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**April 3, 2020**

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**\*Newman K, DeForge R, Van Eerd D, Mok YW, and Cornelissen E. A mixed methods examination of knowledge brokers and their use of theoretical frameworks and evaluative practices. *Health Research Policy and Systems*. 2020; 18(1):34.**

<https://doi.org/10.1186/s12961-020-0545-8> [open access]

**Abstract:** BACKGROUND: Knowledge brokering is a knowledge translation approach that includes making connections between researchers and decision-makers to facilitate the latter's use of evidence in health promotion and the provision of healthcare. Despite knowledge brokering being well-established in Canada, many knowledge gaps exist, including understanding what theoretical frameworks have been developed and which evaluative practices knowledge brokers (KBs) use. METHODS: This study used a mixed methods design to examine how KBs in Canada (1) use frameworks, models and theories in their practice and (2) how they evaluate knowledge brokering interventions. We gathered interview and survey data from KB practitioners to better understand their perspectives on effective practices. Our analysis focused on understanding the theoretical frameworks used by KBs. RESULTS: This study demonstrates that KBs in Canada tend not to rely on theories or

models that are specific to knowledge brokering. Rather, study participants/respondents draw on (sometimes multiple) theories and models that are fundamental to the broader field of knowledge translation - in particular, the Knowledge to Action model and the Promoting Action Research in Health Sciences framework. In evaluating the impact of their own knowledge brokering practice, participants/respondents use a wide variety of mechanisms. Evaluation was often seen as less important than supporting knowledge users and/or paying clients in accessing and utilising evidence. CONCLUSIONS: Knowledge brokering as a form of knowledge translation continues to expand, but the impact on its targeted knowledge users has yet to be clearly established. The quality of engagement between KBs and their clients might increase - the knowledge brokering can be more impactful - if KBs made efforts to describe, understand and evaluate their activities using theories or models specific to KB

**Baggett C, Cole CR, Crowley G, and Sirmans ET. Spillover effects of increased health insurance enrollment on workers' compensation insurance. Risk Management and Insurance Review. 2020; 23(1):53-74.**

<https://doi.org/10.1111/rmir.12142>

**Bauer H, Nowak D, and Herbig B. Age, aging and physiological dysregulation in safety-critical work: a retrospective longitudinal study of helicopter emergency medical services pilots. International Archives of Occupational & Environmental Health. 2020; 93(3):301-314.**

<https://doi.org/10.1007/s00420-019-01482-9>

Abstract: PURPOSE: Concurrent progressive physiological dysregulation in different organ systems may be a driver of phenotypical frailty and is associated with morbidity and performance declines. In aging societies, health and performance of older workers are given increased scrutiny. However, there are few studies researching the effect of age on physiological dysregulation specifically in the working population and none for high-risk occupations with close medical supervision. Here, we aim to investigate this association cross-sectionally and longitudinally in a healthy sample of European helicopter emergency medical services

pilots. **METHODS:** Using a retrospective cohort design, we constructed indices of (a) physiological dysregulation state (N = 52 participants) and (b) pace of change (N = 41 participants, average follow-up 7.9 years) based on measurements of 18 health risk-associated biomarkers, as documented in the participating pilots' aeromedical examination records. The relationship of these two indices with average age (range 27.9-60.6 years) and average baseline age (29.3-57.2 years), respectively, was modeled by weighted least squares regression, adjusting for region of origin, smoking, and medication. **RESULTS:** Longitudinally, dysregulation significantly increased over the follow-up period, but the pace of change did not increase with baseline age. Cross-sectionally, we observed a significant negative quadratic effect of age on physiological dysregulation state, with maximum estimated physiological dysregulation at ages 45-50. **CONCLUSIONS:** As hypothesized, progression of dysregulation over approximately 8 years is observable in a healthy occupational sample but it does not accelerate (i.e., does not increase with baseline age). Increases in dysregulation are counteracted by what appears to be a strong healthy worker survivor effect. The study shows that the development of physiological dysregulation in high-risk occupations differs from that in the general population and that physiological dysregulation indices may be helpful in reconciling safety concerns and fair treatment of aging workers in safety-critical jobs

**Chang KC, Liao YH, Lee HC, Wu CY, Yen CL, Lin PL, et al. Musculoskeletal disorders, psychosocial stress and associated factors among home-based migrant care workers. *Work*. 2020; 65(3):647-659.**

<https://doi.org/10.3233/WOR-203119>

**Abstract:** **BACKGROUND:** Prevalence of musculoskeletal disorders (MSDs) and psychological stress in home-based female migrant care workers (MCWs) remain unknown. **OBJECTIVE:** To 1) investigate the prevalence of MSDs and psychological stress and associations between subjective questionnaires on MSDs/psychological stress and biomedical examinations, and 2) identify the risk factors related to MSDs and psychological stress. **METHODS:** This study recruited 85 MCWs. Data was collected using questionnaires, urine analysis and X-ray examinations. Correlations between subjective questionnaires

and biomedical examinations were investigated. Multivariable logistic regression analyses were used to explore risk factors. RESULTS: The prevalence of MSDs and psychological stress were 70.6% and 37.6%, respectively. MSDs were commonly reported over the neck, lower back, shoulders, and upper back. There was a moderate correlation between MSDs and abnormal X-ray findings. Risk factors associated with MSDs included higher education level, frequent transferring and bedside care activities, lacking caregiver training in Taiwan, inadequate sleep, and drinking tea or coffee. Risk factors associated with psychological stress included inadequate salary, lacking caregiver training in Taiwan, and insufficient knowledge of body mechanics techniques. CONCLUSIONS: MSDs and psychological stress were common among home-based female MCWs. Educational level, frequent transferring and bedside care activities, and lack of caregiver training in Taiwan, were the most dominant risk factors

**Donnelly M, Gordon S, and Bowling A. Income and employment equity of graduates with and without disabilities. Work. 2020; 65(3):547-561.**

<https://doi.org/10.3233/WOR-203109>

Abstract: BACKGROUND: Among Organisation for Economic Co-operation and Development [OECD] countries, Australians with disabilities are most at risk of experiencing poverty. Employment equity is essential for wellbeing, health and social inclusion. Reported differences in income level between people with and without disabilities vary widely between 0 to 47% depending on productivity assumptions. Contradictory to these assumptions, empirical research has demonstrated that people with disabilities often have equivalent skills, superior loyalty and lower absentee rates. OBJECTIVE: To investigate if there is a significant difference in the annual remuneration, hours worked and age-related career trajectory of graduates with and without disabilities. METHODS: Descriptive statistics and regression analysis were used to identify employment equity between graduates with and without disabilities in the 2011 Australian Census. RESULTS: Graduates with disabilities received a mean weekly income that was 53% of the income of graduates without disabilities and 85% of the mean hourly income. Female graduates with disabilities received the lowest mean income of all

subgroups at 35% of the mean weekly income of male graduates without disabilities CONCLUSION: This corroborates previous research that reports people with disabilities have difficulty obtaining employment, experience insecure employment and have fewer career and promotional opportunities. The income gaps were significantly greater than gaps previously reported

**Duryan M, Smyth H, Roberts A, Rowlinson S, and Sherratt F. Knowledge transfer for occupational health and safety: cultivating health and safety learning culture in construction firms. Accident Analysis and Prevention. 2020; 139:105496. <https://doi.org/10.1016/j.aap.2020.105496>**

Abstract: Within the last decades the incidence of workspace injuries and fatalities in the UK construction industry has declined markedly following the developments in occupational health and safety (OHS) management systems. However, safety statistics have reached a plateau and actions for further improvement of OHS management systems are called for. OHS is a form of organizational expertise that has both tacit and explicit dimensions and is situated in the ongoing practices. There is a need for institutionalization and for the transfer of knowledge across and along construction supply chains to reduce OHS risks and facilitate cultural change. The focus of this article is the factors that facilitate OHS knowledge transfer in and between organizations involved in construction projects. An interpretative methodology is used in this research to embrace tacit aspects of knowledge transfer and application. Thematic analysis is supported by a cognitive mapping technique that allows understanding of interrelationships among the concepts expressed by the respondents. This paper demonstrates inconsistency in OHS practices in construction organizations and highlights the importance of cultivating a positive safety culture to encourage transfer of lessons learnt from good practices, incidents, near misses and failures between projects, from projects to programmes and across supply chains. Governmental health and safety regulations, norms and guidelines do not include all possible safety issues specific to different working environments and tied to work contexts. The OHS system should encourage employees to report near misses, incidents and failures in a 'no-blame' context and to take appropriate actions. This research provides foundation for construction project practitioners to adopt

more socially oriented approaches towards promoting learning-rich organizational contexts to overcome variation in the OHS and move beyond the current plateau reached in safety statistics

**Edler-Buggy S, Birtwistle J, ElMokhallalati Y, Kindl K, Good P, and Bennett MI. Regular dosing compared with as-needed dosing of opioids for management of chronic cancer pain: systematic review and meta-analysis. Pain. 2020; 161(4):703-712. <https://doi.org/10.1097/j.pain.0000000000001755>**

Abstract: Opioids are the recommended form of analgesia for patients with persistent cancer pain, and regular dosing "by the clock" is advocated in many international guidelines on cancer pain management. The development of sustained-release opioid preparations has made regular dosing easier for patients. However, patients report that the intensity and impact of their cancer pain varies considerably day to day, and many try to find a trade-off between acceptable pain control and impact of cognitive (and other) adverse effects on daily activities. In acute care settings, (eg, postoperative) as-needed dosing and other opioid-sparing approaches have resulted in better patient outcomes compared with regular dosing. The aim of this study was to determine whether regular dosing of opioids was superior to as-needed dosing for persistent cancer pain. We systematically searched for randomised controlled trials that directly compared pain outcomes from regular dosing of opioids with as-needed dosing in adult cancer patients. We identified 4347 records, 25 randomised controlled trials meet the inclusion criteria, 9 were included in the review, and 7 of these included in meta-analysis. We found no clear evidence demonstrating superiority of regular dosing of opioids compared with as-needed dosing in persistent cancer pain, and regular dosing was associated with significantly higher total opioid doses. There was, however, a paucity of trials directly answering this question, and low-quality evidence limits the conclusions that can be drawn. It is clear that further high-quality clinical trials are needed to answer this question and to guide clinical practice

**Free H, Groenewold MR, and Luckhaupt SE. Lifetime prevalence of self-reported work-related health problems among U.S. workers: United States, 2018. MMWR - Morbidity & Mortality**

**Weekly Report. 2020; 69(13):361-365.**

<https://doi.org/10.15585/mmwr.mm6913a1> [open access]

Abstract: Approximately 2.8 million nonfatal workplace illnesses and injuries were reported in the United States in 2018 (1). Current surveillance methods might underestimate the prevalence of occupational injuries and illnesses (2,3). One way to obtain more information on occupational morbidity is to assess workers' perceptions about whether they have ever experienced health problems related to work (4). Occupational exposures might directly cause, contribute to, exacerbate, or predispose workers to various health problems (work-related health problems). CDC's National Institute for Occupational Safety and Health estimated the lifetime prevalence of self-reported, work-related health problems for the currently employed population overall and stratified by various demographic and job characteristics using data from the 2018 version of the SummerStyles survey. Overall, 35.1% of employed respondents had ever experienced a work-related health problem (95% confidence interval [CI] = 33.0%-37.3%). The most commonly reported work-related health problem was back pain (19.4%, 95% CI = 17.6%-21.2%). Among industries, construction (48.6%, 95% CI = 36.54%-60.58%) had the highest prevalence of any work-related health problems. Workplace injury and illness prevention programs are needed to reduce the prevalence of work-related health problems, especially in higher-risk industries

**He Y, Payne SC, Yao X, and Smallman R. Improving workplace safety by thinking about what might have been: a first look at the role of counterfactual thinking. Journal of Safety Research. 2020; 72:153-164.**

<https://doi.org/10.1016/j.jsr.2019.12.010>

Abstract: INTRODUCTION: Information processing theories of workplace safety suggest that cognition is an antecedent of safety behavior. However, little research has directly tested cognitive factors as predictors of workplace safety within organizational psychology and behavior research. Counterfactuals (cognitions about "what might have been") can be functional when they consist of characteristics (e.g., "upward" - focusing on better outcomes) that alter behavior in a manner consistent with those outcomes. This field study aimed to examine the influence of counterfactual thinking on

safety behavior and explanatory mechanisms and boundary conditions of that relationship. **METHOD:** A sample of 240 medical providers from a hospital in China responded to three surveys over a four-month time frame. **RESULTS:** Results showed that upward counterfactuals were positively related to supervisor ratings of safety compliance and participation. These relationships were mediated by safety knowledge but not by safety motivation. Upward counterfactuals were more strongly related to safety behavior and knowledge than downward counterfactuals. As expected, safety locus of control strengthened the mediating effects of safety knowledge on the relationship between upward counterfactuals and safety behavior. **Conclusions and Practical Applications:** The findings demonstrated that counterfactual thinking is positively associated with safety behavior and knowledge, thus expanding the variables related to workplace safety and laying some initial groundwork for new safety interventions incorporating counterfactual thinking

**Konsgen N, Barcot O, Hess S, Puljak L, Goossen K, Rombey T, et al. Inter-review agreement of risk-of-bias judgments varied in Cochrane reviews. Journal of Clinical Epidemiology. 2020; 120:25-32.**

<https://doi.org/10.1016/j.jclinepi.2019.12.016>

**Abstract:** **OBJECTIVES:** The objective of the study was to measure the level of agreement between Cochrane reviews of overlapping randomized controlled trials (RCTs) regarding risk-of-bias (RoB) judgments. **STUDY DESIGN AND SETTING:** On November 5, 2017, the Cochrane Database of Systematic Reviews was searched for Cochrane reviews on tobacco. Reviews that included overlapping RCTs were included. RoB judgments were extracted from RoB tables using automated data scraping with manual verification and adjustments. Agreement between the reviews was calculated using Conger's generalized kappa coefficient (kappa) and raw agreement (a). **RESULTS:** We included 53 Cochrane reviews of 376 RCTs. For the RoB domain "random sequence generation," the level of agreement between the reviews was substantial with kappa = 0.63 (95% confidence interval: 0.56 to 0.71; a = 0.80). There was slight-to-moderate agreement between the reviews regarding the domains "allocation concealment": kappa = 0.51 (0.41 to 0.61), a = 0.75; "blinding": kappa = 0.19 (0.02 to 0.37), a = 0.52; "blinding of outcome



assessment": kappa = 0.43 (0.14 to 0.72) a = 0.67; and "incomplete outcome data": kappa = 0.15 (-0.03 to 0.32), a = 0.64. For "blinding of participants and personnel" and "selective reporting", kappa could not be calculated. The raw agreement was 0.40 and 0.42, respectively. CONCLUSION: The level of agreement between Cochrane reviews regarding RoB judgments ranged from slight to substantial depending on the RoB domain. Further investigations regarding reasons for variation and interventions to improve agreement are needed

**Lacasse A, Page MG, Choiniere M, Dorais M, Vissandjee B, Nguetack HLN, et al. Conducting gender-based analysis of existing databases when self-reported gender data are unavailable: the GENDER Index in a working population. Canadian Journal of Public Health. 2020; 111(2):155-168. <https://doi.org/10.17269/s41997-019-00277-2> [open access]**

Abstract: OBJECTIVES: Growing attention has been given to considering sex and gender in health research. However, this remains a challenge in the context of retrospective studies where self-reported gender measures are often unavailable. This study aimed to create and validate a composite gender index using data from the Canadian Community Health Survey (CCHS). METHODS: According to scientific literature and expert opinion, the GENDER Index was built using several variables available in the CCHS and deemed to be gender-related (e.g., occupation, receiving child support, number of working hours). Among workers aged 18-50 years who had no missing data for our variables of interest (n = 29,470 participants), propensity scores were derived from a logistic regression model that included gender-related variables as covariates and where biological sex served as the dependent variable. Construct validity of propensity scores (GENDER Index scores) were then examined. RESULTS: When looking at the distribution of the GENDER Index scores in males and females, they appeared related but partly independent. Differences in the proportion of females appeared between groups categorized according to the GENDER Index scores tertiles (p < 0.0001). Construct validity was also examined through associations between the GENDER Index scores and gender-related variables identified a priori such as choosing/avoiding certain foods because of weight concerns (p < 0.0001), caring for children as the most important thing contributing to

stress ( $p = 0.0309$ ), and ability to handle unexpected/difficult problems ( $p = 0.0375$ ). **CONCLUSION:** The GENDER Index could be useful to enhance the capacity of researchers using CCHS data to conduct gender-based analysis among populations of workers

**Lane TJ, Sheehan L, Gray SE, Beck D, and Collie A. Step-downs reduce workers' compensation payments to encourage return to work: are they effective? Occupational and Environmental Medicine. 2020; [epub ahead of print].**

<https://doi.org/10.1136/oemed-2019-106325>

**Abstract:** **OBJECTIVE:** To determine whether step-downs, which cut the rate of compensation paid to injured workers after they have been on benefits for several months, are effective as a return to work incentive. **METHODS:** We aggregated administrative claims data from seven Australian workers' compensation systems to calculate weekly scheme exit rates, a proxy for return to work. Jurisdictions were further subdivided into four injury subgroups: fractures, musculoskeletal, mental health and other trauma. The effect of step-downs on scheme exit was tested using a regression discontinuity design. Results were pooled into meta-analyses to calculate combined effects and the proportion of variance attributable to heterogeneity. **RESULTS:** The combined effect of step-downs was a 0.86 percentage point (95% CI -1.45 to -0.27) reduction in the exit rate, with significant heterogeneity between jurisdictions ( $I^2=68\%$ ,  $p=0.003$ ). Neither timing nor magnitude of step-downs was a significant moderator of effects. Within injury subgroups, only fractures had a significant combined effect (-0.84, 95% CI -1.61 to -0.07). Sensitivity analysis indicated potential effects within mental health and musculoskeletal conditions as well. **CONCLUSIONS:** The results suggest some workers' compensation recipients anticipate step-downs and exit the system early to avoid the reduction in income. However, the effects were small and suggest step-downs have marginal practical significance. We conclude that step-downs are generally ineffective as a return to work policy initiative. Postprint link: <https://www.medrxiv.org/content/10.1101/19012286>

**Norberg J, Alexanderson K, Framke E, Rugulies R, and Farrants K. Job demands and control and sickness absence, disability pension and unemployment among 2,194,692 individuals in**

**Sweden. Scandinavian Journal of Public Health. 2020; 48(2):125-133.**

<https://doi.org/10.1177/1403494819846367>

**Abstract:** Background: Knowledge is needed on associations between job demands and job control and long-term sickness absence (SA) and unemployment. We explored associations of job demands and job control with SA/disability pension (DP) and unemployment among women and men in paid work. Methods: We included all 2,194,694 individuals living in Sweden in 2001, aged 30-54 years, and in paid work. The Swedish Job Exposure Matrix (JEM) was used to ascertain levels of job demands and job control. Individuals were categorized into nine groups based on combinations of high, medium, or low values on both demands and control. Using multinomial logistic regression, we estimated odds ratios (OR) with 95% confidence intervals (CI) for the association of job demands and job control with risk of long-term SA/DP (>183 net days) and long-term unemployment (>183 days). Results: Regarding SA/DP, among women the risk was highest for those in occupations with low demands and low control (OR=1.32; 95% CI: 1.28-1.36), whereas among men the risk was highest among those in occupations with high demands and low control (OR=1.22; 1.11-1.34). Regarding unemployment, among women the risk was highest among those in occupations with low demands and medium control (OR=1.30; 1.24-1.37), whereas among men the risk was highest for those in occupations with low demands and high control (OR=1.54; 1.46-1.62). Conclusions: Using a JEM among all in a population rather than for specific occupations gives a more comprehensive view of the associations between job demands/job control and long-term SA/DP and unemployment, respectively

**Ornek OK, Weinmann T, Waibel J, and Radon K. Precarious employment and migrant workers' mental health: a protocol for a systematic review of observational studies. Systematic Reviews. 2020; 9(1):50.**

<https://doi.org/10.1186/s13643-020-01313-w> [open access]

**Abstract:** BACKGROUND: Precarious employment has become an urgent public health issue at a global scale with potential consequences for quality of life and health of employees, especially in vulnerable groups such as migrants. The primary aim of this

systematic review is thus to analyze and summarize existing research on the association between precarious employment and migrant workers' mental health. **METHODS:** We will search PubMed/MEDLINE, PsycINFO, Web of Science (from January 1970 onwards) for original articles on observational studies (e.g., cohort, case-control and cross-sectional, and qualitative) published in English, German, Turkish, and Spanish. The primary outcome will be depression and anxiety disorders. Secondary outcomes will be burnout, sleeping problems, and occupational stress. Two reviewers will independently screen all citations, full-text articles, and abstract data. Potential conflicts will be resolved through discussion. The methodological quality (or risk of bias) of individual studies will be appraised using an appropriate tool. A narrative synthesis will summarize and explain the characteristics and findings of the studies. If feasible, we will conduct random effects meta-analyses where appropriate. **DISCUSSION:** This systematic review will analyze the ways in which precarious employment affects migrant workers' mental health and the process that underlies this relationship. The results from the systematic review outlined in this protocol will be of interest to labor and health professionals, policy makers, labor unions, and non-governmental organizations. Our findings may encourage and impel related policy makers to establish human-focused, safe and healthy work environments, and workplace conditions. **SYSTEMATIC REVIEW REGISTRATION:** PROSPERO, CRD42019132560

**Podrekar N, Kozinc Z, and Sarabon N. The effects of cycle and treadmill desks on work performance and cognitive function in sedentary workers: a review and meta-analysis. *Work*. 2020; 65(3):537-545.**

<https://doi.org/10.3233/WOR-203108>

**Abstract:** **BACKGROUND:** Sedentary behavior has been recognized as an important risk factor in the development of several chronic diseases. Active workstations have been proposed as an effective countermeasure. While such interventions likely reduce sedentary time, concerns regarding the effects on work performance and cognitive function remain. **OBJECTIVE:** To use meta-analysis to critically evaluate the work performance and cognitive function effects of cycle and treadmill desks as workplace interventions against

sedentary behavior. **METHODS:** In February 2018, a data search was conducted. Parallel and crossover design studies evaluating workplace interventions compared to conventional seated conditions were included. **RESULTS:** Eighteen studies met the inclusion criteria. Both interventions reduced typing speed (cycling: SMD = -0.35,  $p = 0.04$ ; treadmill: SMD = -0.8,  $p < 0.001$ ). The number of typing errors significantly increased during cycling interventions (SMD = 0.39,  $p = 0.004$ ). No effect was found for the selective attention tests. However, there was an improvement in recall ability (SMD = 0.68,  $p = 0.003$ ). **CONCLUSION:** Cycle and treadmill desks affect work performance, but most likely not due to a decrease in cognitive function. Further research is needed to determine whether the degree of work performance decline is acceptable, considering the many positive effects of implementing active workstations in the office environment

**Roquelaure Y, Jago S, Geoffroy-Perez B, Chazelle E, Descatha A, Evanoff B, et al. Carpal tunnel syndrome among male French farmers and agricultural workers: is it only associated with physical exposure? Safety and Health at Work. 2020; 11(1):33-40. <https://doi.org/10.1016/j.shaw.2019.12.003> [open access]**

**Abstract:** Background: Exploratory study to investigate whether co-exposure to physical wrist stressors and chemicals is associated with carpal tunnel syndrome (CTS) in French male farmers and agricultural workers. Methods: Cross-sectional study of 711 men aged 30-65 years and working as either farmers or agricultural workers in 2009-2010 within a cohort covered by the French Agricultural Workers' and Farmers' Mutual Benefit Fund. CTS and exposure to physical wrist stressors and chemicals were assessed using a self-administered questionnaire. Associations between CTS and personal/medical factors, exposure to physical wrist stressors, exposure to chemicals, and co-exposure to physical wrist stressors and chemicals were studied using multivariate logistic regression models. Results: Forty-four men {5.6% [95% confidence interval (CI) 4.0-7.7]} reported that they had suffered from unilateral/bilateral CTS during the last 12 months. CTS was associated with age, current smoking [odds ratio (OR) = 2.1 (1.0-4.5)], and exposure to physical wrist stressors [OR = 2.6 (1.1-5.9)]. An association was found between CTS and co-exposure to physical wrist stressors and chemicals [OR = 3.3 (0.8-14.3),  $p = 0.044$ ] in comparison with the no-

exposure group. Conclusions: This exploratory study shows an association of CTS with exposure to biomechanical wrist stressors in male farmers and agricultural workers and suggests an association of CTS with co-exposure to physical wrist stressors and chemicals. Owing to the limitations of the study, this result must be confirmed by a prospective study with objective assessments of the outcome and exposure before drawing conclusions on the possible synergistic effects of mechanical stressors and chemicals on the impairment of the median nerve

**Sorge JT, Young M, Maloney-Hall B, Sherk A, Kent P, Zhao J, et al. Estimation of the impacts of substance use on workplace productivity: a hybrid human capital and prevalence-based approach applied to Canada. Canadian Journal of Public Health. 2020; 111(2):202-211.**

<https://doi.org/10.17269/s41997-019-00271-8>

Abstract: OBJECTIVE: Policy makers require evidence-based estimates of the economic costs of substance use-attributable lost productivity to set strategies aimed at reducing substance use-related harms. Building on a study by Rehm et al. (2006), we provide estimates of workplace costs using updated methods and data sources. METHODS: We estimated substance use-attributable productivity losses due to premature mortality, long-term disability, and presenteeism/absenteeism in Canada between 2007 and 2014. Lost productivity was estimated using a hybrid prevalence and incidence approach. Substance use prevalence data were drawn from three national self-report surveys. Premature mortality data were from the Canadian Vital Statistics Death Database, and long-term disability and workplace interference data were from the Canadian Community Health Survey. RESULTS: In 2014, the total cost of lost productivity due to substance use was \$15.7 billion, or approximately \$440 per Canadian, an increase of 8% from 2007. Substances responsible for the greatest economic costs were alcohol (38% of per capita costs), tobacco (37%), opioids (12%), other central nervous system (CNS) depressants (4%), other CNS stimulants (3%), cannabis (2%), cocaine (2%), and finally other psychoactive substances (2%). CONCLUSION: In 2014, alcohol and tobacco represent three quarters of substance use-related lost productivity costs in Canada, followed by opioids. These costs provide a valuable

baseline that can be used to assess the impact of future substance use policy, practice, and other interventions, especially important given Canada's opioid crisis and recent cannabis legalization

**Sun C, Thelen C, Sancho Sanz I, and Wittmann A. Evaluation of a new workplace protection factor-measuring method for filtering facepiece respirator. *Safety and Health at Work*. 2020; 11(1):61-70.**

<https://doi.org/10.1016/j.shaw.2019.11.001> [open access]

**Abstract:** Background: This study aims to assess whether the TSI PortaCount (Model 8020) is a measuring instrument comparable with the flame photometer. This would provide an indication for the suitability of the PortaCount for determining the workplace protection factor for particulate filtering facepiece respirators. Methods: The PortaCount (with and without the N95-Companion) was compared with a stationary flame photometer from Moores (Wallisdown) Ltd (Type 1100), which is a measuring instrument used in the procedure for determining the total inward leakage of the particulate filtering facepiece respirator in the European Standard. Penetration levels of sodium chloride aerosol through sample respirators of two brands (A and B) were determined by the two measuring systems under laboratory conditions. For each brand, thirty-six measurements were conducted. The samples were split into groups according to their protection level, conditioning before testing, and aerosol concentration. The relationship between the gauged data from two measuring systems was determined. In addition, the particle size distribution inside the respirator and outside the respirator was documented. Linear regression analysis was used to calculate the association between the PortaCount (with and without the N95-Companion) and the flame photometer. Results: A linear relationship was found between the raw data scaled with the PortaCount (without N95-Companion) and the data detected by the flame photometer ( $R(2) = 0.9704$ ) under all test conditions. The distribution of particle size was found to be the same inside and outside the respirator in almost all cases. Conclusion: Based on the obtained data, the PortaCount may be applicable for the determination of workplace protection factor

**Torok E, Rod NH, Ersboll AK, Jensen JH, Rugulies R, and Clark AJ. Can work-unit social capital buffer the association between workplace violence and long-term sickness absence? A prospective cohort study of healthcare employees. International Archives of Occupational & Environmental Health. 2020; 93(3):355-364.**

<https://doi.org/10.1007/s00420-019-01484-7>

Abstract: PURPOSE: To determine the prospective relation between workplace violence and the risk of long-term sickness absence (LTSA), and study if work-unit social capital could buffer this effect. As an explorative analysis, the association between work-unit social capital and workplace violence is also tested. METHODS: The study is based on the Well-being in Hospital Employees (WHALE) cohort, including healthcare employees in Denmark. The study sample consisted of 30,044 employees nested within 2304 work-units. Exposure to workplace violence and threats of violence during the past 12 months was measured by self-report. Work-unit social capital was computed by aggregating the mean individual responses within work-units. LTSA was defined as one or more episodes of  $\geq 29$  consecutive sickness absence days initiated within 2 years following baseline. RESULTS: Employees experiencing workplace violence had a higher risk of LTSA (OR = 1.55; 95% CI 1.39-1.72), but there was no evidence in support of work-unit social capital buffering the effect of workplace violence on LTSA (RERI = 0.24; 95%CI: - 0.36 to 0.84;  $p = 0.12$  for multiplicative interaction). High compared to low work-unit social capital was associated with a lower prevalence of workplace violence (OR = 0.47; 95% CI 0.36-0.61). CONCLUSION: There was a prospective association between workplace violence and LTSA, but work-unit social capital did not buffer this effect. Furthermore, the results revealed an inverse association between work-unit social capital and workplace violence. The findings indicate that in order to effectively reduce LTSA, preventive interventions need to both prevent workplace violence and strengthen social capital

\*IWH authored publication.