

IWH Research Alert
September 22, 2017

Missed an issue? Catch up on previous 2017 *Research Alerts* available on the IWH website <http://www.iwh.on.ca/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.

***Jetha A, Bowring J, Tucker S, Connelly CE, Martin Ginis KA, Proulx L, and Gignac MAM. Transitions that matter: life course differences in the employment of adults with arthritis. *Disability and Rehabilitation*. 2017; [epub ahead of print].**

<http://dx.doi.org/10.1080/09638288.2017.1378387>

Abstract: **PURPOSE:** To understand the similarities and differences in the employment participation of people living with arthritis across the life course. **METHOD:** Focus groups and interviews were conducted with young (ages 18-34 years, n = 7), middle-aged (ages 35-54 years, n = 13) and older adults (>55 years, n = 25) with arthritis. Participants were asked about the impact of arthritis on employment, experiences with health-related changes, career progression and social role involvement. A modified grounded theory approach was used to inductively analyze the data. **RESULTS:** Young adults indicated the school-to-work transition as being influential in their employment and described the need to direct their time and energy toward finding work that accommodated health and met career aspirations. Middle-aged adults described how the transition from good health to an arthritis diagnosis disrupted involvement in diverse social roles. However, they often downplayed the impact of arthritis on employment. Older adults described the work-to-retirement transition and their decline in physical functioning as contributing to changing involvement in the labor market. **CONCLUSION:** Transitions related to health, career progression and social role involvement shaped employment experiences, and represent opportunities for future research and practice that is tailored to life course issues. Implications for rehabilitation Little is known about the work experiences of young- and middle-aged adults with arthritis and how they compare to their older counterparts. Life course theory offers an important framework for research and practice by

providing a perspective to enhance our understanding of how employment participation differs across phases of life. Salient and diverse changes related to health, career and social role involvement were identified at each life phase and shaped employment. Rehabilitation practitioners should pay special attention to a client's age, life phase and work history as a strategy to enhance the delivery of interventions that promote work participation

***Tavares P, Landsman V, and Wiltshire L. Intra-examiner reliability of measurements of ankle range of motion using a modified inclinometer: a pilot study. Journal of the Canadian Chiropractic Association. 2017; 61(2):121-127.**

[doi unavailable as of Sept 22, 2017]

Abstract: A modified inclinometer was designed for measuring total ankle range of motion (ROM) in the standing position for a large future study. The purpose of this pilot study was to assess the intra-examiner reliability of this new device in order to see if the examiner would be able to produce equally reliable measurements with this instrument as with a routinely used goniometer. Nineteen young healthy individuals took part in the pilot. The same examiner took the ROM measurements using both devices twice on the same day and one further time 2 or 3 days later. Test-retest reliability was measured using the intraclass correlation coefficient (ICC). The ICC values were 0.86 (95% CI=[0.67; 0.94]) and 0.83 (95% CI=[0.61; 0.93]) for the measurements taken with the goniometer on the same day and for those on two different days. The corresponding values for the modified inclinometer were 0.88 (95% CI=[0.72;0.95]) and 0.81 (95% CI=[0.57; 0.92]). Both instruments were found to have very good test-retest reliability

Ariza-Montes A, Leal-Rodriguez AL, Rodriguez-Felix L, and Albort-Morant G. Can an internal locus of control and social support reduce work-related levels of stress and strain?: a comparative study between Spanish owners and managers. Journal of Occupational & Environmental Medicine. 2017; 59(9):903-912.

<http://dx.doi.org/10.1097/JOM.0000000000001096>

Abstract: OBJECTIVE: The aim of this article is to assess the role played by both individual and contextual factors in reducing the manager's levels of stress and strain within the workplace setting. This article also highlights the manager's locus of control (LOC) as an internal factor and emphasizes the social support variable as a contextual factor. METHODS: We use a sample of 332 respondents belonging to Spanish manufacturing and services firms and a structural equation modeling technique (partial least squares path modeling). RESULTS: The results reveal that there are significant differences between managers and owners about stress-strain relationship. CONCLUSIONS: The study provides support for the literature on stress management, which emphasizes the importance of a LOC and social support in influencing stress and strain between managers and owners

Asfaw A, Rosa R, and Pana-Cryan R. Potential economic benefits of paid sick leave in reducing absenteeism related to the spread of influenza-like illness. Journal of Occupational & Environmental Medicine. 2017; 59(9):822-829.

<http://dx.doi.org/10.1097/JOM.0000000000001076>

Abstract: OBJECTIVE: Most U.S. employers are not required to provide paid sick leave (PSL), and there is limited information on the economic return of providing PSL. We estimated potential benefits to employers of PSL in reducing absenteeism related to the spread of influenza-like illness (ILI). METHODS: We used nationally representative data and a negative binomial random effects model to estimate the impact of PSL in reducing overall absence due to illness or injury. We used published data to compute the share of ILI from the total days of absence, ILI transmission rates at workplaces, wages, and other parameters. RESULTS: Providing PSL could have saved employers \$0.63 to \$1.88 billion in reduced ILI-related absenteeism costs per year during 2007 to 2014 in 2016 dollars. CONCLUSION: These findings might help employers consider PSL as an investment rather than as a cost without any return

Ci W, Hou F, and Morissette R. Acquisition of permanent residence by temporary foreign workers in Canada: a panel study of labour market outcomes before and after the status transition. Analytical Studies Branch Research Paper Series, no 396. Ottawa ON: Statistics Canada; 2017.

<http://www.statcan.gc.ca/pub/11f0019m/11f0019m2017396-eng.pdf>

Diaz KM, Howard VJ, Hutto B, Colabianchi N, Vena JE, Safford MM, Blair SN, and Hooker SP. Patterns of sedentary behavior and mortality in U.S. middle-aged and older adults: a national cohort study. Annals of Internal Medicine. 2017; [epub ahead of print].

<http://dx.doi.org/10.7326/M17-0212>

Abstract: Background: Excessive sedentary time is ubiquitous in Western societies. Previous studies have relied on self-reporting to evaluate the total volume of sedentary time as a prognostic risk factor for mortality and have not examined whether the manner in which sedentary time is accrued (in short or long bouts) carries prognostic relevance. Objective: To examine the association between objectively measured sedentary behavior (its total volume and accrual in prolonged, uninterrupted bouts) and all-cause mortality. Design: Prospective cohort study. Setting: Contiguous United States. Participants: 7985 black and white adults aged 45 years or older. Measurements: Sedentary time was measured using a hip-mounted accelerometer. Prolonged, uninterrupted sedentariness was expressed as mean sedentary bout length. Hazard ratios (HRs) were calculated comparing quartiles 2 through 4 to quartile 1 for each exposure (quartile cut points: 689.7, 746.5, and 799.4 min/d for total sedentary time; 7.7, 9.6, and 12.4 min/bout for sedentary bout duration) in models that included moderate to vigorous physical activity. Results: Over a median follow-up of 4.0 years, 340 participants died. In multivariable-adjusted models, greater total

sedentary time (HR, 1.22 [95% CI, 0.74 to 2.02]; HR, 1.61 [CI, 0.99 to 2.63]; and HR, 2.63 [CI, 1.60 to 4.30]; P for trend < 0.001) and longer sedentary bout duration (HR, 1.03 [CI, 0.67 to 1.60]; HR, 1.22 [CI, 0.80 to 1.85]; and HR, 1.96 [CI, 1.31 to 2.93]; P for trend < 0.001) were both associated with a higher risk for all-cause mortality. Evaluation of their joint association showed that participants classified as high for both sedentary characteristics (high sedentary time [≥ 12.5 h/d] and high bout duration [≥ 10 min/bout]) had the greatest risk for death. Limitation: Participants may not be representative of the general U.S. population. Conclusion: Both the total volume of sedentary time and its accrual in prolonged, uninterrupted bouts are associated with all-cause mortality, suggestive that physical activity guidelines should target reducing and interrupting sedentary time to reduce risk for death. Primary Funding Source: National Institutes of Health

Gifford B and Zong Y. On-the-job productivity losses among employees with health problems: the role of work accommodations. Journal of Occupational & Environmental Medicine. 2017; 59(9):885-893.

<http://dx.doi.org/10.1097/JOM.0000000000001094>

Abstract: OBJECTIVES: Debates about the productivity impact of work accommodations typically focus on employment and labor force participation outcomes. This study considers whether accommodations mediate on-the-job productivity losses among employees who report health problems. METHODS: The study uses ordered logistic regression to predict employees' self-reported productivity losses as a function of health problems and experiences with needed work accommodations. RESULTS: On average, the odds that an employee who did not get a needed accommodation reported higher levels of lost productivity are 5.11 times the odds for an employee who got a needed accommodation. CONCLUSIONS: Although health problems make it difficult for many employees to perform well on the job, accommodations could reduce productivity losses in some cases. Nonetheless, more research on the impact of specific kinds of accommodations for different chronic conditions is warranted

Grynderup MB, Nabe-Nielsen K, Lange T, Conway PM, Bonde JP, Garde AH, Gullander M, Kaerlev L, Persson R, Rugulies R, Vammen MA, Hogh A, and Hansen AM. The associations between workplace bullying, salivary cortisol, and long-term sickness absence: a longitudinal study. BMC Public Health. 2017; 17(1):710.

<http://dx.doi.org/10.1186/s12889-017-4716-7> [open access]

Abstract: BACKGROUND: Workplace stressors, such as bullying, are strongly related to subsequent long-term sickness absence, but little is known of the possible physiological mechanisms linking workplace stressors and sickness absence. The primary aim of this study was to investigate to what extent cortisol levels were associated with subsequent sickness absence and if cortisol mediated the association between workplace bullying and sickness absence. We additionally investigated possible bidirectional associations between bullying, cortisol, and long-term sickness absence. METHODS: Participants came from

two Danish cohort studies, the "Psychosocial Risk factors for Stress and Mental disease" (PRISME) cohort and the "Workplace Bullying and Harassment" (WBH) cohort (n = 5418). Information about exposure to workplace bullying and morning and evening salivary cortisol was collected at three time points with approximately two years in between. After each data collection, all participants were followed for two years in registers, and cases with long-term sickness absence lasting 30 or more consecutive days were identified. The association between cortisol levels and subsequent sickness absence was assessed by logistic regression, while the extent to which the association between bullying and sickness absence was mediated by cortisol was quantified through natural direct and indirect effects. RESULTS: High evening cortisol was associated with a decreased risk of sickness absence (OR = 0.82, 95% CI = 0.68-0.99), but we did not find that high morning cortisol levels (OR = 0.98, 95% CI = 0.81-1.18) or high morning-to-evening slope (OR = 0.99, 95% CI = 0.82-1.18) were associated with subsequent sickness absence. We also tested for reverse causation and found that long-term sickness absence, but not salivary cortisol, was a strong risk factor for subsequent workplace bullying. There was no indication that cortisol mediated the association between workplace bullying and sickness absence. CONCLUSION: We found no straightforward and simple association between cortisol and long-term sickness absence. Furthermore, the association between workplace bullying and long-term sickness absence was not mediated by cortisol

Guyatt GH, Ebrahim S, Alonso-Coello P, Johnston BC, Mathioudakis AG, Briel M, Mustafa RA, Sun X, Walter SD, Heels-Ansdell D, Neumann I, Kahale LA, Iorio A, Meerpohl J, Schunemann HJ, and Akl EA. GRADE guidelines 17: assessing the risk of bias associated with missing participant outcome data in a body of evidence. *Journal of Clinical Epidemiology*. 2017; 87:14-22.

<http://dx.doi.org/10.1016/j.jclinepi.2017.05.005>

Abstract: OBJECTIVE: To provide GRADE guidance for assessing risk of bias across an entire body of evidence consequent on missing data for systematic reviews of both binary and continuous outcomes. STUDY DESIGN AND SETTING: Systematic survey of published methodological research, iterative discussions, testing in systematic reviews, and feedback from the GRADE Working Group. RESULTS: Approaches begin with a primary meta-analysis using a complete case analysis followed by sensitivity meta-analyses imputing, in each study, data for those with missing data, and then pooling across studies. For binary outcomes, we suggest use of "plausible worst case" in which review authors assume that those with missing data in treatment arms have proportionally higher event rates than those followed successfully. For continuous outcomes, imputed mean values come from other studies within the systematic review and the standard deviation (SD) from the median SDs of the control arms of all studies. CONCLUSIONS: If the results of the primary meta-analysis are robust to the most extreme assumptions viewed as plausible, one does not rate down certainty in the evidence for risk of bias due to missing

participant outcome data. If the results prove not robust to plausible assumptions, one would rate down certainty in the evidence for risk of bias

Hamblin LE, Essenmacher L, Luborsky M, Russell J, Janisse J, Upfal M, and Arnetz J. Worksite walkthrough intervention: data-driven prevention of workplace violence on hospital units. Journal of Occupational & Environmental Medicine. 2017; 59(9):875-884.

<http://dx.doi.org/10.1097/JOM.0000000000001081>

Abstract: OBJECTIVE: The aim of this study was to describe the implementation of a data-driven, unit-based walkthrough intervention shown to be effective in reducing the risk of workplace violence in hospitals. METHODS: A structured worksite walkthrough was conducted on 21 hospital units. Unit-level workplace violence data were reviewed and a checklist of possible prevention strategies and an Action Plan form guided development of unit-specific intervention. Unit supervisor perceptions of the walkthrough and implemented prevention strategies were reported via questionnaires. Prevention strategies were categorized as environmental, behavioral, or administrative. RESULTS: A majority of units implemented strategies within 12 months' postintervention. Participants found the walkthrough useful, practical, and worthy of continued use. CONCLUSIONS: Structured worksite walkthroughs provide a feasible method for workplace violence reduction in hospitals. Core elements are standardized yet flexible, promoting fidelity and transferability of this intervention

Hultcrantz M, Rind D, Akl EA, Treweek S, Mustafa RA, Iorio A, Alper BS, Meerpohl JJ, Murad MH, Ansari MT, Katikireddi SV, Ostlund P, Tranaeus S, Christensen R, Gartlehner G, Brozek J, Izcovich A, Schunemann H, and Guyatt G. The GRADE Working Group clarifies the construct of certainty of evidence. Journal of Clinical Epidemiology. 2017; 87:4-13.

<http://dx.doi.org/10.1016/j.jclinepi.2017.05.006> [open access]

Abstract: OBJECTIVE: To clarify the grading of recommendations assessment, development and evaluation (GRADE) definition of certainty of evidence and suggest possible approaches to rating certainty of the evidence for systematic reviews, health technology assessments, and guidelines. STUDY DESIGN AND SETTING: This work was carried out by a project group within the GRADE Working Group, through brainstorming and iterative refinement of ideas, using input from workshops, presentations, and discussions at GRADE Working Group meetings to produce this document, which constitutes official GRADE guidance. RESULTS: Certainty of evidence is best considered as the certainty that a true effect lies on one side of a specified threshold or within a chosen range. We define possible approaches for choosing threshold or range. For guidelines, what we call a fully contextualized approach requires simultaneously considering all critical outcomes and their relative value. Less-contextualized approaches, more appropriate for systematic reviews and health technology assessments, include using specified ranges of magnitude of effect, for example, ranges of what we might consider no effect, trivial, small, moderate, or large effects. CONCLUSION:

It is desirable for systematic review authors, guideline panelists, and health technology assessors to specify the threshold or ranges they are using when rating the certainty in evidence

Karanikas N. Evaluating the horizontal alignment of safety management activities through cross-reference of data from safety audits, meetings and investigations. Safety Science. 2017; 98:37-49.

<http://dx.doi.org/10.1016/j.ssci.2017.05.008>

Karkkainen R, Saaranen T, Hiltunen S, Ryyanen OP, and Rasanen K. Systematic review: factors associated with return to work in burnout. Occupational Medicine. 2017; 67(6):461-468.

<http://dx.doi.org/10.1093/occmed/kqx093>

Abstract: Background: Professional burnout predicts sick leave and even permanent withdrawal from the labour force. However, knowledge of the barriers to and facilitators of return to work (RTW) in such burnout is limited. Aims: To identify factors associated with RTW of burned-out individuals to inform occupational health care (OHC) RTW policy. Methods: A systematic search of peer-reviewed quantitative and mixed-method studies published from January 2005 to July 2016 in English and Finnish in ARTO, CINAHL (EBSCO), Medic, PsycINFO (ProQuest), PubMed, Scopus and Web of Science databases, followed by a manual search. We included studies that identify burnout with valid burnout measures and measure the degree of RTW or sick leave as outcomes. We excluded studies with heterogeneous samples without subgroup analyses of RTW in burnout cases. Results: We included 10 studies (three experimental and seven observational) of the initial 1345 identified. The studies reported work-related factors; enhanced communication (positive association) and low control at work (negative association) and individual-related factors; male gender (positive association), covert coping (negative association), high over-commitment to work (positive association) and burnout-related factors; unimpaired sleep (positive association), duration of sick leave over 6 months (negative association) and part-time sick leave (positive association) associated with RTW in burnout. Associations between burnout rehabilitation and RTW, and the level of symptoms and cognitive impairment and RTW remained unclear. Conclusions: Few quantitative studies, of varied methodological quality, explore factors associated with RTW in burnout. Further research is needed to build an evidence base and develop guidelines for supportive OHC actions

Li AN, Liao H, Tangirala S, and Firth BM. The content of the message matters: the differential effects of promotive and prohibitive team voice on team productivity and safety performance gains. Journal of Applied Psychology. 2017; 102(8):1259-1270.

<http://dx.doi.org/10.1037/apl0000215>

Abstract: We propose that it is important to take the content of team voice into account when examining its impact on team processes and outcomes. Drawing

on regulatory focus theory (Higgins, 1997), we argue that promotive team voice and prohibitive team voice help teams achieve distinct collective outcomes—that is, team productivity performance gains and team safety performance gains, respectively. Further, we identify mechanisms through which promotive and prohibitive team voices uniquely influence team outcomes as well as boundary conditions for such influences. In data collected from 88 production teams, we found that promotive team voice had a positive association with team productivity performance gains. By contrast, prohibitive team voice had a positive association with team safety performance gains. The relationship between promotive team voice and team productivity performance gains was mediated by team innovation, and the relationship between prohibitive team voice and team safety performance gains was mediated by team monitoring. In addition, the indirect effect of prohibitive team voice on team safety performance gains via team monitoring was stronger when prior team safety performance was lower. We discuss the theoretical and practical implications of these findings. (PsycINFO Database Record

Littlejohn A, Margaryan A, Vojt G, and Lukic D. Learning from Incidents Questionnaire (LFIQ): the validation of an instrument designed to measure the quality of learning from incidents in organisations. Safety Science. 2017; 99(Part A):80-93.

<http://dx.doi.org/10.1016/j.ssci.2017.02.005>

Saunders LW, Kleiner BM, McCoy AP, Ellis KP, Smith-Jackson T, and Wernz C. Developing an inter-organizational safety climate instrument for the construction industry. Safety Science. 2017; 98:17-24.

<http://dx.doi.org/10.1016/j.ssci.2017.04.003>

Shea BJ, Reeves BC, Wells G, Thuku M, Hamel C, Moran J, and et al. AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. British Medical Journal. 2017; 358.

<http://dx.doi.org/10.1136/bmj.j4008>

Abstract: The number of published systematic reviews of studies of healthcare interventions has increased rapidly and these are used extensively for clinical and policy decisions. Systematic reviews are subject to a range of biases and increasingly include non-randomised studies of interventions. It is important that users can distinguish high quality reviews. Many instruments have been designed to evaluate different aspects of reviews, but there are few comprehensive critical appraisal instruments. AMSTAR was developed to evaluate systematic reviews of randomised trials. In this paper, we report on the updating of AMSTAR and its adaptation to enable more detailed assessment of systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. With moves to base more decisions on real world observational evidence we believe that AMSTAR 2 will assist decision

makers in the identification of high quality systematic reviews, including those based on non-randomised studies of healthcare interventions. Summary points Systematic reviews of studies of healthcare interventions effects often include non-randomised studies AMSTAR is a popular instrument for critically appraising systematic reviews of randomised controlled clinical trials AMSTAR underwent further development to enable appraisal of systematic reviews of randomised and non-randomised studies of healthcare interventions The revised instrument (AMSTAR 2) retains 10 of the original domains, has 16 items in total (compared with 11 in the original), has simpler response categories than the original AMSTAR, includes a more comprehensive user guide, and has an overall rating based on weaknesses in critical domains AMSTAR 2 is not intended to generate an overall score With moves to base more decisions on real world observational evidence, AMSTAR 2 should assist in the identification of high quality systematic reviews With the rapid increase in biomedical publishing, keeping up with primary research has become almost impossible for healthcare practitioners and policy makers.¹ Consequently, healthcare decision IQ^a

Silva SA, Carvalho H, Oliveira MJ, Fialho T, Soares CG, and Jacinto C. Organizational practices for learning with work accidents throughout their information cycle. Safety Science. 2017; 99(Part A):102-114.
<http://dx.doi.org/10.1016/j.ssci.2016.12.016>

Verbeek J, Ijaz S, and Mischke C. Inclusion criteria for outcomes of studies not clearly reported in Cochrane systematic reviews. Journal of Clinical Epidemiology. 2017; 87:98-106.
<http://dx.doi.org/10.1016/j.jclinepi.2017.04.025>

Abstract: OBJECTIVES: The objective of this study was to survey how outcomes in recent Cochrane reviews were defined and used for inclusion of studies and how this compares with guidance on preventing outcome reporting bias. STUDY DESIGN AND SETTING: A survey of Cochrane reviews. We extracted data on the outcomes and how the outcomes were used for inclusion of studies in the review. RESULTS: We included 52 reviews with a mean of 8.4 (standard deviation, 4.3) outcomes. Of all reviews, 47 (90%) used primary and secondary outcomes as the names for their review's outcomes but without further definition. None reported using a core outcome set. Forty reviews (77%) did not explain if they used outcomes for inclusion of studies, 8 (15%) stated that studies were included if they reported either primary or secondary outcomes, 1 (2%) reported that outcomes were not used for inclusion, and for 3 (6%), this was unclear. CONCLUSION: In a sample of Cochrane reviews, most reviews did not state if outcomes were used for inclusion of studies. Better explanation of inclusion decisions is needed to be able to understand the risk of outcome reporting bias in a review. Consistent guidance in names and definitions for different types of outcomes used in systematic reviews is needed

Zhou C, Ding L, Skibniewski MJ, Luo H, and Jiang S. Characterizing time series of near-miss accidents in metro construction via complex network theory. *Safety Science*. 2017; 98:145-158.

<http://dx.doi.org/10.1016/j.ssci.2017.06.012>

*IWH authored publications.