IWH Research Alert
August 10, 2018

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

*Biswas A, Faulkner GE, Oh PI, and Alter DA. Patient and practitioner perspectives on reducing sedentary behavior at an exercise-based cardiac rehabilitation program. Disability and Rehabilitation. 2018; 40(19):2267-2274.
http://dx.doi.org/10.1080/09638288.2017.1334232

Abstract: PURPOSE: To understand the awareness of sedentary behavior, as well as the perceived facilitators and barriers to reducing sedentary behaviors from the perspectives of patients undertaking an exercise-based cardiac rehabilitation program, and from staff involved in supporting patient self-management. MATERIALS AND METHODS: A qualitative study was conducted at a large cardiac rehabilitation program in a metropolitan city in Canada. Guided by an ecological framework, semi-structured interviews were conducted individually with 15 patients, and in two focus groups with six staff. Transcribed interviews were analyzed by thematic analysis. RESULTS: Patients placed little importance on reducing sedentary behavior as they were unconvinced of the health benefits, did not perceive themselves to be sedentary, or associated such behaviors with enjoyment and relaxation. While staff were aware of the risks, they saw them as less critical than other health behaviors. Intrapersonal factors (physical and psychosocial health) and environment factors (the information environment, socio-cultural factors) within leisure time, the home, and work, influenced sedentary behavior. CONCLUSIONS: While these findings require further testing, future interventions may be effective if aimed at increasing awareness of the health benefits of reducing sedentary behavior, utilizing existing behavior change strategies, and using a participatory approach to tailor strategies to patients. Implications for rehabilitation Cardiac rehabilitation

programs effectively use exercise promotion to improve the health of people with established cardiovascular disease. As sedentary lifestyles become more prevalent, recommendations to reduce the health risks of prolonged sedentary behavior that are specific to the characteristics and prognostic profiles of cardiac rehabilitation patients are needed. Cardiac rehabilitation programs must consider extending existing behavior change strategies utilized for exercise promotion towards addressing sedentary behaviors in order to be effective at reducing the sedentary time of patients. A participatory approach involving both patients and health professionals can support patients in reducing their sedentary behavior by providing a supportive environment for behavior change, increasing awareness and understanding of risks, discussing the feasibility of potential strategies, and setting achievable and actionable goals

*Dorland HF, Abma FI, Roelen CAM, Stewart RE, Amick BC, Bultmann U, and Ranchor AV. Work-specific cognitive symptoms and the role of work characteristics, fatigue, and depressive symptoms in cancer patients during 18 months post return to work. Psychooncology. 2018; [Epub ahead of print].
http://dx.doi.org/10.1002/pon.4800

Abstract: OBJECTIVE: Cancer patients can experience work-specific cognitive symptoms post return to work. The study aims to (1) describe the course of work-specific cognitive symptoms in the first 18 months post return to work and (2) examine the associations of work characteristics, fatigue and depressive symptoms with work-specific cognitive symptoms over time. METHODS: This study used data from the 18-month longitudinal "Work Life after Cancer" cohort. The Cognitive Symptom Checklist-Work Dutch Version (CSC-W DV) was used to measure work-specific cognitive symptoms. Linear mixed models were performed to examine the course of work-specific cognitive symptoms during 18-month follow-up; linear regression analyses with generalized estimating equations were used to examine associations over time. RESULTS: Working cancer patients examined with different cancer types were included (n = 378). Work-specific cognitive symptoms were stable over 18 months. At baseline, cancer patients reported more working memory symptoms (M = 32.0; CI, 30.0-34.0) compared with executive function symptoms (M = 19.3; CI, 17.6-20.9). Cancer patients holding a job with both manual and nonmanual tasks reported less work-specific cognitive symptoms (unstandardized regression coefficient b = -4.80; CI, -7.76 to -1.83) over time, compared with cancer patients with a nonmanual job. Over time, higher depressive symptoms were related to experiencing more overall work-specific cognitive symptoms (b = 1.27; CI, 1.00-1.55) and a higher fatigue score was related to more working memory symptoms (b = 0.13; CI, 0.04-0.23). CONCLUSIONS: Job type should be considered when looking at work-specific cognitive symptoms over time in working cancer patients. To reduce work-specific cognitive symptoms, interventions targeted at fatigue and depressive symptoms might be promising

*Lanthier S, Bielecky A, and Smith PM. Examining risk of workplace violence in Canada: a sex/gender-based analysis. Annals of Work Exposures and Health. 2018; [Epub ahead of print].
Abstract: Objectives: Workplace violence (WPV) is a serious issue, resulting in significant negative health outcomes. Understanding sex/gender differences in risk of WPV has important implications for primary prevention activities. Methods: Utilizing two waves of the Canadian General Social Survey on Victimization (N = 27,643), we examined the likelihood of WPV, and sub-categories of WPV, for women relative to men. Using a sex/gender analytical approach, a series of logistic regression models examined how the associations between being a woman and each of the outcomes changed upon adjustment for work and socio-demographic characteristics. Results: After adjustment for work hours, women were at more than twice the risk of WPV compared to men (odds ratio = 2.12, 95% confidence interval 1.52-2.95). Adjustment for work characteristics attenuated, but did not eliminate this risk. Differences in associations were observed across sub-categories of violence, with adjustment for work characteristics attenuating sex/gender differences in physical WPV, but having minimal impact on sex/gender differences in sexual WPV. Conclusions: Work characteristics explain a substantial proportion of the sex/gender differences in risk of physical WPV. However, even after adjustment for work characteristics, women still showed an elevated risk relative to men for almost all types of violence (as defined by nature of the violence, sex of the perpetrator, and relationship to the perpetrator) examined in this study. Future investigations should examine why these differences between women and men remain, even within similar occupational contexts

*McIntosh G, Steenstra I, Hogg-Johnson S, Carter T, and Hall H. Lack of prognostic model validation in low back pain prediction studies: a systematic review. Clinical Journal of Pain. 2018; 34(8):748-754.
Abstract: OBJECTIVE: The objective of this study was to investigate the frequency with which prediction studies for low back pain outcomes utilize prospective methods of prognostic model validation. METHOD: Searches of Medline and Embase for terms "predict/predictor," "prognosis," or "prognostic factor." The search was limited to studies conducted in humans and reported in the English language. Included articles were all those published in 2 Spine specialty journals (Spine and The Spine Journal) over a 13-month period, January 2013 to January 2014. Conference papers, reviews, and letters were excluded. The initial screen identified 55 potential studies (44 in Spine, 11 in The Spine Journal); 34 were excluded because they were not primary data collection prediction studies; 23 were not prediction studies and 11 were review articles. This left 21 prognosis papers for review, 19 in Spine, 2 in The Spine Journal. RESULTS: None of the 21 studies provided validation for the predictors that they documented (neither internal or external validation). On the basis of the study

designs and lack of validation, only 2 studies used the correct terminology for describing associations/relationships between independent and dependent variables. DISCUSSION: Unless researchers and clinicians consider sophisticated and rigorous methods of statistical/external validity for prediction/prognostic findings they will make incorrect assumptions and draw invalid conclusions regarding treatment effects and outcomes. Without proper validation methods, studies that claim to present prediction models actually describe only traits or characteristics of the studied sample

Anger WK, Kyler-Yano J, Vaughn K, Wipfli B, Olson R, and Blanco M. Total Worker Health ® intervention for construction workers alters safety, health, well-being measures. Journal of Occupational & Environmental Medicine. 2018; 60(8):700-709.
http://dx.doi.org/10.1097/JOM.0000000000001290
Abstract: OBJECTIVE: The aim of this study was to evaluate the effectiveness of a 14-week Total Worker Health (TWH) intervention designed for construction crews. METHODS: Supervisors (n = 22) completed computer-based training and self-monitoring activities on team building, work-life balance, and reinforcing targeted behaviors. Supervisors and workers (n = 13) also completed scripted safety and health education in small groups with practice activities. RESULTS: The intervention led to significant (P < 0.05) improvements in family-supportive supervisory behaviors (d = 0.72). Additional significant improvements included reported frequency of exercising 30 minutes/day and muscle toning exercise (d = 0.50 and 0.59), family and coworker healthy diet support (d = 0.53 and 0.59), team cohesion (d = 0.38), reduced sugary snacks and drinks (d = 0.46 and d = 0.46), sleep duration (d = 0.38), and objectively-measured systolic blood pressure (d = 0.27). CONCLUSION: A TWH intervention tailored for construction crews can simultaneously improve safety, health, and well-being

Baur H, Grebner S, Blasimann A, Hirschmuller A, Kubosch EJ, and Elfering A. Work-family conflict and neck and back pain in surgical nurses. International Journal of Occupational Safety & Ergonomics. 2018; 24(1):35-40.
http://dx.doi.org/10.1080/10803548.2016.1263414
Abstract: OBJECTIVE: Surgical nurses' work is physically and mentally demanding, possibly leading to work-family conflict (WFC). The current study tests WFC to be a risk factor for neck and lower back pain (LBP). Job influence and social support are tested as resources that could buffer the detrimental impact of WFC. METHODS: Forty-eight surgical nurses from two university hospitals in Germany and Switzerland were recruited. WFC was assessed with the Work-Family Conflict Scale. Job influence and social support were assessed with the Copenhagen Psychosocial Questionnaire, and back pain was assessed with the North American Spine Society Instrument. RESULTS: Multiple linear regression analyses confirmed WFC as a significant predictor of cervical pain (beta = 0.45, p < 0.001) and LBP (beta = 0.33, p = 0.012). Job influence and

social support did not turn out to be significant predictors and were not found to buffer the impact of WFC in moderator analyses. CONCLUSION: WFC is likely to affect neck and back pain in surgery nurses. Work-life interventions may have the potential to reduce WFC in surgery nurses

Bjork BE, Holmgren K, Bultmann U, Gyllensten H, Hagberg J, Sandman L, and Bergstrom G. Increasing return-to-work among people on sick leave due to common mental disorders: design of a cluster-randomized controlled trial of a problem-solving intervention versus care-as-usual conducted in the Swedish primary health care system (PROSA). BMC Public Health. 2018; 18(1):889.
Abstract: BACKGROUND: Common mental disorders affect about one-third of the European working-age population and are one of the leading causes of sick leave in Sweden and other OECD countries. Besides the individual suffering, the costs for society are high. This paper describes the design of a study to evaluate a work-related, problem-solving intervention provided at primary health care centers for employees on sick leave due to common mental disorders. METHODS: The study has a two-armed cluster randomized design in which the participating rehabilitation coordinators are randomized into delivering the intervention or providing care-as-usual. Employees on sick leave due to common mental disorders will be recruited by an independent research assistant. The intervention aims to improve the employee's return-to-work process by identifying problems perceived as hindering return-to-work and finding solutions. The rehabilitation coordinator facilitates a participatory approach, in which the employee and the employer together identify obstacles and solutions in relation to the work situation. The primary outcome is total number of sick leave days during the 18-month follow-up after inclusion. A long-term follow-up at 36 months is planned. Secondary outcomes are short-term sick leave (min. 2 weeks and max. 12 weeks), psychological symptoms, work ability, presenteeism and health related quality of life assessed at baseline, 6 and 12-month follow-up. Intervention fidelity, reach, dose delivered and dose received will be examined in a process evaluation. An economic evaluation will put health-related quality of life and sick leave in relation to costs from the perspectives of society and health care services. A parallel ethical evaluation will focus on the interventions consequences for patient autonomy, privacy, equality, fairness and professional ethos and integrity. DISCUSSION: The study is a pragmatic trial which will include analyses of the intervention's effectiveness, and a process evaluation in primary health care settings. Methodological strengths and challenges are discussed, such as the risk of selection bias, contamination and detection bias. If the intervention shows promising results for return-to-work, the prospects are good for implementing the intervention in routine primary health care. TRIAL REGISTRATION: ClinicalTrials.gov Identifier: NCT03346395 Registered January, 12 2018

Contreary K, Ben-Shalom Y, and Gifford B. Worth the wait? Improving predictions of prolonged work disability (DRC Brief 2018-02). Washington, DC: Center for Studying Disability Policy, Mathematica Policy Research; 2018.
https://www.mathematica-mpr.com/our-publications-and-findings/publications/worth-the-wait-improving-predictions-of-prolonged-work-disability

Fouad AM, Shebl FM, Gamal A, Abdellah RF, Amer SA, and Waheed A. Level of disability, functioning, and work limitation: association with chronic diseases in a working population. Journal of Occupational & Environmental Medicine. 2018; 60(8):e390-e396.
http://dx.doi.org/10.1097/JOM.0000000000001371

Abstract: OBJECTIVE: Chronic diseases are among the major causes of disability, and are associated with substantial individual and societal economic losses. The objective of this study was to assess the association of the different levels of disability, functioning and work limitation, with chronic diseases. METHODS: A total of 516 workers were classified according to chronic disease status, and evaluated for disability, functioning and work Limitation. Quantile regression was performed to assess the associations across the quantiles of the disability, functioning, and work limitation. RESULTS: Overall disability was significantly associated with chronic diseases across all quantiles, while work limitation was only significant at the median and higher quantiles. Functioning domains showed a variable pattern of associations across their quantiles. CONCLUSIONS: Chronic diseases showed a variable magnitude and significance of associations across the levels of disability, functioning, and work limitation

Gensby U, Braathen TN, Jensen C, and Eftedal M. Designing a process evaluation to examine mechanisms of change in return to work outcomes following participation in occupational rehabilitation: a theory-driven and interactive research approach. International Journal of Disability Management. 2018; 13:e1.
http://dx.doi.org/10.1017/idm.2018.2

Hodkinson A, Dietz KC, Lefebvre C, Golder S, Jones M, Doshi P, Heneghan C, Jefferson T, Boutron I, and Stewart L. The use of clinical study reports to enhance the quality of systematic reviews: a survey of systematic review authors. Systematic Reviews. 2018; 7(1):117.
http://dx.doi.org/10.1186/s13643-018-0766-x   [open access]

Abstract: BACKGROUND: Clinical study reports (CSRs) are produced for marketing authorisation applications. They often contain considerably more information about, and data from, clinical trials than corresponding journal publications. Use of data from CSRs might help circumvent reporting bias, but many researchers appear to be unaware of their existence or potential value. Our survey aimed to gain insight into the level of familiarity, understanding and use of

CSRs, and to raise awareness of their potential within the systematic review community. We also aimed to explore the potential barriers faced when obtaining and using CSRs in systematic reviews. METHODS: Online survey of systematic reviewers who (i) had requested or used CSRs, (ii) had considered but not used CSRs and (iii) had not considered using CSRs was conducted. Cochrane reviewers were contacted twice via the Cochrane monthly digest. Non-Cochrane reviewers were reached via journal and other website postings. RESULTS: One hundred sixty respondents answered an open invitation and completed the questionnaire; 20/160 (13%) had previously requested or used CSRs and other regulatory documents, 7/160 (4%) had considered but not used CSRs and 133/160 (83%) had never considered this data source. Survey respondents mainly sought data from the European Medicines Agency (EMA) and/or the Food and Drug Administration (FDA). Motivation for using CSRs stemmed mainly from concerns about reporting bias 11/20 (55%), specifically outcome reporting bias 11/20 (55%) and publication bias 5/20 (25%). The barriers to using CSRs noted by all types of respondents included current limited access to these documents (43 respondents), the time and resources needed to obtain and include these data in evidence syntheses (n = 25) and lack of guidance about how to use these sources in systematic reviews (n = 26). CONCLUSIONS: Most respondents (irrespective of whether they had previously used them) agreed that access to CSRs is important, and suggest that further guidance on how to use and include these data would help to promote their use in future systematic reviews. Most respondents who received CSRs considered them to be valuable in their systematic review and/or meta-analysis

Janwantanakul P, Sihawong R, Sitthipornvorakul E, and Paksaichol A. A path analysis of the effects of biopsychosocial factors on the onset of nonspecific low back pain in office workers. Journal of Manual and Manipulative therapy. 2018; 41(5):405-412.
http://dx.doi.org/10.1016/j.jmpt.2017.10.012
Abstract: OBJECTIVE: The purpose of this study was to develop a conceptual model for the association between various biopsychosocial factors and nonspecific low back pain (LBP) in a sample of office workers. METHODS: A 1-year prospective cohort study of 669 healthy office workers was conducted. At baseline, a self-administered questionnaire and standardized physical examination were employed to gather biopsychosocial data. Follow-up data were collected every month for the incidence of LBP. A regression model was built to analyze factors predicting the onset of LBP. Path analysis was performed to examine direct and indirect associations between identified risk factors and LBP. RESULTS: The onset of LBP was predicted by history of LBP, frequency of rest breaks, and psychological demand, measured by the Job Content Questionnaire. All 3 factors directly related to LBP; history of LBP was the strongest effector on the onset of LBP. History of LBP and frequency of rest breaks had indirect effects on LBP that were mediated through psychological demand, and frequency of rest breaks was the most influential effector on psychological demand.

CONCLUSIONS: Three risk factors were identified to predict onset LBP, including history of LBP, frequency of rest breaks, and psychological demand. Each factor had direct effects on the development of LBP. Also, history of LBP and frequency of rest breaks had indirect effects on LBP that were mediated through psychological demand

Lindsay S, Chan E, Cancelliere S, and Mistry M. Exploring how volunteer work shapes occupational potential among youths with and without disabilities: a qualitative comparison. Journal of Occupational Science. 2018; 25(3):322-336.
http://dx.doi.org/10.1080/14427591.2018.1490339

Petkovic J, Trawin J, Dewidar O, Yoganathan M, Tugwell P, and Welch V. Sex/gender reporting and analysis in Campbell and Cochrane systematic reviews: a cross-sectional methods study. Systematic Reviews. 2018; 7(1):113.
http://dx.doi.org/10.1186/s13643-018-0778-6   [open access]
Abstract: BACKGROUND: The importance of sex and gender considerations in research is being increasingly recognized. Evidence indicates that sex and gender can influence intervention effectiveness. We assessed the extent to which sex/gender is reported and analyzed in Campbell and Cochrane systematic reviews. METHODS: We screened all the systematic reviews in the Campbell Library (n = 137) and a sample of systematic reviews from 2016 to 2017 in the Cochrane Library (n = 674). We documented the frequency of sex/gender terms used in each section of the reviews. RESULTS: We excluded 5 Cochrane reviews because they were withdrawn or published and updated within the same time period as well as 4 Campbell reviews and 114 Cochrane reviews which only included studies focused on a single sex. Our analysis includes 133 Campbell reviews and 555 Cochrane reviews. We assessed reporting of sex/gender considerations for each section of the systematic review (Abstract, Background, Methods, Results, Discussion). In the methods section, 83% of Cochrane reviews (95% CI 80-86%) and 51% of Campbell reviews (95% CI 42-59%) reported on sex/gender. In the results section, less than 30% of reviews reported on sex/gender. Of these, 37% (95% CI 29-45%) of Campbell and 75% (95% CI 68-82%) of Cochrane reviews provided a descriptive report of sex/gender and 63% (95% CI 55-71%) of Campbell reviews and 25% (95% CI 18-32%) of Cochrane reviews reported analytic approaches for exploring sex/gender, such as subgroup analyses, exploring heterogeneity, or presenting disaggregated data by sex/gender. CONCLUSION: Our study indicates that sex/gender reporting in Campbell and Cochrane reviews is inadequate

Sabbath EL, Williams JAR, Boden LI, Tempesti T, Wagner GR, Hopcia K, Hashimoto D, and Sorensen G. Mental health expenditures: association with workplace incivility and bullying among hospital patient care workers. Journal of Occupational & Environmental Medicine. 2018; 60(8):737-742.
http://dx.doi.org/10.1097/JOM.0000000000001322

Abstract: OBJECTIVE: Bullied workers have poor self-reported mental health; monetary costs of bullying exposure are unknown. We tested associations between bullying and health plan claims for mental health diagnoses. METHODS: We used data from 793 hospital workers who answered questions about bullying in a survey and subscribed to the group health plan. We used two-part models to test associations between types of incivility/bullying and mental health expenditures. RESULTS: Workers experiencing incivility or bullying had greater odds of any mental health claims. Among claimants, unexposed workers spent $792, those experiencing one type of incivility or bullying spent $1,557 (p for difference from unexposed=0.016), those experiencing two types spent $928 (p = 0.503), and those experiencing three types spent $1,446 (p = 0.040). CONCLUSIONS: Workplace incivility and bullying may carry monetary costs to employers, which could be controlled through work environment modification

Schwatka NV, Shore E, Atherly A, Weitzenkamp D, Dally MJ, Brockbank CVS, Tenney L, Goetzel RZ, Jinnett K, McMillen J, and Newman LS. Reoccurring injury, chronic health conditions, and behavioral health: gender differences in the causes of workers' compensation claims. Journal of Occupational & Environmental Medicine. 2018; 60(8):710-716.
http://dx.doi.org/10.1097/JOM.0000000000001301
Abstract: OBJECTIVE: To examine how work and non-work health-related factors contribute to workers' compensation (WC) claims by gender. METHODS: Workers (N = 16,926) were enrolled in the Pinnacol Assurance Health Risk Management study, a multiyear, longitudinal research program assessing small and medium-sized enterprises in Colorado. Hypotheses were tested using gender stratified logistic regression models. RESULTS: For both women and men, having incurred a prior WC claim increased the odds of a future claim. The combination of incurring a prior claim and having metabolic health conditions resulted in lower odds of a future claim. Behavioral health risk factors increased the odds of having a claim more so among women than among men. CONCLUSIONS: This study provides data to support multifactorial injury theories, and the need for injury prevention efforts that consider workplace conditions as well as worker health

Svebak S and Halvari H. Sickness absence due to chronic musculoskeletal pain: the exploration of a predictive psychological model including negative moods, subjective health and work efficacy in an adult county population (the HUNT study). Europe's Journal of Psychology. 2018; 14(2):373-385.
http://dx.doi.org/10.5964/ejop.v14i2.1470 **[open access]**
Abstract: The relation between musculoskeletal pain and sickness absence was tested in an adult county population. Maximal explained variance in absence from work due to chronic musculoskeletal pain (sickness absence) was tested in a model in which subjective health was expected to mediate the associations between such pain and dysphoria, respectively, and work efficacy. In turn, work

efficacy was expected to mediate the link between subjective health and sickness absence. All the residents in the County of Nord-Trondelag, Norway, aged 20 and older, were invited to take part in a public health survey during 1995-97 (HUNT-2), and 66,140 (71.2%) participated. Prevalence of musculoskeletal pain, dysphoria, subjective health and work efficacy were assessed, as well as sickness absence last year due to musculoskeletal pain. The model test was performed by use of the LISREL procedure based upon data from 30,158 employees reporting chronic musculoskeletal pain last year. The measurement model fitted the data well: chi(2) = 9075, df = 52, p < .0004, Critical N = 1041, RMSEA = 0.038, CFI = 0.99, SRMR = 0.020. The structural model fitted the data equally well, and the best prediction of sickness absence was obtained with lower back pain, upper and lower extremity pain, as well as dysphoria as the primary variables affecting subjective health that, in turn, was the convergent predictor of work efficacy that, finally, best explained the variance in sickness absence (56%). The data supported an indirect sequence of complaint-health-efficacy (CHE-model) as the best predictor of sickness absence due to musculoskeletal pain

Yoon Y, Ryu J, Kim H, Kang CW, and Jung-Choi K. Working hours and depressive symptoms: the role of job stress factors. Annals of Occupational and Environmental Medicine. 2018; 30:46.
Abstract: Background: South Korea is one of the countries with the longest working hours in the OECD countries. The aim of this study was to evaluate the effect of working hours on depressive symptoms and the role of job stress factors between the two variables among employees in South Korea. Methods: This study used data from the Korea Working Conditions Survey in 2014. Study subjects included 23,197 employees aged 19 years or older who work more than 35 h per week. Working hours were categorized into 35-39, 40, 41-52, 53-68, and more than 68 h per week. Depressive symptoms were assessed using the WHO's Well-Being Index with a cut-off score of 13. We calculated prevalence ratios of depressive symptoms according to working hours using log-binomial regression. Through the percentage change in prevalence ratios, we identified the extent of the role of job stress factors that explain depressive symptoms. Results: The risks of depressive symptoms were significantly higher in people who worked 35-39 h per week (PR: 1.09, CI: 1.01-1.18), 53-68 h/week (PR: 1.21, CI: 1.16-1.25), and more than 68 h/week (PR: 1.14, CI: 1.07-1.21) than 40 h/week, after adjusting for confounding variables. Job stress explained the effects of long working hours on depressive symptoms in about 20-40% of the groups working more than 40 h/week. Among the factors of job stress, social support was 10-30%, which showed the highest explanatory power in all working hours. Reward explained 15-30% in the more than 52 h working group, and reward was the most important factor in the working group that exceeded 68 h. Conclusions: We showed the working hours could be an independent risk factor for depressive symptoms in employees. To improve workers' mental health, it is

important to strengthen social support in the workplace, to provide adequate rewards as they work, and ultimately to regulate the appropriate amount of working hours

*IWH authored publications.