

IWH Research Alert
March 2, 2018

Missed an issue? Catch up on previous *Research Alerts* available on the IWH website <https://www.iwh.on.ca/journal-articles/research-alerts>

Research Alerts is a service provided to you by the Institute for Work & Health (IWH) to help you keep abreast of recent literature in the areas of occupational health and safety, epidemiology, public health and others within the IWH mandate. Please note that these articles have not been reviewed by Institute scientists to assess the quality of the studies. *Research Alerts* should not be considered an endorsement of the findings. Readers are cautioned not to act on the results of single studies, but rather to seek bodies of evidence. It should also be noted that the Institute for Work & Health cannot provide full-text of articles listed in *Research Alerts* to individuals outside of the organization, as this violates copyright legislation.

***Becher H, Dollard FM, Smith P, and Li J. Predicting circulatory diseases from psychosocial safety climate: a prospective cohort study from Australia. *International Journal of Environmental Research and Public Health*. 2018; 15(3):415.**

<http://dx.doi.org/10.3390/ijerph15030415> [open access]

Abstract: Circulatory diseases (CDs) (including myocardial infarction, angina, stroke or hypertension) are among the leading causes of death in the world. In this paper, we explore for the first time the impact of a specific aspect of organizational climate, Psychosocial Safety Climate (PSC), on CDs. We used two waves of interview data from Australia, with an average lag of 5 years (excluding baseline CDs, final n = 1223). Logistic regression was conducted to estimate the prospective associations between PSC at baseline on incident CDs at follow-up. It was found that participants in low PSC environments were 59% more likely to develop new CD than those in high PSC environments. Logistic regression showed that high PSC at baseline predicts lower CD risk at follow-up (OR = 0.98, 95% CI 0.96-1.00) and this risk remained unchanged even after additional adjustment for known job design risk factors (effort reward imbalance and job strain). These results suggest that PSC is an independent risk factor for CDs in Australia. Beyond job design this study implicates organizational climate and prevailing management values regarding worker psychological health as the genesis of CDs

***Mazza D, Brijnath B, O'Hare MA, Ruseckaite R, Kosny A, and Collie A. Do health service use and return-to-work outcomes differ with GPs' injured-worker caseload? *Journal of Occupational Rehabilitation*. 2018; [Epub ahead of print].**

<http://dx.doi.org/10.1007/s10926-018-9765-y>

Abstract: Purpose To determine whether healthcare use and return-to-work (RTW) outcomes differ with GPs' injured-worker caseload. Methods Retrospective analyses of the Compensation Research Database, which captures approximately 85% of all injured worker claims in Victoria, Australia was conducted. Four injured-worker caseload groups were examined that represented the 25th, 50th, 75th, and 100th percentiles of claimants seen per GP over the 8-year study period (2003-2010): (i) 1-13 claimants; (ii) 14-26 claimants; (iii) 27-48 claimants; and (iv) 49+ claimants (total claims, n = 124,342; total GPs, n = 9748). The characteristics of claimants in each caseload group, as well as the influence of caseload on three outcomes relevant to RTW (weekly compensation paid, work incapacity days, medical-and-like costs), were examined. Results Distinct profiles for high versus low caseload groups emerged. High caseload GPs treated significantly more men in blue collar occupations and issued significantly more 'alternate duties' certificates. Conversely, low caseload GPs treated significantly more women in white collar occupations, predominantly for mental health injuries, and issued significantly more 'unfit-for-work' certificates. Few significant differences were found between the two intermediate GP caseload groups. High caseload was associated with significantly greater medical-and-like costs, however, no caseload group differences were detected for weekly compensation paid or duration of time-off-work. Conclusions Training GPs who have a low injured-worker caseload in workers' compensation processes, utilising high caseload GPs in initiatives involving peer-to-peer support, or system changes where employers are encouraged to provide preventive or rehabilitative support in the workplace may improve RTW outcomes for injured workers

Ajslev JZ, Persson R, and Andersen LL. Contradictory individualized self-blaming: a cross-sectional study of associations between expectations to managers, coworkers, one-self and risk factors for musculoskeletal disorders among construction workers. BMC Musculoskeletal Disorders. 2017; 18(1):13.

<http://dx.doi.org/10.1186/s12891-016-1368-1> [open access]

Abstract: BACKGROUND: Within work sociology, several studies have addressed construction workers' practices of masculinity, class, economy, safety risks and production. However, few studies have investigated room for agency in relation to bodily pain or musculoskeletal disorders and even fewer have made a quantitative approach. Accordingly, by means of a questionnaire, we examined the association between construction workers' room for agency and physical exertion, bodily and mental fatigue, and lower back pain. METHODS: A total of 481 Danish construction workers who responded to a multifaceted questionnaire were included. Drawing on previous studies and a Foucauldian inspired concept of agency, agency was quantified through specially crafted questions and examined in relation to established measures on physical exertion, physical and mental fatigue and pain in the lower back. Associations were tested using

analyses of variance (general linear models) and controlled for age, gender, job group, lifestyle and depression. RESULTS: When asked about options for agency reducing the burden of work, few workers believed themselves to be prime agents of such practices. When asking about their view on performing alternative agency implying caring for the body, 39-49% expected negative reactions from management, and 20-33% expected negative reactions from colleagues. In contrast, only 13-18% of the participants stated that they would give a negative reception to such alternative practices. Using the expected reception outcomes (positive, neutral, negative) to alternative practices as predictors, the statistical regression analyses showed that negative expectations to management were associated with higher levels of physical exertion 0.62 (95% CI = 0.14-1.09) (scale 0-11), bodily fatigue 0.63 (95% CI = 0.22-1.04), mental fatigue 0.60 (95% CI = 0.07-1.12), and low back pain 0.79 (95% CI = 0.13-1.46) (scales 0-10). CONCLUSION: In our study, construction workers answered questions about work and MSD. The answers indicated a contradiction between perceived responsibility and room for agency. Based on the study, a number of target areas could fruitfully be addressed in aiming to reduce MSD among construction workers. To change workers' expectancies to the reception of lowering work pace if needed to take care of the body, their expectancies to the reception of sickness absence as a result of pain, of discussing physical exertion in work and of demanding appropriate technical assistive devices are such examples. Our results emphasize that management plays an important role in this

Cunningham TR, Guerin RJ, Keller BM, Flynn MA, Salgado C, and Hudson D. Differences in safety training among smaller and larger construction firms with non-native workers: evidence of overlapping vulnerabilities. Safety Science. 2018; 103:62-69.

<http://dx.doi.org/10.1016/j.ssci.2017.11.011> [open access]

Abstract: Collaborative efforts between the National Institute for Occupational Safety and Health (NIOSH) and the American Society of Safety Engineers (ASSE) led to a report focusing on overlapping occupational vulnerabilities, specifically small construction businesses employing young, non-native workers. Following the report, an online survey was conducted by ASSE with construction business representatives focusing on training experiences of non-native workers. Results were grouped by business size (50 or fewer employees or more than 50 employees). Smaller businesses were less likely to employ a supervisor who speaks the same language as immigrant workers ($p < .001$). Non-native workers in small businesses received fewer hours of both initial safety training ($p = .005$) and monthly ongoing safety training ($p = .042$). Immigrant workers in smaller businesses were less likely to receive every type of safety training identified in the survey (including pre-work safety orientation [$p < .001$], job-specific training [$p < .001$], OSHA 10-hour training [$p = .001$], and federal/state required training [$p < .001$]). The results highlight some of the challenges a vulnerable worker population faces in a small business, and can be used to better focus

intervention efforts. Among businesses represented in this sample, there are deficits in the amount, frequency, and format of workplace safety and health training provided to non-native workers in smaller construction businesses compared to those in larger businesses. The types of training conducted for non-native workers in small business were less likely to take into account the language and literacy issues faced by these workers. The findings suggest the need for a targeted approach in providing occupational safety and health training to non-native workers employed by smaller construction businesses

Emerson E, Hatton C, Robertson J, and Baines S. The association between non-standard employment, job insecurity and health among British adults with and without intellectual impairments: cohort study. *SSM - Population Health*. 2018; 4:197-205.

<http://dx.doi.org/10.1016/j.ssmph.2018.02.003>

Abstract: We sought to investigate the association between employment conditions and health among working age British adults with and without intellectual impairments. Using data from the 1970 British Cohort Study, we undertook a series of cross sectional analyses of the association between employment conditions and health (self-reported general health, mental health) among British adults with and without intellectual impairments at ages 30, 34 and 42. Our results indicated that: (1) British adults with intellectual impairments were more likely than their peers to be exposed to non-standard employment conditions and experience job insecurity; (2) in both groups exposure was typically associated with poorer health; (3) British adults with intellectual impairments in non-standard employment conditions were more likely than their peers to transition to economic inactivity; (4) among both groups, transitioning into employment was associated with positive health status and transitioning out of employment was associated with poorer health status. British adults with intellectual impairments are significantly more likely than their peers to be exposed to non-standard and more precarious working conditions. The association between employment conditions and health was similar for British adults with and without intellectual impairments. As such, the study found no evidence to suggest that research on causal pathways between employment and health derived from studies of the general population should not generalize to the population of people with intellectual impairments

Gupta N, Heiden M, Mathiassen SE, and Holtermann A. Is self-reported time spent sedentary and in physical activity differentially biased by age, gender, body mass index, and low-back pain? *Scandinavian Journal of Work, Environment & Health*. 2018; 44(2):163-170.

<http://dx.doi.org/10.5271/sjweh.3693> [open access]

Abstract: Objectives This study aimed to determine the extent to which age, gender, body mass index (BMI) and low-back pain (LBP) influence bias in self-reported sedentary behavior and moderate-to-vigorous physical activity (MVPA) among blue-collar workers. Methods For 2-4 consecutive working days, 147

workers wore an Actigraph accelerometer on the thigh. Proportional time spent sedentary and in MVPA was determined using the Acti4 software. The same variables were also self-reported in a questionnaire. The difference between self-reported and accelerometer-based sedentary time and MVPA was calculated and linearly regressed against age, gender, BMI, and self-reported LBP intensity as main effects, as well as interaction terms combining each of these factors with objectively measured exposure. Results Workers objectively spent 64% of their time sedentary and 9% in MVPA. On average, self-reports underestimated sedentary time by 1.5% and overestimated MVPA by 5.5%. Workers with mild/no LBP appeared to have the same size of self-report bias in MVPA regardless of how much MVPA they actually had, while workers with high LBP overestimated MVPA to an increasing extent with increasing exposure [interaction: $B=0.29$, 95% confidence interval (CI) 0.05-0.53]. Age was positively associated with self-report bias in sedentary time ($B=0.31$, 95% CI 0.09-0.54) regardless of actual sedentary time. Conclusions LBP and age, but not BMI and gender, introduced differential bias in self-reported information on sedentary behavior and MVPA among blue-collar workers. This result suggests that bias correction in future studies based on self-reports of sedentary time and MVPA should account for LBP and age

Haynes E, Kramer DM, Strahlendorf P, Holness DL, Kushner R, and Tenkate T. A cross-Canada knowledge transfer and exchange workplace intervention targeting the adoption of sun safety programs and practices: Sun Safety at Work Canada. Safety Science. 2018; 102:238-250.
<http://dx.doi.org/10.1016/j.ssci.2017.10.013>

Lafuente E and Abad J. Analysis of the relationship between the adoption of the OHSAS 18001 and business performance in different organizational contexts. Safety Science. 2018; 103:12-22.
<http://dx.doi.org/10.1016/j.ssci.2017.11.002>

Li Y and Guldenmund FW. Safety management systems: a broad overview of the literature. Safety Science. 2018; 103:94-123.
<http://dx.doi.org/10.1016/j.ssci.2017.11.016>

Lunau T, Wahrendorf M, Muller A, Wright B, and Dragano N. Do resources buffer the prospective association of psychosocial work stress with depression? Longitudinal evidence from ageing workers. Scandinavian Journal of Work, Environment & Health. 2018; 44(2):183-191.
<http://dx.doi.org/10.5271/sjweh.3694> [open access]

Abstract: Objectives There is now convincing evidence that psychosocial work stressors are linked to depression. Few studies, however, have tested if individual resources can buffer the longitudinal effects of psychosocial work stressors on depressive symptoms. This study investigates how two types of resources (internal and external resources) affect the association between psychosocial work stressors and depressive symptoms. Methods Data were obtained from the US Health and Retirement Study, with baseline information on

psychosocial work stressors [job strain and effort-reward imbalance (ERI)] and on internal ("high mastery" and "low constraints") and external resources ("private social support") among initially healthy workers. This information was linked to elevated depressive symptoms two years later. The sample includes 5473 observations and we report relative risks (RR) and effect modification on the additive and multiplicative scale. Results Psychosocial stressors and low resources (internal and external) were both independently related to depressive symptoms. Individuals with both, psychosocial stressors and low resources, had the highest risk of developing elevated depressive symptoms (eg, RR ERI-LowMastery3.32, 95% CI 2.49-4.42; RR JobStrain-LowMastery2.89, 95% CI 2.18-3.84). Yet, based on interaction analyses, only social support from friends buffered the association between work stressors and depressive symptoms. Conclusions Our findings have demonstrated that psychosocial stressors at work are related to mental health, and that in most cases this relationship holds true both for people with high and with low resources. Therefore, there is no clear indication that internal or external resources buffer the association between psychosocial work stressors and depressive symptoms

Malekitabar H, Ardeshir A, Sebt MH, Stouffs R, and Teo EAL. On the calculus of risk in construction projects: contradictory theories and a rationalized approach. Safety Science. 2018; 101:72-85.

<http://dx.doi.org/10.1016/j.ssci.2017.08.014>

McLaughlin JS and Neumark D. Barriers to later retirement for men: physical challenges of work and increases in the full retirement age. Research on Aging. 2018; 40(3):232-256.

<http://dx.doi.org/10.1177/0164027517697114>

Abstract: Policy changes intended to delay retirements of older workers and extend their work lives may run up against barriers owing to rising physical challenges of work as people age. We examine whether physical challenges at work influence employment transitions of older male workers in the age range for which public policy is trying to extend work lives and whether older male workers are able to mitigate these challenges while still remaining employed. The evidence indicates that physical challenges pose a barrier to extending work lives, although some older male workers with physically demanding jobs are able to mitigate these demands-either at new jobs or with the same employer. Our findings suggest that greater accommodation of physical challenges faced by older workers would likely increase the success of policies intended to induce later retirement

Nioi A, Wendelboe-Nelson C, Cowan S, Cowie H, Rashid S, Ritchie P, Cherrie M, Lansdown TC, and Cherrie JW. A randomised control crossover trial of a theory based intervention to improve sun-safe and healthy behaviours in construction workers: study protocol. BMC Public Health. 2018; 18(1):259.

<http://dx.doi.org/10.1186/s12889-018-5164-8> [open access]

Abstract: **BACKGROUND:** Exposure to sunlight can have both positive and negative health impacts. Excessive exposure to ultra-violet (UV) radiation from the sun can cause skin cancer, however insufficient exposure to sunlight has a detrimental effect on production of Vitamin D. In the construction industry there are onsite proactive behaviours for safety, but sun-safety remains a low priority. There is limited research on understanding the barriers to adopting sun-safe behaviours and the association this may have with Vitamin D production. This paper reports a protocol for an intervention study, using text messaging in combination with a supportive smartphone App. The intervention aims to both reduce UV exposure during months with higher UV levels and promote appropriate dietary changes to boost Vitamin D levels during months with low UV levels. **METHOD/DESIGN:** Approximately 60 construction workers will be recruited across the United Kingdom. A randomised control crossover trial (RCCT) will be used to test the intervention, with randomisation at site level - i.e. participants will receive both the control (no text messages or supportive App support) and intervention (daily text messages and supportive App). Using the Theory of Planned Behaviour (TPB) the intervention focuses on supporting sun-safety and healthy dietary decisions in relation to Vitamin D intake. The intervention emphasises cultivating the perception of normative support in the workplace, increasing awareness of control and self-efficacy in taking sun-protective behaviours, making healthier eating choices to boost Vitamin D, and tackling stigmas attached to image and group norms. Each study epoch will last 21 days with intervention text messages delivered on workdays only. The supportive App will provide supplementary information about sun protective behaviours and healthy dietary choices. The primary outcome measure is 25-hydroxy-Vitamin D [25(OH)D] level (obtained using blood spot sampling), which will be taken pre and post control and intervention periods. Secondary outcome measures are two-fold, (1) using the TPB to detect changes in behaviour, and (2) quantifying UV exposure during the UK peak radiation season (April-September) using body-mounted UV sensors. **DISCUSSION:** This study will provide important information about the effectiveness of a technology-based intervention to promote sun-safety and healthy behaviours in outdoor construction workers. **TRIAL REGISTRATION:** ISRCTN15888934 retrospectively registered 15.01.2018

Oakman J, Macdonald W, Bartram T, Keegel T, and Kinsman N. Workplace risk management practices to prevent musculoskeletal and mental health disorders: what are the gaps? Safety Science. 2018; 101:220-230.
<http://dx.doi.org/10.1016/j.ssci.2017.09.004>

Potter RE, Dollard MF, Owen MS, O'Keeffe V, Bailey T, and Leka S. Assessing a national work health and safety policy intervention using the psychosocial safety climate framework. Safety Science. 2017; 100:91-102.
<http://dx.doi.org/10.1016/j.ssci.2017.05.011>

Reknes I, Harris A, and Einarsen S. The role of hardiness in the bullying-mental health relationship. Occupational Medicine. 2018; 68(1):64-66.

<http://dx.doi.org/10.1093/occmed/kgx183>

Abstract: Background: Workplace bullying has consistently been found to predict mental health problems among those affected. However, less attention has been given to personal dispositions as possible moderators in this relationship. Aims: To investigate the moderating role of individual hardiness in the relationship between exposure to bullying behaviours and symptoms of anxiety and depression, respectively, assuming that high hardiness, being an individual stress resilience factor, acts as a buffer in these relationships. Methods: Survey data were gathered in 2016-17, among land-based employees in a Norwegian oil and gas company. Participants completed a questionnaire electronically via a link sent to their work e-mail. The PROCESS macro SPSS supplement was used to analyse the proposed relationships, with mean-centred variables. Results: Altogether, 275 participated in the study (46% response rate). High hardiness acted as a buffer in the bullying-anxiety relationship, in that hardy individuals did not experience increased levels of anxiety when facing bullying behaviours. Low levels of hardiness, on the other hand, acted as an enhancement factor, in that the bullying-anxiety relationship was strengthened for this group. Contrary to expectations, hardiness did not act as a buffer in the bullying-depression relationship. Conclusions: Hardy individuals were less likely to report anxiety in response to bullying than non-hardy workers, a finding with important practical implications. Yet, regardless of who is affected, managers should focus on good strategies to intervene when bullying is detected, and stress resilience training should be considered as part of these strategies

Scarrow G, Angus D, and Holmes BJ. Reviewer training to assess knowledge translation in funding applications is long overdue. Research Integrity and Peer Review. 2017; 2:13.

<http://dx.doi.org/10.1186/s41073-017-0037-8> [open access]

Abstract: Background: Health research funding agencies are placing a growing focus on knowledge translation (KT) plans, also known as dissemination and implementation (D&I) plans, in grant applications to decrease the gap between what we know from research and what we do in practice, policy, and further research. Historically, review panels have focused on the scientific excellence of applications to determine which should be funded; however, relevance to societal health priorities, the facilitation of evidence-informed practice and policy, or realizing commercialization opportunities all require a different lens. Discussion: While experts in their respective fields, grant reviewers may lack the competencies to rigorously assess the KT components of applications. Funders of health research-including health charities, non-profit agencies, governments, and foundations-have an obligation to ensure that these components of funding applications are as rigorously evaluated as the scientific components. In this paper, we discuss the need for a more rigorous evaluation of knowledge translation potential by review panels and propose how this may be addressed.

Conclusion: We propose that reviewer training supported in various ways including guidelines and KT expertise on review panels and modalities such as online and face-to-face training will result in the rigorous assessment of all components of funding applications, thus increasing the relevance and use of funded research evidence. An unintended but highly welcome consequence of such training could be higher quality D&I or KT plans in subsequent funding applications from trained reviewers

Stemn E, Bofinger C, Cliff D, and Hassall ME. Failure to learn from safety incidents: status, challenges and opportunities. Safety Science. 2018; 101:313-325.

<http://dx.doi.org/10.1016/j.ssci.2017.09.018> [open access]

Tremblay A and Badri A. Assessment of occupational health and safety performance evaluation tools: state of the art and challenges for small and medium-sized enterprises. Safety Science. 2018; 101:260-267.

<http://dx.doi.org/10.1016/j.ssci.2017.09.016>

Vooijs M, Leensen MCJ, Hoving JL, Wind H, and Frings-Dresen MHW. Value of work for employees with a chronic disease. Occupational Medicine. 2018; 68(1):26-31.

<http://dx.doi.org/10.1093/occmed/kqx178>

Abstract: Background: Most people with a chronic disease value participation in work. Knowledge is limited, however, as to what extent employees with a chronic disease value participating in work, and the main reasons for this. Limited research is available on which specific factors contribute to the perceived value of work. Aims: To evaluate main reasons for, and the extent to which employees with a chronic disease value participation in work, and factors which motivate or demotivate employees in work. Methods: A survey of members of three large patient federations was performed. Respondents had a chronic disease and were of working age. The extent and reasons for valuing work were analysed using descriptive statistics; (de)motivating aspects were qualitatively analysed using specific software. Results: The 1683 respondents valued work with an average of 8 on a scale from 1 to 10 (1: 'work is not at all important to me' and 10: 'work is extremely important to me'). Most frequent reported reasons for valuing work were the provision of income, social contact and the ability to contribute to society. Motivational aspects for work were being financially independent, having positive social contact with colleagues or clients and having the ability to contribute to society. In contrast, negative social contact, performing useless work and having little autonomy demotivated people. Conclusions: Employed people with a chronic disease generally value work, mainly because it makes them financially independent, provides social contact and enables them to contribute to society

Wang D, Wang X, and Xia N. How safety-related stress affects workers' safety behavior: the moderating role of psychological capital. Safety

Science. 2018; 103:247-259.
<http://dx.doi.org/10.1016/j.ssci.2017.11.020>

***IWH authored publications.**