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August 14, 2020

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*Smith P, Gilbert-Ouimet M, Brisson C, Glazier RH, and Mustard CA. Examining the relationship between the demand-control model and incident myocardial infarction and congestive heart failure in a representative sample of the employed women and men in Ontario, Canada, over a 15-year period. Canadian Journal of Public Health. 2020; [epub ahead of print].
https://doi.org/10.17269/s41997-020-00378-3

Abstract: Objectives: To examine the relationship between job strain and incident myocardial infarction and congestive heart failure in a representative population of men and women in Ontario, Canada, over a 15-year period. Methods: A total of 14,508 respondents having provided responses to either the 2000/2001, 2002, or 2003 cycles of the Canadian Community Health Survey (CCHS) were aged 35 and older at the time and working. After removing respondents with pre-existing heart disease and missing data, our sample totaled 13,291 respondents. Responses were linked to administrative health care and hospitalization data to capture incident cases of myocardial infarction and congestive heart failure up to March 31, 2017. Job control and psychological demands were assessed using 5 items and 2 items respectively. A series of time-to-event regression models were run, adjusting sequentially for socio-demographic variables and

health, other psychosocial work exposures, and health behaviours and body mass index. Results: Over the study period, there were 199,583 person-years of follow-up (median follow-up: 15 years, 233 days). Higher incidence rates were observed for men (6.69 per 100 persons) than for women (2.77 per 100 persons). No clear relationship was observed for demand-control exposures and incidence of myocardial infarction and congestive heart failure in either men or women. After adjustment for socio-demographic factors, pre-existing health conditions, and other psychosocial exposures, the hazard ratio for high strain exposure (compared with low strain exposure) was 0.92 (0.46-1.84) for women and 0.75 (0.44-1.27) for men. Conclusion: In this large prospective cohort in Canada, we observed no relationship between components of the demand-control model and incident myocardial infarction and congestive heart failure over a 15-year period.

Al Amer HS. Low back pain prevalence and risk factors among health workers in Saudi Arabia: a systematic review and meta-analysis. Journal of Occupational Health. 2020; 62(1):e12155.
https://doi.org/10.1002/1348-9585.12155 [open access]
Abstract: Objectives: Low back pain (LBP) has a major impact on health workers, and its prevalence and risk factors among them in Saudi Arabia have been investigated previously. However, the results have never been comprehensively reviewed. Therefore, the aim of this study was to perform a systematic review and meta-analysis of the available literature to identify the prevalence and risk factors of LBP among health workers in Saudi Arabia. Methods: MEDLINE/PubMed, Web of Science, Scopus, CINAHL, and Saudi peer-reviewed journals were searched for relevant literature. After quality assessment of the eligible articles, 18 studies targeting seven occupational categories, with a total number of 5345 health workers, were analyzed.
Results: Pooled prevalence rates of 40.8% (n = 7 studies), 65.0% (n = 13 studies), and 81.4% (n = 2 studies) were obtained for week, year, and career, respectively, across all professional groups. Nurses and physical therapists were more susceptible to LBP, in that order, than the other categories considering week and career periods. Age, body mass index, and female gender were the most commonly reported individual risk factors. Occupational risk factors mainly

included work-related activities requiring back bending and twisting, lifting and pulling objects, and manual patient-handling.
Conclusions: The results of this review indicate that LBP is highly prevalent among health workers in Saudi Arabia when compared with international rates. Proper prophylactic measures are necessary to reduce LBP and minimize its consequences. Further high-quality research is needed in different Saudi regions to achieve a broader understanding of LBP prevalence and causes.

An J, Kim J, Yoon S, Woo KH, Cho S, Kim K, et al. Association of work–life balance with occupational injury and work-related musculoskeletal pain among Korean workers. Annals of Occupational and Environmental Medicine. 2020; 32(1):e20. https://doi.org/10.35371/aoem.2020.32.e20   **[open access]**

Abstract: Background
The concept of work-life balance (WLB) has become an important issue in workers' health and safety. This study aims to investigate the relationship between WLB and occupational injury and work-related musculoskeletal pain.
Method
The study included 27,383 workers who participated in the Fifth Korean Working Conditions Survey. Participants were divided into good WLB and poor WLB groups based on their responses to the five question items which comprised two dimensions: work-on-life conflict (items, 1–3) and life-on-work conflict (items 4 and 5). Occupational injury and musculoskeletal pain were also assessed using the question items. The $\chi 2$ test and multivariate logistic regression analyses were performed to examine the relationship of WLB to occupational injury and musculoskeletal pain while considering socio-demographic and occupational characteristics and ergonomic and psychological risk factors.
Results
Of the 27,383 participants, 252 (0.9%) had experienced an occupational injury and 6,408 (23.4%) had musculoskeletal pain. The poor WLB group had higher injury rates for both men (1.7%) and women (0.9%) than the good WLB group (1.1% and 0.4%, respectively). Additionally, the prevalence of musculoskeletal pain was higher for both men and women in the poor WLB group (25.2% and 28.0%, respectively) than for men and women in the good WLB

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group (18.7% and 23.6%, respectively). In the logistic regression analysis, the adjusted odds ratio of WLB for occupational injury was 1.37 (95% confidence interval [CI]: 1.06–1.78), and that for musculoskeletal pain was 1.14 (95% CI: 1.07–1.21), showing positive associations of WLB with both occupational injury and musculoskeletal pain.

Conclusions

Poor WLB causes an increase in occupational injury and musculoskeletal pain. Therefore, an improvement in WLB may reduce the incidence of occupational injury and musculoskeletal pain among workers. Social and policy-related initiatives are needed to improve workers' WLB to reduce occupational injury and musculoskeletal pain.

Clauw DJ, Hauser W, Cohen SP, and Fitzcharles MA. Considering the potential for an increase in chronic pain after the COVID-19 pandemic. Pain. 2020; 161(8):1694-1697. **https://doi.org/10.1097/j.pain.0000000000001950**   **[open access]**

Couch JR, Grimes GR, Green BJ, Wiegand DM, King B, and Methner MM. Review of NIOSH cannabis-related health hazard evaluations and research. Annals of Work Exposures and Health. 2020; 64(7):693-704. **https://doi.org/10.1093/annweh/wxaa013**

Abstract: Since 2004, the National Institute for Occupational Safety and Health (NIOSH) has received 10 cannabis-related health hazard evaluation (HHE) investigation requests from law enforcement agencies (n = 5), state-approved cannabis grow operations (n = 4), and a coroner's office (n = 1). Earlier requests concerned potential illicit drug exposures (including cannabis) during law enforcement activities and criminal investigations. Most recently HHE requests have involved state-approved grow operations with potential occupational exposures during commercial cannabis production for medicinal and non-medical (recreational) use. As of 2019, the United States Drug Enforcement Administration has banned cannabis as a Schedule I substance on the federal level. However, cannabis legalization at the state level has become more common in the USA. In two completed cannabis grow operation HHE investigations (two investigations are still ongoing as of 2019), potential dermal

exposures were evaluated using two distinct surface wipe sample analytical methods. The first analyzed for delta-9-tetrahydrocannabinol (Δ9-THC) using a liquid chromatography and tandem mass spectrometry (LC-MS-MS) method with a limit of detection (LOD) of 4 nanograms (ng) per sample. A second method utilized high performance liquid chromatography with diode-array detection to analyze for four phytocannabinoids (Δ9-THC, Δ9-THC acid, cannabidiol, and cannabinol) with a LOD (2000 ng per sample) which, when comparing Δ9-THC limits, was orders of magnitude higher than the LC-MS-MS method. Surface wipe sampling results for both methods illustrated widespread contamination of all phytocannabinoids throughout the tested occupational environments, highlighting the need to consider THC form (Δ9-THC or Δ9-THC acid) as well as other biologically active phytocannabinoids in exposure assessments. In addition to potential cannabis-related dermal exposures, ergonomic stressors, and psychosocial issues, the studies found employees in cultivation, harvesting, and processing facilities could potentially be exposed to allergens and respiratory hazards through inhalation of organic dusts (including fungus, bacteria, and endotoxin) and volatile organic compounds (VOCs) such as diacetyl and 2,3-pentanedione. These hazards were most evident during the decarboxylation and grinding of dried cannabis material, where elevated job-specific concentrations of VOCs and endotoxin were generated. Additionally, utilization of contemporary gene sequencing methods in NIOSH HHEs provided a more comprehensive characterization of microbial communities sourced during cannabis cultivation and processing. Internal Transcribed Spacer region sequencing revealed over 200 fungal operational taxonomic units and breathing zone air samples were predominantly composed of Botrytis cinerea, a cannabis plant pathogen. B. cinerea, commonly known as gray mold within the industry, has been previously associated with hypersensitivity pneumonitis. This work elucidates new occupational hazards related to cannabis production and the evolving occupational safety and health landscape of an emerging industry, provides a summary of cannabis-related HHEs, and discusses critical lessons learned from these previous HHEs.

Ehrlich T, Simpson C, and Busch Isaksen T. Sociopolitical externalities impacting worker health in Washington state's

cannabis industry. Annals of Work Exposures and Health. 2020; 64(7):683-692.

Abstract: OBJECTIVES: The legalization of the production, sale, and possession of cannabis in Washington State in 2012 not only created the framework for a new legal industry, but also for a new regulated labor sector. In addition to typical occupational health and safety hazards associated with chemical and physical exposures, the transition from an illicit to a regulated workplace, the inconsistency between state and federal law, and the production of a unique psychoactive commodity crop that maintains value in the illicit marketplace creates a unique work environment with workplace concerns that are political, economic, and social in nature. METHODS: We conducted a combination of semistructured key informant interviews targeted toward employers, focus groups that engaged employees, and an online survey with cannabis business owners and employees to identify concerns relating to worker health and safety. RESULTS: In addition to physical and chemical hazards related to their workplace, workers described health concerns that were a result of social, economic, and political forces facing the transitioning cannabis industry and resulting from an inconsistency between state and federal law. Important themes that emerged from these data included the legal and regulatory environment that the cannabis industry faces, cannabis as an agricultural good, crime, gender, cannabis consumption in the workplace, changing worker demographics, and emerging technologies in this rapidly evolving industry. CONCLUSIONS: The unique sociopolitical challenges for occupational health and safety that we identified among cannabis workers in Washington State are especially relevant as other states and nations follow the example of Washington State in legalizing the widespread commercial cultivation, sale, and use of cannabis. As other states and nations legalize, it will be important for employers, public health practitioners, and regulators to recognize how transitioning from an illicit to a legal marketplace impacts worker health. Further, understanding the challenges that result in transitioning a cannabis workforce may be extrapolated in the future to better understand how transitioning other goods and services from an unregulated to a regulated marketplace may impact worker health

Fiorini LA, Houdmont J, and Griffiths A. Nurses' illness perceptions during presenteeism and absenteeism. Occupational Medicine. 2020; 70(2):101-106.
https://doi.org/10.1093/occmed/kqaa012

Abstract: BACKGROUND: Presenteeism has been linked with lost productivity, impaired health and absence. Whilst much research has focused on types of diseases associated with presenteeism and absenteeism, there has been little investigation into the role of individuals' illness perceptions in these episodes. AIMS: To assess how illness perceptions vary between presenteeism and absenteeism episodes. METHODS: A cross-sectional questionnaire was distributed to ward-based nurses working with older adults. Data on illness perceptions during presenteeism and absenteeism episodes were collected. Data were analysed via the Paired-Samples t-test, Wilcoxon test and McNemar test. RESULTS: Two hundred and seventy cases were analysed (88% response rate). Compared with presenteeism, illnesses during absenteeism were thought to affect lives more (P < 0.001), to have more serious symptoms (P < 0.001), to be more concerning (P = 0.003), more likely to be treated (P = 0.009), more infectious (P < 0.001) and perceived as more legitimate reasons for absenteeism (P < 0.001). Treatment was considered more effective during absenteeism (P < 0.001), whilst workability was better during presenteeism (P < 0.001). Presenteeism was perceived as harmful and absenteeism beneficial for illness. Individuals attended work when presenteeism was expected to be less harmful (P < 0.001) and avoided work when absenteeism was expected to be more beneficial for illness (P < 0.001). CONCLUSIONS: Illness perceptions varied significantly between presenteeism and absenteeism episodes and should be included in models of illness behaviour. Findings also highlight that policy may influence illness behaviour and that nurses may attend work despite concerning levels of illness

Ishimaru T, Mine Y, and Fujino Y. Two definitions of presenteeism: sickness presenteeism and impaired work function. Occupational Medicine. 2020; 70(2):95-100.
https://doi.org/10.1093/occmed/kqaa009

Abstract: BACKGROUND: Two major definitions exist for presenteeism: sickness presenteeism and impaired work function.

The evidence for comparing previous studies on presenteeism is insufficient because of the different definitions of presenteeism used. AIMS: To assess the relationship between the two major definitions of presenteeism. METHODS: This cross-sectional study analysed secondary data on 5334 respondents to an employee survey administered in a construction company in Japan. Impaired work function was measured using the Work Functioning Impairment Scale (WFun). Multiple logistic regression was performed. RESULTS: A strong linear association was observed between the number of days of sickness presenteeism and impaired work function (all $P < 0.001$). In contrast, the number of days of sickness absence was only partially positively associated with impaired work function. All choices for most frequent health problem were positively associated with impaired work function, beginning with mental problems (adjusted odds ratio [OR] = 20.45, 95% confidence interval [CI]: 14.94-28.01), followed by malaise (adjusted OR = 11.91, 95% CI: 9.08-15.62) and sleeping problems (adjusted OR = 8.62, 95% CI: 6.57-11.33). CONCLUSIONS: A strong relationship was observed between the two major definitions of presenteeism, even after adjusting for a variety of chronic health conditions. Although a consensus on the definition of presenteeism is yet to be reached, this study provides insight on comparing existing studies on presenteeism

Kim YM and Cho SI. Socioeconomic status, work-life conflict, and mental health. American Journal of Industrial Medicine. 2020; 63(8):703-712.
https://doi.org/10.1002/ajim.23118   **[open access]**
Abstract: Background: Work-life conflict (WLC) has a critical effect on employee mental health. However, research on occupational health has neglected the family domain. Furthermore, although it is reasonable to assume that the effect of WLC on health may differ according to socioeconomic circumstances, there is little empirical evidence for differences in the impact of WLC by socioeconomic status (SES). The purpose of this study was to assess the role of SES as an effect modifier, while examining whether the SES level affects the relationship between WLC and mental health.
Method: We analyzed data from the nationally representative South Korean Working Conditions Survey of 2014, including 49 401 workers. Logistic regression analyses, stratified by sexes, were

performed to identify sex differences, and interaction terms including WLC and SES were also incorporated.

Results: WLC (men: OR = 1.24; women: OR = 1.18) and domestic demands (men: OR = 1.16; women: OR = 1.22) were significantly associated with mental health. WLC exhibited a stronger association with mental health for individuals with high SES, both in terms of education (men: OR = 1.61 vs 1.51; women: OR = 1.52 vs 1.24) and income (men: OR = 1.44 vs 1.10; women: OR = 1.48 vs 1.20). Conclusions: Our data suggest that future efforts for health promotion should consider workers' family demands and SES as important modifying factors of psychological health in the workplace.

Larochelle MR. "Is it safe for me to go to work?" Risk stratification for workers during the COVID-19 pandemic. New England Journal of Medicine. 2020; 383(5):e28.
https://doi.org/10.1056/NEJMp2013413

Nastasia I, Coutu MF, Rives R, Dube J, Gaspard S, and Quilicot A. Role and responsibilities of supervisors in the sustainable return to work of workers following a work-related musculoskeletal disorder. Journal of Occupational Rehabilitation. 2020; [epub ahead of print].
https://doi.org/10.1007/s10926-020-09896-w
Abstract: Purpose Supervisors play an important role during the return to work (RTW) of injured workers. Yet little research has been done on the actions associated with this role or the contexts in which they are taken. The purpose of this study was to develop courses of action to promote supervisors' involvement in the process aimed at achieving sustainable RTW for workers following a work-related musculoskeletal disorder (MSD), and to verify their pertinence, feasibility, and applicability in practice. Methods A two-phase qualitative method was used. (1) Secondary content analysis of 46 interviews of 14 workers post-MSD and 32 other actors in the RTW process, conducted during a prior case study, yielded proposals for courses of action composed of specific actions for supervisors. (2) The pertinence, feasibility, and applicability of these courses of action and specific actions were explored, first, through a self-administered questionnaire to initiate individual reflection, and later in greater depth through focus groups to identify the different contexts in which they

might be applicable. Thematic analysis was performed for each phase. Results Eight proposed courses of action, including specific concrete actions and conditions influencing supervisors' involvement, were developed by the researchers and generally perceived as pertinent and feasible by the participants. Several aspects of the organizational context appeared to influence implementation of these courses of action within the organizations. Conclusion Organizational context appears to influence the application of these courses of action, as do the conditions under which they are implemented

Ng JY and Mohiuddin U. Quality of complementary and alternative medicine recommendations in low back pain guidelines: a systematic review. European Spine Journal. 2020; 29(8):1833-1844.
https://doi.org/10.1007/s00586-020-06393-9

Abstract: BACKGROUND: Individuals with low back pain (LBP) often turn to complementary and alternative medicine (CAM) to seek relief. The purpose of this study was to determine mention of CAM in LBP clinical practice guidelines and assess the quality of CAM recommendations using the Appraisal of Guidelines, Research and Evaluation II (AGREE II) instrument. METHODS: A systematic review was conducted to identify LBP guidelines. MEDLINE, EMBASE and CINAHL were searched from 2008 to 2018. The Guidelines International Network and the National Center for Complementary and Integrative Health websites were also searched. Eligible guidelines providing CAM recommendations were assessed with the AGREE II instrument. RESULTS: From 181 unique search results, 22 guidelines on the treatment and/or management of LBP were found, and 17 made recommendations on CAM therapy. With regard to scaled domain percentages, this overall guideline scored higher than the CAM section for 4 of 6 domains (overall, CAM): (1) scope and purpose (88.6%, 87.1%), (2) clarity of presentation (83.0%, 73.2%), (3) stakeholder involvement (57.0%, 41.7%), (4) rigor of development (47.2%, 44.7%), (5) editorial independence (34.8%, 34.8%) and (6) applicability (31.8%, 21.8%). CONCLUSIONS: The majority of LBP guidelines made CAM recommendations. The quality of CAM recommendations is significantly lower than overall recommendations across all domains with the exception of scope and purpose and editorial independence. This difference highlights the need for CAM

recommendation quality improvement. Future research should identify CAM therapies which are supported by sufficient evidence to serve as the basis for guideline development. These slides can be retrieved under Electronic Supplementary Material

Salazar de Pablo G, Vaquerizo-Serrano J, Catalan A, Arango C, Moreno C, Ferre F, et al. Impact of coronavirus syndromes on physical and mental health of health care workers: systematic review and meta-analysis. Journal of Affective Disorders. 2020; 275:48-57.

https://doi.org/10.1016/j.jad.2020.06.022   [open access]

Abstract: Background: Health care workers (HCW) are at high risk of developing physical/mental health outcomes related to coronavirus syndromes. Nature and frequency of these outcomes are undetermined. Methods: PRISMA/MOOSE-compliant (PROSPERO-CRD42020180205) systematic review of Web of Science/grey literature until 15th April 2020, to identify studies reporting physical/mental health outcomes in HCW infected/exposed to Severe Acute Respiratory Syndrome -SARS-, Middle East Respiratory Syndrome -MERS-, Novel coronavirus -COVID-19-. Proportion random effect meta-analyses, I2 statistic, quality assessment and sensitivity analysis. Results: 115 articles were included (n=60,458 HCW, age 36.1±7.1, 77.1% female). Physical health outcomes: 75.9% HCW infected by SARS/MERS/COVID-19 reported fever (95%CI=65.9-83.7%, k=12, n=949), 47.9% cough (95%CI=39.2-56.8%, k=14, n=970), 43.6% myalgias (95%CI=31.9-56.0%, k=13, n=898), 42.3% chills (95%CI=20.2-67.9%, k=7, n=716), 41.2% fatigue (95%CI=18.2-68.8%, k=6, n=386), 34.6% headaches (95%CI=23.1-48.2%, k=11, n=893), 31.2% dyspnoea (95%CI=23.2-40.5%, k=12, n=1003), 25.3% sore throat (95%CI=18.8-33.2%, k=8, n=747), 22.2% nausea/vomiting (95%CI=14.9-31.8%, k=6, n=662), 18.8% diarrhoea (95%CI=11.9-28.4%, k=9, n=824). Mental health outcomes: 62.5% HCW exposed to SARS/MERS/COVID-19 reported general health concerns (95%CI=57.0-67,8%, k=2, n=2254), 43.7% fear (95%CI=33.9-54.0%, k=4, n=584), 37.9% insomnia (95%CI=30.9-45.5%, k=6, n=5067), 37.8% psychological distress (95%CI=28.4-48.2%, k=15, n=24,346), 34.4% burnout (95%CI=19.3-53.5%, k=3, n=1337), 29.0% anxiety features (95%CI=14.2-50.3%, k=6, n=9191), 26.3% depressive symptoms (95%CI=12.5-47.1%,

k=8, n=9893), 20.7% post-traumatic stress disorder features (95%CI=13.2-31%, k=11, n=3826), 16.1% somatisation (95%CI=0.2-96.0%, k=2, n=2184), 14.0% stigmatisation feelings (95%CI=6.4-28.1%, k=2, n=411). Limitations: Limited amount of evidence for some outcomes and suboptimal design in several studies included. Conclusions: SARS/MERS/COVID-19 have a substantial impact on the physical and mental health of HCW, which should become a priority for public health strategies.

Picchio M and Ours JC. Mental health effects of retirement. De Economist. 2020; 168(3):419-452.
https://doi.org/10.1007/s10645-020-09369-8   **[open access]**
Abstract: We study the retirement effects on mental health using a fuzzy regression discontinuity design based on the eligibility age to the state pension in the Netherlands. We find that the mental effects are heterogeneous by gender and marital status. Retirement of partnered men positively affects mental health of both themselves and their partners. Partnered female retirement has hardly any effect on their own mental health or the mental health of their partners. Single persons retirement does not seem to have an effect on their mental health status

Preston A and Wright RE. Exploring the gender difference in multiple job holding. Industrial Relations Journal. 2020; 51(4):301-328.
https://doi.org/10.1111/irj.12300

Tan EC, Pan KY, Magnusson Hanson LL, Fastbom J, Westerlund H, and Wang HX. Psychosocial job strain and polypharmacy: a national cohort study. Scandinavian Journal of Work, Environment & Health. 2020; [epub ahead of print].
https://doi.org/10.5271/sjweh.3914
Abstract: Objectives Psychosocial job strain has been associated with a range of adverse health outcomes. The aim of this study was to examine the association between psychosocial job strain and prospective risk of polypharmacy (the prescription of =5 medications) and to evaluate whether coping strategies can modify this risk. Methods Cohort study of 9703 working adults [mean age 47.5 (SD 10.8) years; 54% female] who participated in the Swedish

Longitudinal Occupational Survey of Health (SLOSH) at baseline in 2006 or 2008. Psychosocial job strain was represented by job demands and control, and measured by the Swedish version of the demand-control questionnaire. The outcome was incidence of polypharmacy over an eight-year follow-up period. Information on dispensed drugs were extracted from the Swedish Prescribed Drug Register. Logistic regression was used to estimate the association of job strain status with polypharmacy, adjusted for a range of confounders. Results During the follow-up, 1409 people developed polypharmacy (incident rate: 20.6/1000 person-years). In comparison to workers with low-strain jobs (high control/low demands), those with high-strain jobs (low control/high demands) had a significantly higher risk of incident polypharmacy (OR 1.40, 95% CI 1.04-1.89). The impact of high-strain jobs on developing polypharmacy remained among those with covert coping strategies (ie, directed inwards or towards others) but not among those with open coping strategies (ie, primarily directed toward the stressor). Conclusions Workers in high-strain jobs may be at an increased risk of polypharmacy. Open coping strategies may reduce the negative impact of psychosocial job strain on risk of polypharmacy.

*IWH authored publication.