

IWH Research Alert
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Applebaum KM, Asfaw A, O'Leary PK, Busey A, Tripodis Y, and Boden LI. Suicide and drug-related mortality following occupational injury. *American Journal of Industrial Medicine*. 2019; [epub ahead of print].

<https://doi.org/10.1002/ajim.23021>

Abstract: BACKGROUND: Drug overdoses and suicides have been rising since 2000 and are major contributors to a 3-year decline in US life expectancy. Studies suggest that injured workers have elevated rates of depression and opioid use, but no studies have measured excess mortality related to these risks. MATERIALS AND METHODS: We linked New Mexico workers' compensation data for 100 806 workers injured in 1994 through 2000 with Social Security Administration earnings and mortality data through 2013 and National Death Index cause of death data. We then estimated the association between receiving lost-time workers' compensation benefits and mortality hazard ratios (HRs) and 95% confidence intervals (CIs) based on Fine and Gray cause-specific subdistribution hazards for common causes of death and for drug-related, suicide, and alcohol-related mortality. RESULTS: There was almost a 3-fold increase in combined drug-related and suicide mortality hazard among women (HR = 2.63, 95% CI = 1.91-3.64) and a substantial increase among men (HR = 1.42, 95% CI = 1.13-1.79). Circulatory disease mortality

hazard was elevated for men (HR = 1.25, 95% CI = 1.05-1.50).
CONCLUSION: Workplace injuries severe enough to require more than a week off work may impair workers' long-term health and well-being. Drug-related deaths and suicides may be important contributors to the long-term excess mortality of injured workers. Improved workplace conditions, improved pain treatment, better treatment of substance use disorders, and treatment of postinjury depression may substantially reduce mortality consequent to workplace injuries

Boehnke KF, Scott JR, Litinas E, Sisley S, Williams DA, and Clauw DJ. Pills to pot: observational analyses of cannabis substitution among medical cannabis users with chronic pain. Journal of Pain. 2019; 20(7):830-841.

<https://doi.org/10.1016/j.jpain.2019.01.010>

Abstract: Chronic pain is common, costly, and challenging to treat. Many individuals with chronic pain have turned to cannabis as an alternative form of pain management. We report results from an ongoing, online survey of medical cannabis users with chronic pain nationwide about how cannabis affects pain management, health, and pain medication use. We also examined whether and how these parameters were affected by concomitant recreational use, and duration of use (novice: <1 year vs experienced: >=1 year). There were 1,321 participants (59% female, 54% >=50 years old) who completed the survey. Consistent with other observational studies, approximately 80% reported substituting cannabis for traditional pain medications (53% for opioids, 22% for benzodiazepines), citing fewer side effects and better symptom management as their rationale for doing so. Medical-only users were older (52 vs 47 years old; $P < .0001$), less likely to drink alcohol (66% vs 79%, $P < .0001$), and more likely to be currently taking opioids (21% vs 11%, $P < .0001$) than users with a combined recreational and medical history. Compared with novice users, experienced users were more likely to be male (64% vs 58%; $P < .0001$), take no concomitant pain medications (43% vs 30%), and report improved health (74% vs 67%; $P=.004$) with use. Given that chronic pain is the most common reason for obtaining a medical cannabis license, these results highlight clinically important differences among the changing population of medical cannabis users. More research is needed to better understand

effective pain management regimens for medical cannabis users. Perspective: This article presents results that confirm previous clinical studies suggesting that cannabis may be an effective analgesic and potential opioid substitute. Participants reported improved pain, health, and fewer side effects as rationale for substituting. This article highlights how use duration and intentions for use affect reported treatment and substitution effects

Burgess S, Junne F, Rothermund E, Zipfel S, Gundel H, Rieger MA, et al. Common mental disorders through the eyes of German employees: attributed relevance of work-related causes and prevention measures assessed by a standardised survey. International Archives of Occupational & Environmental Health. 2019; 92(6):795-811.

<https://doi.org/10.1007/s00420-019-01414-7> [open access]

Abstract: PURPOSE: Common mental disorders (CMDs) are becoming increasingly relevant in the working world. Numbers of risk factors have been confirmed by mostly correlative cross-sectional studies. Comprehensive and effective prevention is urgently needed. There is little knowledge about employees' own perceptions on causes of CMDs and prevention measures. Therefore, a survey was conducted in 2016. METHODS: A standardised instrument was developed for an online survey in a commercial access panel, targeted employees in different job types. We assessed two outcomes: perceived relevance of (1) work-related demands to the development of CMDs, and (2) prevention approaches in the workplace and on individual and societal levels. Possible predictive aspects were analysed exploratively by multivariate linear regression analysis. RESULTS: The response rate was 75% (n = 610). Job types were categorised as "blue", "grey" and "white-collar" workers (n = 193, 169, 248). The majority of respondents rated both outcomes consistently as "quite" or "very relevant"; societal prevention strategies were more relevant for non-white-collar workers. Perceived relevance of individual predisposition to develop a CMD was the strongest predictor for both outcomes, indicating the perception that people with higher personal vulnerability might suffer a higher strain from work-related risk factors than others. CONCLUSION: We assume that participants in our survey judged the relevance of work-related causes of CMDs independently of their own workload. The

perceived relevance of prevention measures in different areas is consistent with official guidelines. A possible selection bias due to characteristics of access panel collectives and own direct or indirect experiences with CMD should be critically questioned

Chaleat-Valayer E, Samuel C, Verdun S, Bard-Pondarre R, Bernard JC, Le Blay G, et al. Impact of an ergonomic seat on the stand-to-sit strategy in healthy subjects: spinal and lower limbs kinematics. Applied Ergonomics. 2019; 80:67-74.

<https://doi.org/10.1016/j.apergo.2019.05.001>

Abstract: PURPOSE: To assess differences in spinal, pelvic and lower limb parameters in healthy individuals during a stand-to-sit task using three different seating conditions. METHODS: Ten healthy adults carried out three stand-to-sit movements on different stools: a high ergonomic stool with the seat tilted 10 degrees forward; a standard stool (adjusted to the same height as the ergonomic stool) and a standard stool at a lower level (so their thighs were horizontal). Movements were recorded by an optoelectronic Vicon system. RESULTS: Hip flexion was altered by the height of the seat (significantly greater for the low standard stool in comparison to either the ergonomic stool or the high standard stool ($p < 0.0001$)). There was also significantly less knee flexion with the ergonomic stool in comparison to the low standard stool ($p < 0.0001$) and to the high standard stool ($p = 0.0017$). Lumbar lordosis was not significantly altered by seat height, although it was less pronounced with the ergonomic stool, with a significantly higher range of motion for the pelvis ($p = 0.015$). At the thoracic level, no differences were observed, except that the stand-to-sit movement on the lower stool produced greater flexion. CONCLUSION: Lumbar lordosis was not increased by the ergonomic stool and the range of lower limb motion was reduced by the high seat. These findings contrast with current opinion that ergonomic seats promote lumbar lordosis

Collie A, Sheehan L, Lane TJ, Gray S, and Grant G. Injured worker experiences of insurance claim processes and return to work: a national, cross-sectional study. BMC Public Health. 2019; 19(1):927.

<https://doi.org/10.1186/s12889-019-7251-x> [open access]

Abstract: BACKGROUND: Insurance claims management practices

may have a significant impact on the health and experiences of injured workers claiming in workers' compensation systems. There are few multi-jurisdictional studies of the way workers experience compensation processes, and limited data on the association between claims experience and return to work outcomes. This study sought to identify worker, claim and injury related factors associated with injured worker experiences of workers' compensation claims management processes, and to examine associations between claims experience and return to work. **METHODS:** A national, cross-sectional survey of injured workers involved in ten Australian workers' compensation schemes. A total of 10,946 workers completed a telephone survey at 6 to 24 months post claim acceptance. Predictors of positive or negative/neutral claims experience were examined using logistic regression. Associations between claims experience, return to work status and duration of time loss were examined using logistic regression. **RESULTS:** Nearly one-quarter (23.0%, n = 2515) of workers reported a negative or neutral claims experience. Injury type, jurisdiction of claim, and time to lodge claim were most strongly associated with claims experience. Having a positive claims experience was strongly associated with having returned to work after accounting for injury, worker, claim and employer factors. **CONCLUSIONS:** There is a strong positive association between worker experiences of the insurance claims process and self-reported return to work status. Revision and reform of workers' compensation claims management practices to enhance worker experience and the fairness of procedures may contribute to improved return to work outcomes

Consonni D, Calvi C, De Matteis S, Mirabelli D, Landi MT, Caporaso NE, et al. Peritoneal mesothelioma and asbestos exposure: a population-based case-control study in Lombardy, Italy. Occupational and Environmental Medicine. 2019; 76(8):545-553.

<https://doi.org/10.1136/oemed-2019-105826> [open access]

Abstract: **OBJECTIVES:** Asbestos is the main risk factor for peritoneal mesothelioma (PeM). However, due to its rarity, PeM has rarely been investigated in community-based studies. We examined the association between asbestos exposure and PeM risk in a general population in Lombardy, Italy. **METHODS:** From the regional

mesothelioma registry, we selected PeM cases diagnosed in 2000-2015. Population controls (matched by area, gender and age) came from two case-control studies in Lombardy on lung cancer (2002-2004) and pleural mesothelioma (2014). Assessment of exposure to asbestos was performed through a quantitative job-exposure matrix (SYN-JEM) and expert evaluation based on a standardised questionnaire. We calculated period-specific and gender-specific OR and 90% CI using conditional logistic regression adjusted for age, province of residence and education. RESULTS: We selected 68 cases and 2116 controls (2000-2007) and 159 cases and 205 controls (2008-2015). The ORs for ever asbestos exposure (expert-based, 2008-2015 only) were 5.78 (90% CI 3.03 to 11.0) in men and 8.00 (2.56 to 25.0) in women; the ORs for definite occupational exposure were 12.3 (5.62 to 26.7) in men and 14.3 (3.16 to 65.0) in women. The ORs for ever versus never occupational asbestos exposure based on SYN-JEM (both periods) were 2.05 (90% CI 1.39 to 3.01) in men and 1.62 (0.79 to 3.27) in women. In men, clear positive associations were found for duration, cumulative exposure (OR 1.33 (1.19 to 1.48) per fibres/mL-years) and latency. CONCLUSIONS: Using two different methods of exposure assessment we provided evidence of a clear association between asbestos exposure and PeM risk in the general population

Eklund A, De Carvalho D, Page I, Wong A, Johansson MS, Pohlman KA, et al. Expectations influence treatment outcomes in patients with low back pain. A secondary analysis of data from a randomized clinical trial. European Journal of Pain. 2019; 23(7):1378-1389.

<https://doi.org/10.1002/ejp.1407>

Abstract: BACKGROUND: Low back pain (LBP) is a global public health challenge, which causes high healthcare costs and the highest burden on society in terms of years lived with disability. While patients' expectations for improvement may have effects on LBP treatment outcomes, it remains unclear if psychological profiles modify this relationship. Therefore, the objectives of this study were to investigate if (a) patients' expectations predicted short-term outcome, and (b) psychological profile, pain intensity and self-rated health modified the relationship between expectations and outcome. METHODS: Data were collected between April 2012 and January

2016 during the inclusion into a randomized controlled trial. Potentially eligible participants were identified through 40 chiropractic clinics located across Sweden. Patients' expectations, psychological profile, pain intensity, activity limitation and self-rated health were collected from patients with recurrent persistent LBP during their first chiropractic visit (n = 593). Subjective improvement was measured at the fourth visit. RESULTS: Patients with a high expectation of improvement had 58% higher risk to report an improvement at the fourth visit (RR = 1.58, 95% CI: 1.28, 1.95). Controlling for potential confounders only slightly decreased the strength of this association (RR = 1.49, 95% CI: 1.20, 1.86). Baseline pain intensity, psychological profile and self-rated health did not modify the effect of expectation on outcome. CONCLUSIONS: Baseline patients' expectations play an important role when predicting LBP treatment outcomes. Clinicians should consider and address patients' expectations at the first visit to best inform prognosis. SIGNIFICANCE: This study confirms the importance of patients' expectations in a clinical setting. Patients' expectations predict the short-term outcome of chiropractic care for LBP. Pain intensity, psychological profile and self-rated health did not modify this relationship

Gayed A, Bryan BT, LaMontagne AD, Milner A, Deady M, Calvo RA, et al. A cluster randomized controlled trial to evaluate headcoach: an online mental health training program for workplace managers. Journal of Occupational & Environmental Medicine. 2019; 61(7):545-551.

<https://doi.org/10.1097/JOM.0000000000001597>

Abstract: OBJECTIVE: Mental ill-health is now the leading cause of sickness absence and occupational incapacity in high-income countries. This study evaluated HeadCoach online manager training, designed to improve confidence, and managerial behaviors that create mentally healthy workplaces. METHODS: A cluster randomized controlled trial was conducted comparing managers who received HeadCoach (N = 87) to waitlist control (N = 123). Managers' confidence and behavior were investigated at baseline, postintervention, and follow-up. Psychological distress of direct reports was evaluated. RESULTS: Confidence significantly increased postintervention only; however, per-protocol analyses indicated a

significant improvement for program completers compared with control at both time points. Responsive and preventive behaviors significantly improved. Psychological distress of direct reports remained unchanged. CONCLUSIONS: HeadCoach online mental health training is an effective and scalable way to improve managers' confidence and workplace practices around mental health. The impact on direct reports remains unknown

Gustafsson K, Bergstrom G, Marklund S, Aboagye E, and Leineweber C. Presenteeism as a predictor of disability pension: a prospective study among nursing professionals and care assistants in Sweden. Journal of Occupational Health. 2019; [epub ahead of print].

<https://doi.org/10.1002/1348-9585.12070> [open access]

Abstract: OBJECTIVES: The aim of the present study was to examine how presenteeism affects the risk of future disability pension among nursing professionals and care assistants (assistant nurses, hospital ward assistants, home-based personal care workers, and child care assistants). A specific objective was to compare health and social care employees with all other occupations. METHODS: The study was based on a representative sample of working women and men (n = 43 682) aged 16-64 years, who had been interviewed between 2001 and 2013 for the Swedish Work Environment Survey conducted every second year since 1989. Information on disability pension was obtained from the Social Insurance Agency's database (2002-2014). The studied predictors were related to disability pension using Cox's proportional hazard regression with hazard ratios (HR) and 95% confidence interval (CI) and selected confounders were controlled for. The follow-up period was 6.7 years (SD 4.2).

RESULTS: Health and social care employees with frequent presenteeism showed a particularly elevated risk of future disability pension after adjusting for sex, sociodemographic variables, physical and psychosocial working conditions, and self-rated health symptoms. In the amalgamated occupational group of nursing professionals and care assistants, the impact on disability pension of having engaged in presenteeism four times or more during the prior year remained significant (HR = 3.72, 95% CI = 2.43-5.68).

CONCLUSIONS: The study suggests that frequent presenteeism contributes to an increased risk of disability pension among nursing

professionals and care assistants as well as among all other occupations

Hilton LG, Marshall NJ, Motala A, Taylor SL, Miake-Lye IM, Baxi S, et al. Mindfulness meditation for workplace wellness: an evidence map. *Work*. 2019; 63(2):205-218.

<https://doi.org/10.3233/WOR-192922> [open access]

Abstract: BACKGROUND: Mindfulness interventions aim to foster greater attention and awareness of present moment experiences. Uptake of mindfulness programs in the workplace has grown as organizations look to support employee health, wellbeing, and performance. OBJECTIVE: In support of evidence-based decision making in workplace contexts, we created an evidence map summarizing physical and mental health, cognitive, affective, and interpersonal outcomes from systematic reviews of randomized controlled trials (RCTs) of mindfulness interventions. METHODS: We searched nine electronic databases to July 2017, dually-screened all reviews, and consulted topic experts to identify systematic reviews on mindfulness interventions. The distribution of evidence is presented as an evidence map in a bubble plot. RESULTS: In total, 175 systematic reviews met inclusion criteria. Reviews included a variety of mindfulness-based interventions. The largest review included 109 randomized controlled trials. The majority of these addressed general health, psychological conditions, chronic illness, pain, and substance use. Twenty-six systematic reviews assessed studies conducted in workplace settings and with healthcare professionals, educators, and caregivers. The evidence map shows the prevalence of research by the primary area of focus. An outline of promising applications of mindfulness interventions is included. CONCLUSIONS: The evidence map provides an overview of existing mindfulness research. It shows the body of available evidence to inform policy and organizational decision-making supporting employee wellbeing in work contexts

Jensen NK, Bronnum-Hansen H, Andersen I, Thielen K, McAllister A, Burstrom B, et al. Too sick to work, too healthy to qualify: a cross-country analysis of the effect of changes to disability benefits. *Journal of Epidemiology and Community Health*. 2019; 73(8):717-722.

<https://doi.org/10.1136/jech-2019-212191>

Abstract: **BACKGROUND:** Denmark and Sweden have implemented reforms that narrowed disability benefit eligibility criteria. Such reforms in combination with increasing work demands create a pincer movement where in particular those with moderate health problems might be unable to comply with work demands, but still not qualify for permanent disability benefits, ending up with temporary means-tested or no benefits. This paper examines whether this actually happened before and after the reforms. **METHODS:** The Survey of Health, Ageing and Retirement in Europe (SHARE) study waves 1-2 and 4-6 in Denmark and Sweden for the age group 50-59 years (N=5384) was used to analyse changes in employment rates and benefits among people with different levels of health before, during and after disability benefit reforms. Interaction between time and health in relation to employment versus permanent or temporary benefits was used as a criterion for whether our hypotheses was confirmed. **RESULTS:** Overall, employment rates have increased in the age group, but only among the healthy. The OR for receiving temporary or no benefits increased from 1.25 (95% CI: 0.81 to 1.90) before to 1.73 (95% CI: 1.14 to 2.61) after policy reforms for the 29% with moderate health problems and from 2.89 (95% CI: 1.66 to 5.03) to 6.71 (95% CI: 3.94 to 11.42) among the 11% with severe health problems. The interaction between time and health was statistically significant ($p < 0.001$). **CONCLUSION:** People with impaired health and workability are forced into a life with temporary means-tested or no benefits when pressed by rising work demands and stricter disability benefit eligibility criteria

Khan MW, Ali Y, De Felice F, and Petrillo A. Occupational health and safety in construction industry in Pakistan using modified-SIRA method. Safety Science. 2019; 118:109-118.

<https://doi.org/10.1016/j.ssci.2019.05.001>

Martin LS, Lipscomb H, Cifuentes M, and Punnett L. Perceptions of safety climate across construction personnel: associations with injury rates. Safety Science. 2019; 118:487-496.

<https://doi.org/10.1016/j.ssci.2019.05.056>

McGregor M, Nielsen A, Chung C, Fillery MD, Wakeland W, and Mior S. System dynamics to investigate opioid use and

chiropractic care for chronic musculoskeletal pain. Journal of Manipulative and Physiological Therapeutics. 2019; 42(4):237-246.

<https://doi.org/10.1016/j.jmpt.2018.11.007> [open access]

Abstract: OBJECTIVE: The purpose of this investigation was to create a system dynamics (SD) model, including published data and required assumptions, as a tool for future research identifying the role of chiropractic care in the management of chronic, nonmalignant pain in a Canadian population. METHODS: We present an illustrative case description of how we evaluated the feasibility of conducting a large-scale clinical trial to assess the impact of chiropractic care in mitigating excessive opioid use in Canada. We applied SD modeling using current evidence and key assumptions where such evidence was lacking. Modeling outcomes were highlighted to determine which potential factors were necessary to account for compelling study designs. RESULTS: Results suggest that a future clinical study diverting patients with nonmalignant musculoskeletal pain early to the chiropractic stream of care could be most effective. System dynamics modeling also highlighted design challenges resulting from unresearched assumptions that needed to be proxied for model completion. Assumptions included changing rates in opioid-associated deaths and rates of success in treatment management of addicted patients. CONCLUSION: In this case, SD modeling identified current research gaps and strong contenders for appropriate follow-up questions in a clinical research domain, namely the role of chiropractic care in the management of chronic, nonmalignant pain in a Canadian population

Rees CS, Eley R, Osseiran-Moisson R, Francis K, Cusack L, Heritage B, et al. Individual and environmental determinants of burnout among nurses. Journal of Health Services & Research Policy. 2019; 24(3):191-200.

<https://doi.org/10.1177/1355819619840373>

Toussaint M, Ramirez MR, Peek-Asa C, Saftlas A, and Casteel C. Workplace violence victimization in young workers: an analysis of the US National Crime Victimization Survey, 2008 to 2012. American Journal of Industrial Medicine. 2019; 62(8):691-700.

<https://doi.org/10.1002/ajim.22995>

Abstract: **BACKGROUND:** The aim of this study was to measure the frequency of workplace violence (WPV) victimization in 16 to 24-year olds in the United States and compare rates by occupation and demographics. **METHODS:** As an open cohort, participants 12 years or older in the National Crime Victimization Survey were interviewed at 6-month intervals over a 3-year period from 2008 to 2012. WPV victimization rates were calculated. Weighted, multilevel Poisson regression was used to compare WPV victimization rates by occupation and demographics. **RESULTS:** The rate of WPV victimization was 1.11 incidents per 1000 employed person-months (95% confidence interval: 0.95-1.27). The highest rates of WPV were in protective service occupations (5.24/1000 person-months), transportation (3.04/1000 person-months), and retail sales (2.29/1000 person-months). Compared with their respective counterparts, lower rates of WPV victimization were found among younger, black, and rural/suburban workers. **CONCLUSIONS:** Findings identify occupations and target populations in need of future research and evidence-based interventions to improve the working conditions for young workers

Woolley MJ, Goode N, Read GJM, and Salmon PM. Have we reached the organisational ceiling? A review of applied accident causation models, methods and contributing factors in construction. Theoretical Issues in Ergonomics Science. 2019; 20(5):533-555.

<https://doi.org/10.1080/1463922X.2018.1558305>