

IWH Research Alert
April 18, 2019

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***Bonaccio S, Connelly CE, Gellatly IR, Jetha A, and Martin Ginis KA. The participation of people with disabilities in the workplace across the employment cycle: employer concerns and research evidence. *Journal of Business and Psychology*. 2019; [epub ahead of print].**

<https://doi.org/10.1007/s10869-018-9602-5> [open access]

Abstract: Despite legislation on diversity in the workplace, people with disabilities still do not experience the same access to work opportunities as do their counterparts without disabilities. Many employers have been shown to harbor sincere yet ill-founded views about the work-related abilities of people with disabilities; these negative views are often a result of interrelated concerns that permeate the entire employment cycle. In this paper, we provide evidence-based responses to 11 specific concerns that employers have about people with disabilities, from pre-employment and entry experiences to the final dissolution of the employment relationship. At each stage of the employment cycle, we summarize and evaluate the relevant empirical evidence and provide recommendations for organizations committed to creating more effective, equitable, and inclusive workplaces for all individuals. We also suggest avenues for future research

Arsenault Knudsen E, Brzozowski SL, and Steege LM. Measuring work demands in hospital nursing: a feasibility study. IISE Transactions on Occupational Ergonomics and Human Factors. 2018; 6(3-4):143-156.

<https://doi.org/10.1080/24725838.2018.1509910>

Bargal B, Benneyan JC, Eisner J, Atalay AJ, Jacobson M, and Singer SJ. Use of systems-theoretic process analysis to design safer opioid prescribing processes. IISE Transactions on Occupational Ergonomics and Human Factors. 2018; 6(3-4):200-208.

<https://doi.org/10.1080/24725838.2018.1521887>

Choi SD, Guo L, Kim J, and Xiong S. Comparison of fatal occupational injuries in construction industry in the United States, South Korea, and China. International Journal of Industrial Ergonomics. 2019; 71:64-74.

<https://doi.org/10.1016/j.ergon.2019.02.011>

Hidajat M, McElvenny DM, Ritchie P, Darnton A, Mueller W, Van Tongeren M, et al. Lifetime exposure to rubber dusts, fumes and N-nitrosamines and cancer mortality in a cohort of British rubber workers with 49 years follow-up. Occupational & Environmental Medicine. 2019; 76(4):250-258.

<https://doi.org/10.1136/oemed-2018-105181> [open access]

Abstract: OBJECTIVES: To quantitatively evaluate exposure-response associations between occupational exposures to rubber dust, fumes and N-nitrosamines and cancer mortality in the UK rubber industry. METHODS: Competing risk survival analyses were used to examine cancer mortality risk in a cohort of 36 441 males aged 35+ years employed in the British rubber industry in 1967, followed up to 2015 (94% mortality). Exposure measurements are based on a population-specific quantitative job-exposure matrix for rubber dust, rubber fumes and N-nitrosamines from the EU-EXASRUB project. RESULTS: Exposure (lifetime cumulative (LCE))-response associations were found for N-nitrosomorphiline and all cancers (subdistribution HR (SHR) 1.48, 95% CI 1.39 to 1.57) and cancers of the bladder, stomach, multiple myeloma, oesophagus, prostate and pancreas, as well as for N-nitrosodimethylamine and all

cancers (SHR 2.08, 95% CI 1.96 to 2.21) and cancers of the bladder, stomach, leukaemia, multiple myeloma, prostate and liver. LCE to the N-nitrosamines sum were associated with increased risks from all cancers (SHR 1.89, 95% CI 1.78 to 2.01) and cancers of the lung, non-Hodgkin's lymphoma and brain. LCE to rubber dust and fumes are associated with increased mortality from all cancers (rubber dust SHR 1.67, 95% CI 1.58 to 1.78; rubber fumes SHR 1.91, 95% CI 1.80 to 2.03) and cancers of the bladder, lung, stomach, leukaemia, multiple myeloma, non-Hodgkin's lymphoma, oesophagus, prostate, pancreas and liver. CONCLUSIONS: Consistent with previous studies, N-nitrosamines exposures are associated with mortality from cancers of the bladder, lung, stomach, leukaemia, multiple myeloma, oesophagus, prostate, pancreas and liver. The long follow-up with nearly complete mortality enabled estimations of lifetime cancer mortality risk from occupational exposures in the rubber industry

Kallewaard JW, Wintraecken VM, Geurts JW, Willems PC, van Santbrink H, Terwiel CTM, et al. A multicenter randomized controlled trial on the efficacy of intradiscal methylene blue injection for chronic discogenic low back pain: the IMBI study. Pain. 2019; 160(4):945-953.

<https://doi.org/10.1097/j.pain.0000000000001475>

Abstract: A study published in PAIN in 2010 showed remarkable effects of intradiscal methylene blue (MB) injections compared with placebo on pain intensity in patients with chronic discogenic low back pain (CD-LBP). Both groups received lidocaine hydrochloride injections for pain associated with the procedure. We replicated the design of the previously published study and performed a multicenter, double-blind, randomized, placebo-controlled trial to assess whether the extraordinary effects of MB on pain intensity could be confirmed. The primary outcomes were treatment success defined as at least 30% reduction in pain intensity and the Patients' Global Impression of Change 6 months after the intervention. We included 84 patients with CD-LBP of which 14 (35%) in the MB plus lidocaine group showed treatment success compared with 11 (26.8%) in the control group who received placebo plus lidocaine ($P = 0.426$). Twenty-seven percent of all participants treated with MB stated that their overall health improved much or very much (Patients' Global Impression of Change), vs 25.6% in the placebo group ($P = 0.958$). We were

unable to confirm that intradiscal MB injections are better capable of significantly reducing pain in patients with CD-LBP 6 months after treatment compared with placebo. We observed that over one-quarter of patients receiving only lidocaine injections reported treatment success, which is in contrast with the previously published study. Our results do not support the recommendation of using intradiscal MB injections for patients with CD-LBP

Klingberg S, Mehlig K, Johansson I, Lindahl B, Winkvist A, and Lissner L. Occupational stress is associated with major long-term weight gain in a Swedish population-based cohort. International Archives of Occupational & Environmental Health. 2019; 92(4):569-576.

<https://doi.org/10.1007/s00420-018-1392-6> [open access]

Abstract: PURPOSE: Occupational stress and obesity are both increasing in prevalence, but prospective findings relating these conditions are inconsistent. We investigated if baseline as well as prolonged exposure to high job demands and low decision latitude were associated with major weight gain ($\geq 10\%$ of baseline weight) in 3872 Swedish women and men examined three times over 20 years in the population-based Vasterbotten Intervention Program. METHODS: Anthropometry was measured and participants completed questionnaires on job strain, diet, and other lifestyle factors. Logistic regression was used to estimate odds ratios (OR) and 95% confidence intervals (CI), adjusting for confounders. RESULTS: Adjusting for age, baseline low decision latitude was associated with major weight gain over 10- and 20-year OR (95% CI) 1.16 (1.00-1.33) and 1.29 (1.13-1.47), respectively (both sexes combined). After adjustment for diet quality and other confounders, the effect over 20 years remained 1.30 (1.13-1.50). Sex modified the effect of prolonged exposure to high job demands over at least 10 years (interaction $p = 0.02$), showing that high job demands was a risk factor of major weight gain over 20 years in women [1.54 (1.14-2.07)], but not in men [0.87 (0.63-1.19)]. Neither diet nor other lifestyle factors explained these associations. CONCLUSIONS: In conclusion, low decision latitude predicted major weight gain in women and men. In women, the results suggest an additional contribution to major weight gain from high job demands

Li L and Singleton P. The effect of workplace inspections on worker safety. ILR Review. 2018; 72(3):718-748.

<https://doi.org/10.1177/0019793918801575>

Liow MHL, Goh GS, Yeo W, Ling ZM, Yue WM, Guo CM, et al. Time taken to return to work does not influence outcomes of minimally invasive transforaminal lumbar interbody fusion: a 5-year follow-up study. Spine. 2019; 44(7):503-509.

<https://doi.org/10.1097/BRS.0000000000002863>

Abstract: STUDY DESIGN: Retrospective cohort study using prospectively collected registry data. OBJECTIVE: To determine factors which influence return-to-work (RTW) in patients undergoing minimally invasive transforaminal lumbar interbody fusion (MIS-TLIF) and to determine if early RTW affects functional outcomes. SUMMARY OF BACKGROUND DATA: MIS-TLIF has been associated with accelerated return to work. RTW in non-WC working-age adults after MIS-TLIF is not well understood. METHODS: Prospectively collected registry data of 907 patients who underwent MIS-TLIF at a single institution from 2004 to 2013 were reviewed. One hundred ten working adults who underwent single-level MIS-TLIF with complete preoperative and 5-year postoperative follow-up data were included. Patients were assigned into Early RTW (≤ 60 d, $n = 40$) and Late RTW (> 60 d, $n = 70$). All patients were assessed pre- and postoperatively at 2 and 5 years. Length of operation, length of stay, and comorbidities were also recorded. RESULTS: The Early RTW group had significantly lower Oswestry Disability Index (ODI), North American Spine Society score for neurogenic symptoms (NASS NS), numerical pain rating scale (NPRS) back and leg pain scores than the Late RTW group (< 0.01) There were no significant differences in age, body mass index (BMI) and prevalence of medical comorbidities ($P > 0.05$). In addition, there were no differences in terms of duration of surgery or length of hospitalization. There were no significant differences in ODI, NASS NS, Short-form 36 physical and mental component scores (SF-36 PCS/MCS), NPRS, satisfaction/expectation fulfilment between the Early and Late RTW groups at 2-year and 5-year follow-up. Both groups reported similar proportions that RTW without limitations and return-to-function (RTF) at 2-years and 5-years. CONCLUSION: Patients who RTW late have significantly poorer preoperative SF-36 physical component scores

and higher ODI, NASS NS, NPRS back/leg pain scores. Surgeons should be cognizant that working adults with poorer preoperative function will tend to return to work later, but should reassure them that they will likely achieve similar clinical outcomes, satisfaction and expectation fulfilment when compared with patients who returned to work early. LEVEL OF EVIDENCE: 3

Lu C and Ng E. Healthy immigrant effect by immigrant category in Canada. [Statistics Canada catalogue no. 82-003-X]. Health Reports. 2019; 30(4):3-11.

<https://www150.statcan.gc.ca/n1/pub/82-003-x/2019004/article/00001-eng.pdf>

MacDonald V and Keir PJ. Assessment of musculoskeletal disorder risk with hand and syringe use in chemotherapy nurses and pharmacy assistants. IISE Transactions on Occupational Ergonomics and Human Factors. 2018; 6(3-4):128-142.

<https://doi.org/10.1080/24725838.2018.1502698>

Mutambudzi M, Theorell T, and Li J. Job strain and long-term sickness absence from work: a ten-year prospective study in German working population. Journal of Occupational & Environmental Medicine. 2019; 61(4):278-284.

<https://doi.org/10.1097/JOM.0000000000001525>

Abstract: OBJECTIVE: The aim of this study was to examine the prospective associations between baseline job strain and 10-year cumulative incidence of long-term sickness absence (LTSA) in the German workforce. METHODS: This study used longitudinal data from the 2001 to 2011 waves of The German Socio-Economic Panel (SOEP) (n = 9794). Kaplan-Meier survival curves and Cox proportional hazard regression models were used to examine the prospective association between job strain and incidence of LTSA. RESULTS: High strain [hazard ratio (HR) = 1.28, 95% confidence interval (95% CI) = 1.12 to 1.46] and passive jobs (HR = 1.14, 95% CI = 1.01 to 1.30) were significantly associated with LTSA after full adjustment for covariates, with greater risk in the older participants (>45) in passive (HR = 1.33, 95% CI = 1.08 to 1.63) and high strain (HR = 1.56, 95% CI = 1.27 to 1.92) jobs. CONCLUSION: Jobs with low control over work were associated with LTSA in German workers.

More studies using longitudinal employment data, and more detailed job strain measures are warranted

Park Y and Kim S. Customer mistreatment harms nightly sleep and next-morning recovery: job control and recovery self-efficacy as cross-level moderators. Journal of Occupational Health Psychology. 2019; 24(2):256-269.

<https://doi.org/10.1037/ocp0000128>

Abstract: Customer mistreatment is becoming an important topic for work stress researchers and practitioners given the rise of service industry. Taking stressor-emotion-control perspectives, the authors examine day-level relationships between call center workers' customer mistreatment experiences and their impaired recovery outcomes mediated by end-of-work negative affect. Furthermore, control concepts in the job and personal domains are tested as cross-level moderators. Specifically, job control and recovery self-efficacy are identified to reduce the within-person process of customer mistreatment affecting recovery outcomes. Seventy-one call center employees completed a registration survey and then two daily surveys over 2 consecutive weeks, yielding 481 time-lagged day-level observations. Multilevel path analyses show that customer mistreatment is positively associated with increased negative affect, which, in turn, predicts poor sleep quality at night and poor recovery state the next morning. Job control attenuates the day-level effect of customer mistreatment on negative affect, and recovery self-efficacy alleviates the day-level effects of negative affect on sleep quality and next-morning recovery state. The findings shed light on the recovery-impairing effects of customer mistreatment and its important boundary conditions. (PsycINFO Database Record (c) 2019 APA, all rights reserved)

Fischer MR, Persson EB, Stalnacke BM, Schult ML, and Lofgren M. Return to work after interdisciplinary pain rehabilitation: one- and two-year follow-up study based on the Swedish quality registry for pain rehabilitation. Journal of Rehabilitation Medicine. 2019; 51(4):281-289.

<https://doi.org/10.2340/16501977-2544>

Vedaa O, Pallesen S, Erevik EK, Svensen E, Waage S, Bjorvatn B, et al. Long working hours are inversely related to sick leave in the following 3 months: a 4-year registry study. International Archives of Occupational & Environmental Health. 2019; 92(4):457-466.

<https://doi.org/10.1007/s00420-018-1372-x>

Abstract: PURPOSE: The aim of this study was to investigate the effects of long working hours (≥ 12 h shifts) on sick leave using objective records of shift work exposure and of sick leave. METHODS: A total of 1538 nurses (mean age 42.5, SD 12.0; response rate 42%) participated. Payroll and archival sick leave data over a 4-year period were retrieved from employers' records and aggregated over every third calendar month. A multilevel negative binomial model was used to investigate the effects of exposure to long working hours, on subsequent sick leave rates the following 3 months. Covariates included prior sick leave, number of shifts worked, night and evening shifts, personality, and demographic characteristics. RESULTS: Exposure to long working hours was associated with fewer sick leave days in the subsequent 3 months [adjusted model, incidence rate ratio (IRR) = 0.946, 95% CI 0.919-0.973, $p < 0.001$]. The interaction long working hours by a number of work days showed that sick leave days the subsequent 3 months was higher by long shifts when number of shifts was high compared to when number of shifts was low [adjusted model, IRR 1.002, 95% CI 1.000-1.004, $p < 0.05$]. DISCUSSION: Long working hours was associated with fewer sick leave days. The restorative effects of extra days off with long working hours are discussed as possible explanations to this relationship

Wu B, Varner K, Dahm MM, Reutman S, and Davis KG. Work-related injuries within a large urban public school system in the Mid-Western United States. Work. 2019; 62(3):373-382.

<https://doi.org/10.3233/WOR-192874>

Abstract: BACKGROUND: More than 13 million employees are working in the public education sector which includes more than just teachers in the United States. This industry sector also employs custodians, maintenance, and administration. To date, there is very limited information about the type and frequency of injuries for these employees. OBJECTIVE: To identify injury trends related to

frequency and severity for different occupational injuries in a large urban school district. **METHODS:** Between 2014-2015, school district employees reported a total of 598 occupational injuries. Initial analysis of the data provided the frequency of injuries overall and for individual occupational categories. The Severity Index provides a score for job category and injury type based on severity and frequency. **RESULTS:** Overall, the Slip, Trip and Fall category had the highest frequency, followed by Combative Situations, and Over-exertion. Teacher and Para-professional workers experienced the greatest number of injuries with violence being the most frequent cause. Based on the Severity Index, Over-exertion was identified as the primary exposure concern for Custodians, while Slip, Trip and Fall category had the greatest impact on Building Engineers. **CONCLUSIONS:** With the diversity of negative outcomes, the administration will need targeted interventions for the various professions represented in the school systems. The injury severity profile indicates non-teachers should be a high priority for interventions with over-exertion and slips, trips and falls leading the risk

*IWH authored publication.