPP Panel. METHODS: We consider three factors that may have contributed to the rise in disability: data processing, context effects linked to question order, and sampling. To do so, we compare estimates with and without survey weights and imputed data, analyze supplemental disability-related data collected

among SIPP participants, and employ decomposition analysis to assess what proportion of the increase in disability can be attributed to changes in sample composition. RESULTS: We find evidence that differences in sample composition contributed to the observed rise in disability prevalence in SIPP between 2011 and 2014. There is less evidence that weighting and imputation or context effects played a role. CONCLUSIONS: Previous studies emphasize differences in operationalization and conceptualization of disability as the major factor driving discrepancies in disability estimates. This study suggests that other factors related to survey design and administration may influence disability measurement. Such aspects of surveys, like question order and sampling, may be difficult to standardize, leading to meaningful cross-survey differences in disability estimates

Kino S, Hsu YT, Shiba K, Chien YS, Mita C, Kawachi I, et al. A scoping review on the use of machine learning in research on social determinants of health: trends and research prospects. SSM - Population Health. 2021; 15:100836.
Abstract: Background: Machine learning (ML) has spread rapidly from computer science to several disciplines. Given the predictive capacity of ML, it offers new opportunities for health, behavioral, and social scientists. However, it remains unclear how and to what extent ML is being used in studies of social determinants of health (SDH). Methods: Using four search engines, we conducted a scoping review of studies that used ML to study SDH (published before May 1, 2020). Two independent reviewers analyzed the relevant studies. For each study, we identified the research questions, Results, data, and algorithms. We synthesized our findings in a narrative report. Results: Of the initial 8097 hits, we identified 82 relevant studies. The number of publications has risen during the past decade. More than half of the studies (n = 46) used US data. About 80% (n = 66) utilized surveys, and 70% (n = 57) employed ML for common prediction tasks. Although the number of studies in ML and SDH is growing rapidly, only a few studies used ML to improve causal inference, curate data, or identify social bias in predictions (i.e., algorithmic fairness). Conclusions: While ML equips researchers with new ways to measure health outcomes and their determinants from non-

conventional sources such as text, audio, and image data, most studies still rely on traditional surveys. Although there are no guarantees that ML will lead to better social epidemiological research, the potential for innovation in SDH research is evident as a result of harnessing the predictive power of ML for causality, data curation, or algorithmic fairness.

LoMartire R, Bjork M, Dahlstrom O, Constan L, Frumento P, Vixner L, et al. The value of interdisciplinary treatment for sickness absence in chronic pain: a nationwide register-based cohort study. European Journal of Pain. 2021; 25(10):2190-2201.
Abstract: BACKGROUND: Interdisciplinary treatment (IDT) is an internationally recommended intervention for chronic pain, despite inconclusive evidence of its effects on sickness absence. METHODS: With data from 25,613 patients in Swedish specialist healthcare, we compared sickness absence, in the form of both sick leave and disability pensions, over a 5-year period between patients either allocated to an IDT programme or to other/no interventions (controls). To obtain population-average estimates, a Markov multistate model with theory-based inverse probability weights was used to compute both the proportion of patients on sickness absence and the total sickness absence duration. RESULTS: IDT patients were more likely than controls to receive sickness absence benefits at any given time (baseline: 49% vs. 46%; 5-year follow-up: 36% vs. 35%), and thereby also had a higher total duration, with a mean (95% CI) of 67 (87, 48) more days than controls over the 5-year period. Intriguingly, sick leave was higher in IDT patients (563 [552, 573] vs. 478 [466, 490] days), whereas disability pension was higher in controls (152 [144, 160] vs. 169 [161, 178] days). CONCLUSION: Although sickness absence decreased over the study period in both IDT patients and controls, we found no support for IDT decreasing sickness absence more than other/no interventions in chronic pain patients. SIGNIFICANCE: In this large study of chronic pain patients in specialist healthcare, sickness absence is compared over a 5-year period between patients in an interdisciplinary treatment programme and other/no interventions. Sickness absence decreased over the study period in both groups; however, there was no support for that it

decreased more with interdisciplinary treatment than alternative interventions

Michael J and Gorucu S. Occupational tree felling fatalities: 2010-2020. American Journal of Industrial Medicine. 2021; 64(11):969-977.
Abstract: BACKGROUND: Logging and landscape work are among the most hazardous occupations, and one of the most dangerous tasks in these occupations is tree felling. While much research has been conducted to examine fatalities from logging and landscape services, there is a dearth of research looking specifically at tree felling. There is a need to focus on hazards associated with tree felling activities so that proactive prevention strategies can be developed. METHODS: An Occupational Safety and Health Administration (OSHA) database was used to identify occupational tree-felling fatalities in the United States during the period from 2010 through the first half of 2020. We compared data for the two industry segments of logging and landscaping services. RESULTS: There were 314 fatalities over the period. The victims were overwhelmingly male with the median age being 43. Struck-by was the number one event type causing fatalities, with the head being the number one body part involved in fatalities. Falls from elevation was the only event type significantly different between the logging and landscaping industries. Poor decision-making is noted as a key component of fatal incidents, but bystanders were fatally injured due to the actions of others. CONCLUSIONS: Tree felling is one of the most hazardous activities for both loggers and commercial landscapers and is a common cause of fatalities; significant differences in events and source are encountered in those two occupations. Loggers should continue efforts to adopt mechanized harvesting methods. Landscape services tree fellers should receive training related to fall prevention

Mueller AK, Singh A, Webber MP, Hall CB, Prezant DJ, and Zeig-Owens R. PTSD symptoms, depressive symptoms, and subjective cognitive concerns in WTC-exposed and non-WTC-exposed firefighters. American Journal of Industrial Medicine. 2021; 64(10):803-814.

Abstract: Background: Firefighting has been associated with posttraumatic stress disorder (PTSD) and other mental health conditions. We previously found that among Fire Department of the City of New York (FDNY) responders to the World Trade Center (WTC) disaster, higher-intensity WTC-exposure predicted PTSD symptoms, depressive symptoms, and subjective cognitive concerns. The present study aims to compare these symptoms in the FDNY WTC-exposed cohort versus a comparison cohort of non-FDNY, non-WTC-exposed firefighters. Methods: The study population included WTC-exposed male firefighters from FDNY (N = 8466) and non-WTC-exposed male firefighters from Chicago (N = 1195), Philadelphia (N = 770), and San Francisco (N = 650) fire departments who were employed on 9/11/2001 and completed a health questionnaire between 3/1/2018 and 12/31/2020. Current PTSD symptoms, depressive symptoms, and subjective cognitive concerns were assessed via validated screening instruments. Multivariable linear regression analyses stratified by fire department estimated the impact of covariates on each outcome. Results: Adjusted mean PTSD symptom scores ranged from 23.5 ± 0.6 in Chicago firefighters to 25.8 ± 0.2 in FDNY, and adjusted mean depressive symptom scores ranged from 7.3 ± 0.5 in Chicago to 9.4 ± 0.6 in Philadelphia. WTC-exposure was associated with fewer subjective cognitive concerns (ß = -0.69 ± 0.05, p < .001) after controlling for covariates. Across cohorts, older age was associated with more cognitive concerns, but fewer PTSD and depressive symptoms. Conclusions: WTC-exposed firefighters had fewer cognitive concerns compared with non-WTC-exposed firefighters. We were unable to estimate associations between WTC exposure and PTSD symptoms or depressive symptoms due to variability between non-WTC-exposed cohorts. Longitudinal follow-up is needed to assess PTSD, depressive, and cognitive symptom trajectories in firefighter populations as they age.

Navarro A, Llorens C, Salas-Nicas S, and Moncada S. Going to work with COVID-19 symptoms among non-sanitary (or socio-sanitary) workers: an issue of social inequality. Public Health. 2021; 198:6-8.
https://doi.org/10.1016/j.puhe.2021.06.022 [open access]
Abstract: OBJECIVES: To describe the characteristics of the workers

of activity sectors other than sanitary and socio-sanitary, who go to work with COVID-19 symptoms (GWC19S) during the lockdown or first phase of the lockdown de-escalation in Spain. STUDY DESIGN: An observational cross-sectional study based on a convenience sample selected from the COTS online survey. METHODS: A cross-sectional study based on a sample of n = 9601 workers. Descriptive analyses were performed calculating GWC19S prevalences and fitting robust Poisson regressions to obtain crude and adjusted prevalence ratios. RESULTS: The overall GWC19S prevalence is 5.6%, greater in young people (8.7%), manual workers (8.7%), workers with low salaries (9.5%), and workers of essential sectors (7.4%). Among those workers who went to work regularly to their workplaces, the GWC19S prevalence is 10.0%, greater in young (15.1%), workers with low salaries (14.2%), and women (13.2%). CONCLUSIONS: The axes of inequality of the labor market are clearly represented in the GWC19S phenomenon

Rao A, Ma H, Moloney G, Kwong JC, Juni P, Sander B, et al. A disproportionate epidemic: COVID-19 cases and deaths among essential workers in Toronto, Canada. Annals of Epidemiology. 2021; 63:63-67.
https://doi.org/10.1016/j.annepidem.2021.07.010   **[open access]**

Abstract: Shelter-in-place mandates and closure of nonessential businesses have been central to COVID19 response strategies including in Toronto, Canada. Approximately half of the working population in Canada are employed in occupations that do not allow for remote work suggesting potentially limited impact of some of the strategies proposed to mitigate COVID-19 acquisition and onward transmission risks and associated morbidity and mortality. We compared per-capita rates of COVID-19 cases and deaths from January 23, 2020 to January 24, 2021, across neighborhoods in Toronto by proportion of the population working in essential services. We used person-level data on laboratory-confirmed COVID-19 community cases and deaths, and census data for neighborhood-level attributes. Cumulative per-capita rates of COVID-19 cases and deaths were 3.3-fold and 2.5-fold higher, respectively, in neighborhoods with the highest versus lowest concentration of essential workers. Findings suggest that the population who continued to serve the essential needs of society throughout COVID-

19 shouldered a disproportionate burden of transmission and deaths. Taken together, results signal the need for active intervention strategies to complement restrictive measures to optimize both the equity and effectiveness of COVID-19 responses

da Rosa ACF, Lapasini Leal GC, Galdamez EVC, and de Souza RCT. Risk management in occupational safety: a systematic mapping. Work. 2021; 70(1):147-166.
https://doi.org/10.3233/WOR-213561

Abstract: BACKGROUND: Occupational safety risk management is a systemic process capable of promoting technical engineering solutions, considering a wide range of predictable, unexpected and subjective factors related to accident occurrences. In Brazil, the behavior of managers in relation to risk management tends to be reactive, and facilitates access to information for crucial practical and academic purposes when it comes to changing the attitude of managers, so that their actions become increasingly more proactive. OBJECTIVE: To identify, classify, analyze, and discuss the existing literature related to the topic, produced from 2008 to 2020, besides contributing to a broader understanding of risk management in occupational safety. METHODS: We did a systematic literature mapping. The research process was documented starting by the planning stage. Afterwards, the focus was on research conduction and information synthesis. RESULTS: Knowledge systematization and stratification about OHS risk management through various perspectives to identify, analyze and manage risks in the workplace. Were identified 37 tools for identifying and analyzing risks, management-related practices and future research trends. CONCLUSIONS: The set of tools and management practices identified can be used as a support for decision making in the selection process of tools and practices to reduce risks and improve occupational safety. Also, the results can help target future research

Stevens ML, Karstad K, Mathiassen SE, Januario LB, Holtermann A, and Hallman DM. What determines step-rate at work? An investigation of factors at the shift, worker, ward, and nursing home levels in eldercare. Annals of Work Exposures and Health. 2021; 65(8):919-927.
https://doi.org/10.1093/annweh/wxab027   **[open access]**

Abstract: OBJECTIVES: Current knowledge on the determinants of step-rate at different organizational levels is limited. Thus, our aim was to identify, in eldercare, at what workplace level differences in step-rate occur and to identify determinants of workers' step-rate at these levels. METHODS: Participants were 420 eldercare workers from 17 nursing homes (126 wards) in Denmark. Accelerometry was used to assess step-rate (steps per hour) of workers over multiple shifts. We assessed various determinants at different levels of the workplace, i.e. at the (i) shift, (ii) worker, (iii) ward, and (iv) nursing home levels. Variance components analysis identified the percentage contribution to total variance in step-rate from each respective level. Multi-level linear regression modelling was used to investigate the association between candidate determinants at each level and step-rate. RESULTS: Differences in eldercare workers' step-rate occurred primarily between shifts (within workers; 44.9%) and between workers (within wards; 49.1%). A higher step-rate was associated with: (i) weekend and evening shifts (versus weekday/day); (ii) job as a care helper (versus care aide) and an increased proportion of time spent on direct care tasks; (iii) working in a somatic ward (versus dementia), an increased resident-staff ratio and permission to take unscheduled breaks; and (iv) lack of elevators. CONCLUSIONS: We found that nearly all variability in step-rate in eldercare work occurs between shifts (within workers) and between workers (within wards). The main determinants of step-rate were related to the type of shift, type of work tasks, staffing ratio, break policy, and availability of elevators

Vallmuur K, McCreanor V, Cameron C, Watson A, Shibl R, Banu S, et al. Three Es of linked injury data: episodes, encounters and events. Injury Prevention. 2021; 27(5):479-489.
https://doi.org/10.1136/injuryprev-2020-044098
Abstract: BACKGROUND: Treatment and recovery times following injury can be lengthy, comprising multiple interactions with the hospital system for initial acute care, subsequent rehabilitation and possible re-presentation due to complications. AIMS: This article aims to promote the use of consistent terminology in injury data linkage studies, suggest important factors to consider when managing linked injury data, and encourage thorough documentation and a robust discourse around different approaches to data management to

ensure reproducibility, consistency and comparability of analyses arising from linked injury data. APPROACH: This paper is presented in sections describing: (1) considerations for identifying injury cohorts, (2) considerations for grouping Episodes into Encounters and (3) considerations for grouping Encounters into Events. Summary tools are provided to aid researchers in the management of linked injury data. DISCUSSION: Careful consideration of decisions made when identifying injury cohorts and grouping data into units of analysis (Episodes/Encounters/Events) is essential when using linked injury data. Choices made have the potential to significantly impact the epidemiological and clinical findings derived from linked injury data studies, which ultimately affect the quality of injury prevention initiatives and injury management policy and practice. It is intended that this paper will act as a call to action for injury linkage methodologists, and those using linked data, to critique approaches, share tools and engage in a robust discourse to further advance the use of linked injury data, and ultimately enhance the value of linked injury data for clinicians and health and social policymakers

Yang CC, Lee KW, Watanabe K, and Kawakami N. The association between shift work and possible obstructive sleep apnea: a systematic review and meta-analysis. International Archives of Occupational & Environmental Health. 2021; 94(8):1763-1772.

Abstract: Background: Shift work is a workschedule, since industrial era and some employees work in shift. It causes a desynchronization of the biological clock with consequences on sleep amount and quality, such as insomnia and easy fatigue. Obstructive sleep apnea (OSA) is one of the sleep problems that are getting more and more attention, but studies on the association between shift work and OSA were rare. Herein, we aimed to conduct a systematic review and meta-analysis to investigate the association between shift work and possible OSA. Methods: This study was conducted according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses guidelines. We queried PubMed, Embase, and Web of Science databases using a related set of keywords. The inclusion criteria were as follows: (1) participants were adult employees hired by a company or organization; (2) exposure was shift work; and (3)

outcome was possible OSA according to examination or assessment. Results: We included six studies in the systematic review and five studies were selected for further meta-analysis. A random-effects model showed an association of shift work with a small, non-significant increase in possible OSA cases (pooled prevalence relative risk = 1.05; 95% CI 0.85-1.30; p = 0.65). This association occurred in both healthcare and non-healthcare workers group. Conclusion: The association between shift work and possible OSA remains inconclusive and could be small if not negligible. Future studies should assess the association between specific work schedules and specific OSA definitions.

Trial registration number: PROSPERO ID: CRD42020156837.

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