

IWH Research Alert
October 18, 2019

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***Sears JM, Edmonds AT, and Fulton-Kehoe D. Tracking opioid prescribing metrics in Washington state (2012-2017): differences by county-level urban-rural and economic distress classifications. *Journal of Rural Health*. 2019; [Epub ahead of print].**

<https://doi.org/10.1111/jrh.12400>

Abstract: **PURPOSE:** High-risk opioid prescribing is a critical driver of prescription opioid-related morbidity and mortality. This study explored opioid prescribing patterns across urban-rural and economic distress classifications. **Secondarily,** this study explored the urban-rural distribution of relevant health services, economic factors, and population characteristics. **METHODS:** County-level opioid prescribing metrics were based on quarterly Washington State Prescription Monitoring Program data (2012-2017). Counties were classified using the 2013 National Center for Health Statistics Urban-Rural Classification Scheme for Counties, and Washington State unemployment-based distressed areas. County-level measures from Area Health Resources Files were used to describe the urban-rural continuum. **FINDINGS:** Persistent economic distress was associated with higher-risk opioid prescribing. The large central metropolitan category had lower-risk opioid prescribing metrics than the other 5 urban-rural categories, which were similar to each other and not ordered by degree of rurality. High-risk prescribing declined over time, without notable trend divergence by either urban-rural or economic distress classifications. **CONCLUSIONS:** The most striking urban-rural differences in opioid prescribing metrics were between large central metropolitan and all other categories; thus, we recommend caution when collapsing urban-rural categories for analysis. Further research is needed regarding geographic and economic patterning of opioid prescribing practices, as well as the dissemination of guidelines and best

practices across the urban-rural continuum. Finally, the multiple intertwined burdens faced by rural communities-higher-risk prescribing practices, higher opioid morbidity and mortality rates, and fewer resources for primary care, mental health care, alternative pain treatment, and opioid use disorder treatment-must be addressed as an urgent public health priority

***Terslev L, Naredo E, Keen HI, Bruyn GAW, Iagnocco A, Wakefield RJ, Conaghan PG, Maxwell LJ, Beaton DE, and D'Agostino MA. The OMERACT stepwise approach to select and develop imaging outcome measurement instruments: the musculoskeletal ultrasound example. The Journal of Rheumatology. 2019; 46(10):1394-1400.**

<https://doi.org/10.3899/jrheum.181158>

Abstract: OBJECTIVE: To describe the Outcome Measures in Rheumatology (OMERACT) stepwise approach to select and develop an imaging instrument with musculoskeletal ultrasound (US) as an example.

METHODS: The OMERACT US Working Group (WG) developed a 4-step process to select instruments based on imaging. Step 1 applies the OMERACT Framework Instrument Selection Algorithm (OFISA) to existing US outcome measurement instruments for a specific indication. This step requires a literature review focused on the truth, discrimination, and feasibility aspects of the instrument for the target pathology. When the evidence is completely unsatisfactory, Step 2 is a consensus process to define the US characteristics of the target pathology including one or more so-called "elementary lesions". Step 3 applies the agreed definitions to the image, evaluates their reliability, develops a severity grading of the lesion(s) at a given anatomical site, and evaluates the effect of the acquisition technique on feasibility and lesion(s) detection. Step 4 applies and assesses the definition(s) and scoring system(s) in cross-sectional studies and multicenter trials. The imaging instrument is now ready to pass a final OFISA check.

RESULTS: With this process in place, the US WG now has 18 subgroups developing US instruments in 10 different diseases. Half of them have passed Step 3, and the groups for enthesitis (spondyloarthritis, psoriatic arthritis), synovitis, and tenosynovitis (rheumatoid arthritis) have finished Step 4.

CONCLUSION: The US WG approach to select and develop outcome measurement instruments based on imaging has been repeatedly and successfully applied in US, but is generic for imaging and fits with OMERACT Filter 2.1.

Adlakha D. Burned out: workplace policies and practices can tackle occupational burnout. Workplace Health & Safety. 2019; 67(10):531-532.

<https://doi.org/10.1177/2165079919873352>

Abstract: Burnout has been included as an occupational phenomenon in the

International Classification of Diseases. Health promotion through workplace physical activity policies, incentives, and supports has the potential to prevent burnout

Ahn J, Kim NS, Lee BK, Park J, and Kim Y. Non-standard workers have poorer physical and mental health than standard workers. Journal of Occupational & Environmental Medicine. 2019; 61(10):e413-e421.

<https://doi.org/10.1097/JOM.0000000000001682>

Abstract: OBJECTIVES: To compare the health status of workers who had non-standard and standard employment in Korea. METHODS: Data from the Korean National Health and Nutrition Examination Survey (KNHANES, 2007 to 2017) were used to compare the health of workers with standard and non-standard employment. RESULTS: Workers with non-standard employment (rather than standard employment) were more likely to be women, older, have less education, have lower monthly income, perform manual work, and work fewer hours per week. Men with non-standard employment were more likely to have physician-diagnosed cardiovascular disease, arthritis, and to report depressive and suicidal ideation. Women with non-standard employment were more likely to have physician-diagnosed cardiovascular disease and to report depressive feelings. CONCLUSION: Workers with daily employment were most vulnerable to physical and mental health problems. Health problems differed among individuals who had different types of non-standard employment

Bagheri ZS, Patel N, Li Y, Rizzi K, Lui KYG, Holyoke P, et al. Selecting slip resistant winter footwear for personal support workers. Work. 2019; 64(1):135-151.

<https://doi.org/10.3233/WOR-192947>

Abstract: BACKGROUND: Falls are among the leading causes of occupational injuries for workers exposed to outdoor winter conditions such as Personal Support Workers (PSWs). Slip resistant footwear is known to reduce the risk of falls, however, it is difficult to predict how well a particular boot will perform prior to purchasing them. Our recently developed Maximum Achievable Angle (MAA) test can be used to rate footwear objectively to address this gap. OBJECTIVE: To rate the slip resistance of a selection of winter footwear that meets the needs and preferences of PSWs. METHODS: We selected 40 representative types of footwear based on survey results from 677 PSWs and applied our MAA test to rate slip resistance. RESULTS: Comfort and slip resistance were rated the most important features for selecting winter footwear. Of the 40 types of footwear tested, six were found to have a good slip resistance on ice. CONCLUSION: The vast majority of winter footwear that meet the needs and preferences of PSWs, perform poorly on ice. Therefore, PSWs should consult our website (ratemytreads.com) for selecting appropriate footwear that will keep them safe in the winter

Blafoss R, Sundstrup E, Jakobsen MD, Brandt M, Bay H, and Andersen LL. Physical workload and bodily fatigue after work: cross-sectional study

among 5000 workers. *European Journal of Public Health*. 2019; 29(5):837-842.

<https://doi.org/10.1093/eurpub/ckz055> [open access]

Abstract: BACKGROUND: Persistent bodily fatigue after working days may indicate an imbalance between work demands and capacity of the workers. This study aimed to investigate associations between physical exposures at work and bodily fatigue after work. METHODS: Danish workers with physical work (N=5377) answered questions about various physical exposures during work and bodily fatigue after work in the 2010 round of the Danish Work Environment Cohort Study. Associations were modeled using binary logistic regression controlled for various confounders. RESULTS: Mean age among the younger (<50 years) and older (≥50 years) workers was 36 and 56 years, respectively. Younger and older workers exposed to various physical exposures (e.g. 'bending/twisting the back') for more than a quarter of the workday were more fatigued after work. An exposure-response relationship was observed between the number of physical exposures and bodily fatigue, with odds ratios (OR) for fatigue in the body among younger workers being 1.01 (95%CI 0.63-1.63), 1.59 (95%CI 1.01-2.50), 2.37 (95%CI 1.54-3.66) and 2.84 (95%CI 1.85-5.36) for 1, 2, 3 and ≥4 types of combined physical exposures, respectively. Correspondingly, for older workers, ORs were 1.95 (95%CI 1.09-3.51), 4.06 (95%CI 2.32-7.12), 4.10 (95%CI 2.28-7.37) and 4.90 (95%CI 2.72-8.82) for 1, 2, 3 and ≥4 exposures, respectively. CONCLUSION: While some of the single factor exposures were associated with increased bodily fatigue, the most marked associations were found when summing the number of different exposures. These results indicate that workplaces should focus on the sum of combined physical exposures rather than focusing solely on single exposures

Brendgen M, Poulin F, and Denault AS. Peer victimization in school and mental and physical health problems in young adulthood: examining the role of revictimization at the workplace. *Developmental Psychology*. 2019; 55(10):2219-2230.

<https://doi.org/10.1037/dev0000771>

Abstract: Peer victimization during the school years can impair victims' mental and physical health even in adulthood. Moreover, some victims of school bullying may also experience revictimization at work as adults. Later revictimization at work may thus at least partly explain (i.e., mediate) the negative consequences of peer victimization in school. Revictimization at work may also exacerbate (i.e., moderate), the association between peer victimization in school and impaired mental and physical health in adulthood. These hypotheses were tested with 251 participants (61% females) followed from age 12 to 25. Participants reported about their depression symptoms and victimization experiences every year throughout adolescence, workplace victimization at age 22, and mental and physical health symptoms at age 25. Latent path analysis revealed that peer victimization during adolescence was significantly associated with lower overall mental and physical health at age 25 and a small, albeit significant part of this

association was mediated by workplace victimization at age 22. These associations were mainly due to specific effects on elevated depression symptoms and paranoid ideation at age 25. In contrast, the moderation hypothesis was not supported. The findings emphasize the importance of reducing school bullying before victims become caught in a cycle of abuse and suffer lasting impairments. (PsycINFO Database Record (c) 2019 APA, all rights reserved)

Cooper MD. The efficacy of industrial safety science constructs for addressing serious injuries & fatalities (SIFs). *Safety Science*. 2019; 120:164-178.

<https://doi.org/10.1016/j.ssci.2019.06.038>

Cummings KJ, Stanton ML, Nett RJ, Segal LN, Kreiss K, Abraham JL, et al. Severe lung disease characterized by lymphocytic bronchiolitis, alveolar ductitis, and emphysema (BADE) in industrial machine-manufacturing workers. *American Journal of Industrial Medicine*. 2019; 62(11):927-937.

<https://doi.org/10.1002/ajim.23038>

Abstract: BACKGROUND: A cluster of severe lung disease occurred at a manufacturing facility making industrial machines. We aimed to describe disease features and workplace exposures. METHODS: Clinical, functional, radiologic, and histopathologic features were characterized. Airborne concentrations of thoracic aerosol, metalworking fluid, endotoxin, metals, and volatile organic compounds were measured. Facility airflow was assessed using tracer gas. Process fluids were examined using culture, polymerase chain reaction, and 16S ribosomal RNA sequencing. RESULTS: Five previously healthy male never-smokers, ages 27 to 50, developed chest symptoms from 1995 to 2012 while working in the facility's production areas. Patients had an insidious onset of cough, wheeze, and exertional dyspnea; airflow obstruction (mean FEV1 = 44% predicted) and reduced diffusing capacity (mean = 53% predicted); and radiologic centrilobular emphysema. Lung tissue demonstrated a unique pattern of bronchiolitis and alveolar ductitis with B-cell follicles lacking germinal centers, and significant emphysema for never-smokers. All had chronic dyspnea, three had a progressive functional decline, and one underwent lung transplantation. Patients reported no unusual nonoccupational exposures. No cases were identified among nonproduction workers or in the community. Endotoxin concentrations were elevated in two air samples; otherwise, exposures were below occupational limits. Air flowed from areas where machining occurred to other production areas. Metalworking fluid primarily grew *Pseudomonas pseudoalcaligenes* and lacked mycobacterial DNA, but 16S analysis revealed more complex bacterial communities. CONCLUSION: This cluster indicates a previously unrecognized occupational lung disease of yet uncertain etiology that should be considered in manufacturing workers (particularly never-smokers) with airflow obstruction and centrilobular emphysema. Investigation of additional cases in other settings could clarify the cause and guide prevention

Frandsen TF, Gildberg FA, and Tingleff EB. Searching for qualitative health research required several databases and alternative search strategies: a study of coverage in bibliographic databases. Journal of Clinical Epidemiology. 2019; 114:118-124.

<https://doi.org/10.1016/j.jclinepi.2019.06.013>

Abstract: OBJECTIVE: Retrieving the qualitative literature can be challenging, but the number and specific choice of databases are key factors. The aim of the present study is to provide guidance for the choice of databases for retrieving qualitative health research. STUDY DESIGN AND SETTING: Seventy-one qualitative systematic reviews, from the Cochrane Database of Systematic Reviews and JBI database of Systematic Reviews and Implementation Reports, including 927 qualitative studies, were used to analyze the coverage of the qualitative literature in nine bibliographic databases. RESULTS: The results show that 94.4% of the qualitative studies are indexed in at least one database, with a lower coverage for publication types other than journal articles. Maximum recall with two databases is 89.1%, with three databases recall increases to 92% and maximum recall with four databases is 93.1%. The remaining 6.9% of the publications consists of 1.3% scattered across five databases and 5.6% that are not indexed in any of the nine databases used in this study. CONCLUSION: Retrieval in one or a few-although well selected-databases does not provide all the relevant qualitative studies. The remaining studies needs to be located using several other databases and alternative search strategies

Hammond S, Bowen PG, Hallman MG, and Heaton K. Visual performance and occupational safety among aging workers. Workplace Health & Safety. 2019; 67(10):506-511.

<https://doi.org/10.1177/2165079919848444>

Abstract: With the rapid growth of the aging workforce, age-related conditions may negatively influence overall workplace safety and health among these workers and their employers. In this summary, we have outlined details about visual acuity, glare sensitivity, and contrast sensitivity, which are common age-related vision changes that can potentially affect their occupational safety. The occupational health nurse is well positioned to address these concerns by instructing aging workers about potential development of vision change and ensuring they receive the appropriate vision screening. By assisting employers to modify work environments to accommodate this population, the occupational health nurse can reduce the risk of injury, as well as positively impact the health of their aging workforce

Jia AY, Rowlinson S, Loosemore M, Gilbert D, and Ciccarelli M. Institutional logics of processing safety in production: the case of heat stress management in a megaproject in Australia. Safety Science. 2019; 120:388-401.

<https://doi.org/10.1016/j.ssci.2019.07.004>

Laberge M, Blanchette-Luong V, Blanchard A, Sultan-Taieb H, Riel J, Lederer V, et al. Impacts of considering sex and gender during intervention studies in occupational health: researchers' perspectives. Applied Ergonomics. 2020; 82:102960.

<https://doi.org/10.1016/j.apergo.2019.102960>

Abstract: The aim of this article is to examine the impacts of incorporating sex and gender (s/g) analysis in integrated knowledge translation (iKT) initiatives in the field of ergonomics and occupational health. The article presents findings based on a retrospective analysis of twelve intervention-research (IR) studies, including a thematic content analysis of in-depth interviews conducted with 15 researchers involved in these IRs. The findings offer an overview of various categories of impacts, such as changes in partners' views, in workplace settings and conditions, in practices and policies, and in economic outcomes. In these types of IR, health effects measurement is not the main objective, and direct health outcomes are difficult to assess. Explicitly talking about sex/gender led more often to system-level changes but less often to workplace-level changes, compared to interventions where sex/gender was not identified as a specific object of the intervention

Liang H and Zhang S. Impact of supervisors' safety violations on an individual worker within a construction crew. Safety Science. 2019; 120:679-691.

<https://doi.org/10.1016/j.ssci.2019.08.014>

McCreary DR. Veteran and first responder mental ill health and suicide prevention: a scoping review of prevention and early intervention programs used in Canada, Australia, New Zealand, Ireland, and the United Kingdom. British Columbia: Canada: Donald McCreary Scientific Consulting; 2019.

Negrini S, Arienti C, Pollet J, Engkasan JP, Francisco GE, Frontera WR, et al. Clinical replicability of rehabilitation interventions in randomized controlled trials reported in main journals is inadequate. Journal of Clinical Epidemiology. 2019; 114:108-117.

<https://doi.org/10.1016/j.jclinepi.2019.06.008>

Abstract: OBJECTIVE: The objective of this study was to study if randomized controlled trials (RCTs) in rehabilitation (a field where complex interventions prevail) published in main journals include all the details needed to replicate the intervention in clinical practice (clinical replicability). STUDY DESIGN AND SETTING: Forty-seven rehabilitation clinicians of 5 professions from 7 teams (Belgium, Italy, Malaysia, Pakistan, Poland, Puerto Rico, the USA) reviewed 76 RCTs published by main rehabilitation journals exploring 14 domains chosen through consensus and piloting. RESULTS: The response rate was 99%. Inter-rater agreement was moderate/good. All clinicians considered unanimously 12 (16%) RCTs clinically replicable and none not replicable. At least one "absent" information was found by all participants in 60 RCTs (79%), and by a minimum of 85% in the remaining 16 (21%). Information considered to be less well described

(8-19% "perfect" information) included two providers (skills, experience) and two delivery (cautions, relationships) items. The best described (50-79% "perfect") were the classic methodological items included in CONSORT (descending order: participants, materials, procedures, setting, and intervention). CONCLUSION: Clinical replicability must be considered in RCTs reporting, particularly for complex interventions. Classical methodological checklists such as CONSORT are not enough, and also Template for Intervention Description and Clinical replication do not cover all the requirements. This study supports the need for field-specific checklists

Pellerin MA, Lamontagne ME, Viau-Guay A, and Poulin V. Systematic review of determinants influencing knowledge implementation in occupational therapy. Australian Occupational Therapy Journal. 2019; [Epub ahead of print].

<https://doi.org/10.1111/1440-1630.12612>

Abstract: INTRODUCTION: In knowledge translation, implementation strategies are more effective in fostering practice change. When using these strategies, however, many determinants, such as individual or organisational factors, influence implementation. Currently, there is a lack of synthesis concerning how these determinants influence knowledge implementation (KI). The aim of this systematic review was to document how determinants influence KI outcomes with occupational therapists. METHOD: Following the PRISMA statement, we systematically reviewed the literature on KI in occupational therapy across 12 databases: MEDLINE, Embase, CINAHL, AMED, PsychINFO, Cochrane Library, FirstSearch, Web of Science, ProQuest Dissertations & Theses, ERIC, Education Source and Sociological Abstracts. Eligible studies reported KI strategies specifically with occupational therapists. Selected studies were appraised for quality with the Mixed Methods Appraisal Tool. Using the Consolidated Framework for Implementation Research (CFIR), we categorised reported mentions of CFIR (sub-)constructs to identify the determinants studied most often, how they were documented and what influence they had on outcomes. RESULTS: Twenty-two studies were analysed for this review. CFIR (sub-)constructs were mentioned 81 times, and seven (sub-)constructs received at least 5% of these mentions (4/81). These were as follows: (i) Adaptability of the practice; (ii) Learning climate; (iii) Leadership engagement; (iv) Available resources; (v) Knowledge and Beliefs about the Intervention; (vi) Individual Stage of Change; and (vii) Executing the KI strategy. The Inner setting domain was the most documented and the domain with the most (sub-)constructs with at least four mentions (3/7). Most studies used questionnaires as assessment tools, but these were mainly non-standardised scales. The data were too heterogenous to perform a meta-analysis. CONCLUSION: Seven (sub-)constructs mentioned most often would benefit from being assessed for salience by researchers intending to develop a KI strategy for occupational therapists. Future research aimed at improving our understanding of KI should also consider using standardised tools to measure the influence of determinants

Pihl-Thingvad J, Andersen LL, Brandt LPA, and Elklit A. Are frequency and severity of workplace violence etiologic factors of posttraumatic stress disorder? A 1-year prospective study of 1,763 social educators. *Journal of Occupational Health Psychology*. 2019; 24(5):543-555.

<https://doi.org/10.1037/ocp0000148>

Abstract: Although cross-sectional studies have associated workplace violence (WPV) with posttraumatic stress disorder (PTSD), prospective studies are needed to ascertain the exposure leading to the development of PTSD. Using a 1-year prospective survey design, with monthly measures of violence, and 1,763 participants, we investigated whether frequency and/or severity of WPV could be considered etiological factors for PTSD. Binary logistic regression models were used, with subclinical and clinical PTSD as outcomes. The models were adjusted for demographic, lifestyle, and trauma-related factors, as well as strain in the work environment. Compared with the nonexposed group, frequency of WPV increased the risk of PTSD in an exposure-response pattern: low frequency OR = 4.0, 95% confidence intervals [CI] [1.0, 16.3], medium frequency OR = 5.9, 95% CI [1.4, 24.3], and high frequency OR = 6.5, 95% CI [1.6, 25.6]. We also found that when threat was the most severe incident of WPV, the risk of PTSD increased, OR = 5.4, 95% CI [1.2, 24.2]. In addition, severe incidents of WPV increased the risk of PTSD, OR = 6.5, 95% CI [1.6, 26.0]. This prospective study consolidates existing cross-sectional studies, which have indicated that frequency of WPV is an etiological factor for PTSD. The study underlines the need for integrating an understanding of the pattern and characteristics of WPV in future research. Specifically, we propose the use of frequency of WPV as an additional factor in targeting employees at risk of developing PTSD. (PsycINFO Database Record (c) 2019 APA, all rights reserved)

Seward MW, Goldman RE, Linakis SK, Werth P, Roberto CA, and Block JP. Showers, culture, and conflict resolution: a qualitative study of employees' perceptions of workplace wellness opportunities. *Journal of Occupational & Environmental Medicine*. 2019; 61(10):829-835.

<https://doi.org/10.1097/JOM.0000000000001671>

Abstract: OBJECTIVE: Research on employee opinions of workplace wellness programs is limited. METHODS: At a large academic medical center in Boston, we conducted 12 focus groups on employee perceptions of wellness programs. We analyzed data using the immersion-crystallization approach. Participant mean age (N = 109) was 41 years; 89% were female; 54% were white. RESULTS: Employees cited prominent barriers to program participation: limited availability; time and marketing; disparities in access; and workplace culture. Encouraging supportive, interpersonal relationships among employees and perceived institutional support for wellness may improve workplace culture and improve participation. Employees suggested changes to physical space, including onsite showers and recommended that a centralized wellness program could create and market initiatives such as competitions and incentives. CONCLUSION: Employees sought measures to address serious constraints on

time and space, sometimes toxic interpersonal relationships, and poor communication, aspects of workplaces not typically addressed by wellness efforts

Shakerian M, Jahangiri M, Alimohammadlou M, Nami M, and Choobineh A. Individual cognitive factors affecting unsafe acts among Iranian industrial workers: an integrative meta-synthesis interpretive structural modeling (ISM) approach. Safety Science. 2019; 120:89-98.
<https://doi.org/10.1016/j.ssci.2019.06.041>

Wahlstrom V, Bergman F, Ohberg F, Eskilsson T, Olsson T, and Jarvholm LS. Effects of a multicomponent physical activity promoting program on sedentary behavior, physical activity and body measures: a longitudinal study in different office types. Scandinavian Journal of Work, Environment & Health. 2019; 45(5):493-504.

<https://doi.org/10.5271/sjweh.3808> [open access]

Abstract: Objectives The aim of this study was to investigate effects of a multicomponent program promoting physical activity on sedentary behavior, physical activity, and body measures, when relocating from cell offices to either a flex or cell office. Methods The Active Office Design (AOD) study is a longitudinal non-randomized controlled study performed in a municipality in northern Sweden. A subsample of 86 participants were randomly recruited from the AOD study to objectively measure sedentary behavior and physical activity, using ActivPAL and ActiGraph, before and after relocation to the two different office types. The multicomponent program promoting physical activity was performed in both offices. Data were analyzed using linear mixed models. Results Eighteen months after relocation, the total number of steps per work day increased by 21% in the flex office and 3% in the cell office group, compared to baseline. Moderate and vigorous physical activity (MVPA) during work hours increased by 42% in the flex office group and 19% in the cell office group. No changes were seen regarding sitting time at work. Small additive effects for walking and MVPA were seen for both groups during non-work time. Weight increased in the flex office group. Conclusions This long-term study shows that a multicomponent workplace intervention can lead to increased walking time, steps, and MVPA in a flex compared to a cell office. Small additive increases of physical activity were seen during non-work time in both groups. More long-term controlled studies are needed to confirm these results

*IWH authored publications.