

IWH Research Alert
October 12, 2018

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***Riano-Casallas MI and Tompa E. Cost-benefit analysis of investment in occupational health and safety in Colombian companies. *American Journal of Industrial Medicine*. 2018; 61(11):893-900.**

<https://doi.org/10.1002/ajim.22911>

Abstract: OBJECTIVE: To determine whether investment in preventive measures by a Colombian insurer reduces rates of work-related injuries and results in positive returns from these investments. METHODS: The study is based on monthly panel data of 2011-2015 of 303 medium and large companies affiliated with a private insurer in Colombia. We undertook regression modeling analysis to assess the effectiveness of incremental investments in occupational health and safety (OHS) prevention measures. The cost-benefit analysis is from the insurer's perspective. RESULTS: Investment in OHS per full-time equivalent was statistically significant at the 1% level. We estimated that 4919 injuries were averted through these investments, resulting in the avoidance of \$3 949 957 in costs. Our results suggest that the investments were worth undertaking from the insurer's perspective. CONCLUSIONS: This paper provides new empirical evidence on the effectiveness and cost-benefit of OHS investments in a middle-income country. Incremental investment in OHS can be effective and cost-beneficial

***Scott KA, Fisher GG, Baron AE, Tompa E, Stallones L, and DiGuseppi C. The associations between falls, fall injuries, and labor market outcomes among U.S. workers 65 years and older. *Journal of Occupational and Environmental Medicine*. 2018; 60(10):943-953.**

<https://doi.org/10.1097/JOM.0000000000001379>

Abstract: OBJECTIVE: The aim of this study was to examine whether falls are

associated with the subsequent ability to work among workers aged 65 years and older. **METHODS:** This longitudinal cohort study followed older workers enrolled in the Health and Retirement Study. Outcomes included time to health-related work limitation and to labor force exit. **RESULTS:** After adjustment, multiple falls with or without a medically treated injury were associated with time to limitation [hazard ratio (HR) = 1.77, 95% confidence interval (95% CI): 1.30 to 2.40; HR = 1.48, 95% CI: 1.26 to 1.73, respectively]. Adjustment mitigated a crude relationship between falls and time to exit. Significant interactions suggest that the relationship between falls and labor force exit depends on age, race, and job demands. **CONCLUSION:** Falls, both noninjurious and injurious, are associated with subsequent health-related work limitation among workers aged 65 years and older. Fall prevention activities would benefit workers who want or need to keep working past age 65

Haynes A, Butow P, Brennan S, Williamson A, Redman S, Carter S, Gallego G, and Rudge S. The pivotal position of 'liaison people': facilitating a research utilisation intervention in policy agencies. Evidence & Policy. 2018; 14(1):7-34.

<https://doi.org/10.1332/174426416X14817284217163> [open access]

Abstract: This paper explores the enormous variation in views, championing behaviours and impacts of liaison people: staff nominated to facilitate, tailor and promote SPIRIT (a research utilisation intervention trial in six Australian health policy agencies). Liaison people made cost/benefit analyses: they weighed the value of participation against its risks and demands in the context of organisational goals, knowledge utilisation norms, epistemology and leadership support. There was a degree of self-fulfilment (organisations got what they put in), but SPIRIT could not always be tailored to address local knowledge needs. We present nine propositions for identifying and supporting liaison people in similar interventions

Knudsen SB. Developing and testing a new measurement instrument for documenting instrumental knowledge utilisation: the Degrees of Knowledge Utilization (DoKU) scale. Evidence & Policy. 2018; 14(1):63-80.

<https://doi.org/10.1332/174426417X14875895698130>

Lallukka T, Manty M, Cooper C, Fleischmann M, Kouvonen A, Walker-Bone KE, Head JA, and Halonen JI. Recurrent back pain during working life and exit from paid employment: a 28-year follow-up of the Whitehall II Study. Occupational and Environmental Medicine. 2018; [epub ahead of print].

<https://doi.org/10.1136/oemed-2018-105202> [open access]

Abstract: **OBJECTIVES:** To examine the impact of recurrent, as compared with single, reports of back pain on exit from paid employment over decades of follow-up. **METHODS:** The study sample was from the British Whitehall II Study cohort (n=8665, 69% men, aged 35-55 at baseline), who had provided information about their reports of back pain between 1985 and 1994. Data about exit from paid employment (health-related and non-health related exit, unemployment and other

exit) were collected between 1995 and 2013. Repeated measures logistic regression models were fitted to examine the associations, and adjust for covariates. RESULTS: Recurrent pain was reported by 18% of participants, while 26% reported pain on an occasion and 56% did not report pain. Report of back pain on an occasion was not associated with health-related job exit, whereas recurrent pain was associated with such an exit (OR 1.51; 95% CI 1.15 to 1.99), when compared with those who did not report pain. These associations were somewhat stronger among middle-grade and lower-grade employees, while these associations were not seen among higher-grade employees. Differences in associations by age and psychosocial working conditions were small. CONCLUSIONS: These results highlight the need for early detection of recurrent back pain to prevent exit out of paid employment for health reasons. As the risk varies by occupational grade, this emphasises the importance of identification of high-risk groups and finding ways to address their modifiable risk factors

Lindberg CM, Srinivasan K, Gilligan B, Razjouyan J, Lee H, Najafi B, Canada KJ, Mehl MR, Currim F, Ram S, Lunden MM, Heerwagen JH, Kampschroer K, and Sternberg EM. Effects of office workstation type on physical activity and stress. Occupational and Environmental Medicine. 2018; 75(10):689-695.

<https://doi.org/10.1136/oemed-2018-105077> [open access]

Abstract: OBJECTIVE: Office environments have been causally linked to workplace-related illnesses and stress, yet little is known about how office workstation type is linked to objective metrics of physical activity and stress. We aimed to explore these associations among office workers in US federal office buildings. METHODS: We conducted a wearable, sensor-based, observational study of 231 workers in four office buildings. Outcome variables included workers' physiological stress response, physical activity and perceived stress. Relationships between office workstation type and these variables were assessed using structural equation modelling. RESULTS: Workers in open bench seating were more active at the office than those in private offices and cubicles (open bench seating vs private office=225.52 mG (31.83% higher on average) (95% CI 136.57 to 314.46); open bench seating vs cubicle=185.13 mG (20.16% higher on average) (95% CI 66.53 to 303.72)). Furthermore, workers in open bench seating experienced lower perceived stress at the office than those in cubicles (-0.27 (9.10% lower on average) (95% CI -0.54 to -0.02)). Finally, higher physical activity at the office was related to lower physiological stress (higher heart rate variability in the time domain) outside the office (-26.12 ms/mG (14.18% higher on average) (95% CI -40.48 to -4.16)). CONCLUSIONS: Office workstation type was related to enhanced physical activity and reduced physiological and perceived stress. This research highlights how office design, driven by office workstation type, could be a health-promoting factor

Madsen IEH, Gupta N, Budtz-Jorgensen E, Bonde JP, Framke E, Flachs EM, Petersen SB, Svane-Petersen AC, Holtermann A, and Rugulies R. Physical

work demands and psychosocial working conditions as predictors of musculoskeletal pain: a cohort study comparing self-reported and job exposure matrix measurements. Occupational and Environmental Medicine. 2018; 75(10):752-758.

<https://doi.org/10.1136/oemed-2018-105151> [open access]

Abstract: OBJECTIVES: Determining exposure to occupational factors by workers' job titles is extensively used in epidemiological research. However, the correspondence of findings regarding associations to health between job exposure matrices (JEMs) and individual-level exposure data is largely unknown. We set out to examine the prospective associations of physical work demands and psychosocial working conditions with musculoskeletal pain, comparing JEMs with individual-level self-reported exposures. METHODS: We analysed data of 8132 participants from the Work Environment and Health in Denmark cohort study. Using random intercept multilevel modelling, we constructed age-specific and sex-specific JEMs estimating predicted exposures in job groups. We analysed associations between working conditions (individual and JEM level) at baseline and musculoskeletal pain at follow-up using multilevel modelling stratified by sex, adjusting for age, education and baseline pain. RESULTS: Any consistent associations present in the individual-level analysis were also found in the JEM-level analysis. Higher pain levels at follow-up was seen for employees with higher baseline physical work demands, women exposed to violence and men with lower decision authority, whether measured at the individual or JEM level. Higher JEM-level quantitative demands were associated with less pain, but no association was seen at the individual level. CONCLUSIONS: We found predominately comparable prospective associations between working conditions and pain, whether using JEMs or individual level exposures, with the exception of quantitative demands. The results suggest that, with few notable exceptions, findings obtained using JEMs may be comparable with those obtained when using self-reported exposures

Naven L, Inglis G, Harris R, Fergie G, Teal G, Phipps R, et al. Right Here Right Now (RHRN) pilot study: testing a method of near-real-time data collection on the social determinants of health. Evidence & Policy. 2018; 14(2):301-321.

<https://doi.org/10.1332/174426417X14987303892451> [open access]

Abstract: Background Informing policy and practice with up-to-date evidence on the social determinants of health is an ongoing challenge. One limitation of traditional approaches is the time-lag between identification of a policy or practice need and availability of results. The Right Here Right Now (RHRN) study piloted a near-real-time data-collection process to investigate whether this gap could be bridged.

Methods A website was developed to facilitate the issue of questions, data capture and presentation of findings. Respondents were recruited using two distinct methods - a clustered random probability sample, and a quota sample

from street stalls. Weekly four-part questions were issued by email, Short Messaging Service (SMS or text) or post. Quantitative data were descriptively summarised, qualitative data thematically analysed, and a summary report circulated two weeks after each question was issued. The pilot spanned 26 weeks.

Results It proved possible to recruit and retain a panel of respondents providing quantitative and qualitative data on a range of issues. The samples were subject to similar recruitment and response biases as more traditional data-collection approaches. Participants valued the potential to influence change, and stakeholders were enthusiastic about the findings generated, despite reservations about the lack of sample representativeness. Stakeholders acknowledged that decision-making processes are not flexible enough to respond to weekly evidence.

Conclusion RHRN produced a process for collecting near-real-time data for policy-relevant topics, although obtaining and maintaining representative samples was problematic. Adaptations were identified to inform a more sustainable model of near-real-time data collection and dissemination in the future.

Oliver S, Bangpan M, and Dickson K. Producing policy relevant systematic reviews: navigating the policy-research interface. Evidence & Policy. 2018; 14(2):197-220.

<https://doi.org/10.1332/174426417X14987303892442>

Olsen HM, Brown WJ, Kolbe-Alexander T, and Burton NW. A brief self-directed intervention to reduce office employees' sedentary behavior in a flexible workplace. Journal of Occupational and Environmental Medicine. 2018; 60(10):954-959.

<https://doi.org/10.1097/JOM.0000000000001389>

Abstract: OBJECTIVE: The aim of the study was to assess changes in employees' sedentary behavior after a brief self-directed intervention in a flexible workplace. METHODS: A total of 30 employees (69% female; 39.5 +/- 9 years) completed an online questionnaire before and after a 6-week intervention. The intervention comprised one group-based action planning session, using a smart activity tracker for self-monitoring, weekly email reminders, and a healthy living seminar. RESULTS: Total self-reported sitting time (including occupational and nonoccupational sitting) decreased nonsignificantly on days when working at the office (MDelta = -56 min/d, 95% confidence interval [CI], -128.5 to 17.0) and increased nonsignificantly when working at home (MDelta = 20.5 min/d, 95% CI, -64.5 to 105.5). The program had high acceptability in this participant group. CONCLUSIONS: Brief self-directed interventions using activity tracker devices show promise and may be highly acceptable in a flexible workplace. Additional strategies may be needed to create change in sedentary behavior

Parker RMN, Boulos LM, Visintini S, Ritchie K, and Hayden J. Environmental scan and evaluation of best practices for online systematic review resources. Journal of the Medical Library Association. 2018; 106(2):208-218.

<https://doi.org/10.5195/jmla.2018.241> [open access]

Abstract: Objective: Online training for systematic review methodology is an attractive option due to flexibility and limited availability of in-person instruction. Librarians often direct new reviewers to these online resources, so they should be knowledgeable about the variety of available resources. The objective for this project was to conduct an environmental scan of online systematic review training resources and evaluate those identified resources. **Methods:** The authors systematically searched for electronic learning resources pertaining to systematic review methods. After screening for inclusion, we collected data about characteristics of training resources and assigned scores in the domains of (1) content, (2) design, (3) interactivity, and (4) usability by applying a previously published evaluation rubric for online instruction modules. We described the characteristics and scores for each training resource and compared performance across the domains. **Results:** Twenty training resources were evaluated. Average overall score of online instructional resources was 61%. Online courses (n=7) averaged 73%, web modules (n=5) 64%, and videos (n=8) 48%. The top 5 highest scoring resources were in course or web module format, featured high interactivity, and required a longer (>5hrs) time commitment from users. **Conclusion:** This study revealed that resources include appropriate content but are less likely to adhere to principles of online training design and interactivity. Awareness of these resources will allow librarians to make informed recommendations for training based on patrons' needs. Future online systematic review training resources should use established best practices for e-learning to provide high-quality resources, regardless of format or user time commitment

Reed MS, Bryce R, and Machen R. Pathways to policy impact: a new approach for planning and evidencing research impact. Evidence & Policy. 2018; 14(3):431-458.

<https://doi.org/10.1332/174426418X15326967547242>

Shaw WS, Nelson CC, Woiszwilllo MJ, Gaines B, and Peters SE. Early return to work has benefits for relief of back pain and functional recovery after controlling for multiple confounds. Journal of Occupational and Environmental Medicine. 2018; 60(10):901-910.

<https://doi.org/10.1097/JOM.0000000000001380> [open access]

Abstract: OBJECTIVE: The aim of the study was to evaluate the effect on health outcomes of an early or immediate return-to-work (RTW) after acute low back pain (LBP). **METHODS:** A longitudinal cohort of workers (N = 557) consulting for uncomplicated LBP were assessed on demographic, pain, occupational, and psychosocial variables. Pain and function were assessed at 3-month postpain onset. We tested the longitudinal effects of an early RTW on 3-month outcomes.

RESULTS: Pain and function improved more rapidly for workers with an immediate (30.7%) or early (1 to 7 days) RTW (36.8%). Eleven demographic, health, or workplace variables were identified as potential confounds, but controlling for these factors only partially attenuated the benefits of an early RTW. CONCLUSIONS: An early RTW improves acute LBP and functional recovery, and alternate confounding explanations only partially eclipse this therapeutic effect

Walker SD, Brown HL, Thiese MS, Ott U, Wood E, Kapellusch J, and Hegmann KT. Association between exercise and low back pain resulting in modified duty and lost time: a cross-sectional analysis of an occupational population. Journal of Occupational and Environmental Medicine. 2018; 60(10):896-900.

<https://doi.org/10.1097/JOM.0000000000001372>

Abstract: OBJECTIVE: The aim of the study was to assess the relationship between leisure time exercise and whether workers ever had modified duty or lost time (MD/LT) due to low back pain (LBP) in an occupational cohort. METHODS: Workers (N = 827) completed a structured interview assessing characteristics of their LBP, whether or not the pain caused modified or lost work time, and their participation in leisure time exercise. Odds ratio of modified/lost time and minutes of exercise participation were assessed. RESULTS: Workers who participated in over 316 min/wk of leisure time exercise incurred significantly less modified/lost time, adjusted odds ratio = 0.46 (95% confidence interval, 0.23 to 0.98). There also lies a significant trend between increases in leisure time exercise and reductions in modified/lost time (P = 0.0016). CONCLUSION: These results suggest exercise reduces risk of MD/LT from LBP

Zoorob M. Does 'right to work' imperil the right to health? The effect of labour unions on workplace fatalities. Occupational and Environmental Medicine. 2018; 75(10):736-738.

<https://doi.org/10.1136/oemed-2017-104747>

Abstract: OBJECTIVE: Economic policies can have unintended consequences on population health. In recent years, many states in the USA have passed 'right to work' (RTW) laws which weaken labour unions. The effect of these laws on occupational health remains unexplored. This study fills this gap by analysing the effect of RTW on occupational fatalities through its effect on unionisation. METHODS: Two-way fixed effects regression models are used to estimate the effect of unionisation on occupational mortality per 100 000 workers, controlling for state policy liberalism and workforce composition over the period 1992-2016. In the final specification, RTW laws are used as an instrument for unionisation to recover causal effects. RESULTS: The Local Average Treatment Effect of a 1% decline in unionisation attributable to RTW is about a 5% increase in the rate of occupational fatalities. In total, RTW laws have led to a 14.2% increase in occupational mortality through decreased unionisation. CONCLUSION: These findings illustrate and quantify the protective effect of unions on workers' safety.

Policymakers should consider the potentially deleterious effects of anti-union legislation on occupational health

*IWH authored publications.