# IWH Research Alert February 10, 2017

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\*Lay AM, Saunders R, Lifshen M, Breslin FC, LaMontagne AD, Tompa E, and Smith PM. The relationship between occupational health and safety vulnerability and workplace injury. Safety Science. 2017; 94:85-93. <a href="http://dx.doi.org/10.1016/j.ssci.2016.12.021">http://dx.doi.org/10.1016/j.ssci.2016.12.021</a>

\*Walker TJ, Tullar JM, Diamond PM, Kohl HW, III, and Amick BC, III. Validity and reliability of the 8-item work limitations questionnaire. Journal of Occupational Rehabilitation. 2016; [Epub ahead of print]. <a href="http://dx.doi.org/10.1007/s10926-016-9687-5">http://dx.doi.org/10.1007/s10926-016-9687-5</a>

Abstract: Purpose To evaluate factorial validity, scale reliability, test-retest reliability, convergent validity, and discriminant validity of the 8-item Work Limitations Questionnaire (WLQ) among employees from a public university system. Methods A secondary analysis using de-identified data from employees who completed an annual Health Assessment between the years 2009-2015 tested research aims. Confirmatory factor analysis (CFA) (n = 10,165) tested the latent structure of the 8-item WLQ. Scale reliability was determined using a CFAbased approach while test-retest reliability was determined using the intraclass correlation coefficient. Convergent/discriminant validity was tested by evaluating relations between the 8-item WLQ with health/performance variables for convergent validity (health-related work performance, number of chronic conditions, and general health) and demographic variables for discriminant validity (gender and institution type). Results A 1-factor model with three correlated residuals demonstrated excellent model fit (CFI = 0.99, TLI = 0.99, RMSEA = 0.03, and SRMR = 0.01). The scale reliability was acceptable (0.69, 95% CI 0.68-0.70) and the test-retest reliability was very good (ICC = 0.78). Lowto-moderate associations were observed between the 8-item WLQ and the health/performance variables while weak associations were observed between the demographic variables. Conclusions The 8-item WLQ demonstrated sufficient reliability and validity among employees from a public university system. Results suggest the 8-item WLQ is a usable alternative for studies when the more comprehensive 25-item WLQ is not available

Ben-Shalom Y, Bruns S, Contreary K, and Stapleton D. Stay-at-work/returnto-work: key facts, critical information gaps, and current practices and proposal. Final report. Washington, DC: Mathematica Policy Research; 2017.

https://www.mathematica-mpr.com/our-publications-andfindings/publications/stay-at-work-return-to-work-key-facts-criticalinformation-gaps-and-current-practices-and-proposals

van Beurden KM, Brouwers EP, Joosen MC, de Boer MR, van Weeghel J, Terluin B, and van der Klink JJ. Effectiveness of an intervention to enhance occupational physicians' guideline adherence on sickness absence duration in workers with common mental disorders: a cluster-randomized controlled trial. Journal of Occupational Rehabilitation. 2016; [Epub ahead of printl.

#### http://dx.doi.org/10.1007/s10926-016-9682-x

Abstract: Purpose Evidence-based guidelines in occupational health care improve the quality of care and may reduce sickness absence duration. Notwithstanding that, guideline adherence of occupational physicians (OPs) is limited. Based on the literature on guideline implementation, an intervention was developed that was shown to effectively improve self-reported adherence in OPs. The aim of present study was to evaluate whether this intervention leads to earlier return to work (RTW) in workers with common mental disorders (CMD). Methods In a two-armed cluster randomized controlled trial, 66 OPs were randomized. The trial included 3379 workers, with 1493 in the intervention group and 1886 in the control group. The outcome measures were: time to full RTW. time to first RTW, and total hours of sickness absence. Cox regression analyses and generalized linear mixed model analyses were used for the evaluations. Results The median time to RTW was 154 days among the 3228 workers with CMD. No significant differences occurred in (time to) full RTW between intervention and control group HR 0.96 (95% CI 0.81-1.15) nor for first RTW HR 0.96 (95% CI 0.80-1.15). The mean total hours of sickness absence was 478 h in the intervention group and 483 h in the control group. Conclusions The intervention to enhance OPs' guideline adherence did not lead to earlier RTW in workers with CMD guided by the OPs. Possible explanations are the remaining external barriers for guideline use, and that perceived guideline adherence might not represent actual guideline adherence and improved care. Trail registration: ISRCTN86605310

Fraade-Blanar LA, Sears JM, Chan KC, Thompson HJ, Crane PK, and Ebel BE. Relating older workers' injuries to the mismatch between physical ability and job demands. Journal of Occupational & Environmental Medicine. 2017; 59(2):212-221.

http://dx.doi.org/10.1097/JOM.0000000000000941

Abstract: OBJECTIVE: We examined the association between job demand and occupational injury among older workers. METHODS: Participants were workers aged 50+ enrolled in the Health and Retirement Study, 2010 to 2014. Participants reported physical ability within three domains: physical effort, stooping/kneeling/crouching, and lifting. To measure subjective job demand, participants rated their job's demands within domains. We generated objective job demand measures through the Occupational Information Network (ONET). Using Poisson regression, we modeled the association between physical ability, job demand, and self-reported occupational injury. A second model explored interaction between job demand and physical ability. RESULTS: The injury rate was 22/1000 worker-years. Higher job demand was associated with increased injury risk. Within high job demands, lower physical ability was associated with increased injury risk. CONCLUSIONS: Older workers whose physical abilities do not meet job demands face increased injury risk

Gerassis S, Martin JE, Garcia JT, Saavedra A, and Taboada J. Bayesian decision tool for the analysis of occupational accidents in the construction of embankments. Journal of Construction Engineering and Management. 2017; 143(2):04016093-1-04016093-8.

http://dx.doi.org/10.1061/(ASCE)CO.1943-7862.0001225

Gillen PA, Sinclair M, Kernohan WG, Begley CM, and Luyben AG. Interventions for prevention of bullying in the workplace. Cochrane Database of Systematic Reviews. 2017; 1:CD009778. http://dx.doi.org/10.1002/14651858.CD009778.pub2

Abstract: BACKGROUND: Bullying has been identified as one of the leading workplace stressors, with adverse consequences for the individual employee, groups of employees, and whole organisations. Employees who have been bullied have lower levels of job satisfaction, higher levels of anxiety and depression, and are more likely to leave their place of work. Organisations face increased risk of skill depletion and absenteeism, leading to loss of profit, potential legal fees, and tribunal cases. It is unclear to what extent these risks can be addressed through interventions to prevent bullying. OBJECTIVES: To explore the effectiveness of workplace interventions to prevent bullying in the workplace. SEARCH METHODS: We searched: the Cochrane Work Group Trials Register (August 2014); Cochrane Central Register of Controlled Trials (CENTRAL; The Cochrane Library 2016, issue 1); PUBMED (1946 to January 2016); EMBASE (1980 to January 2016); PsycINFO (1967 to January 2016); Cumulative Index to Nursing and Allied Health Literature (CINAHL Plus; 1937 to January 2016); International Bibliography of the Social Sciences (IBSS; 1951 to

January 2016): Applied Social Sciences Index and Abstracts (ASSIA: 1987 to January 2016); ABI Global (earliest record to January 2016); Business Source Premier (BSP; earliest record to January 2016); OpenGrey (previously known as OpenSIGLE-System for Information on Grey Literature in Europe; 1980 to December 2014); and reference lists of articles. SELECTION CRITERIA: Randomised and cluster-randomised controlled trials of employee-directed interventions, controlled before and after studies, and interrupted time-series studies of interventions of any type, aimed at preventing bullying in the workplace, targeted at an individual employee, a group of employees, or an organisation. DATA COLLECTION AND ANALYSIS: Three authors independently screened and selected studies. We extracted data from included studies on victimisation, perpetration, and absenteeism associated with workplace bullying. We contacted study authors to gather additional data. We used the internal validity items from the Downs and Black quality assessment tool to evaluate included studies' risk of bias. MAIN RESULTS: Five studies met the inclusion criteria. They had altogether 4116 participants. They were underpinned by theory and measured behaviour change in relation to bullying and related absenteeism. The included studies measured the effectiveness of interventions on the number of cases of self-reported bullying either as perpetrator or victim or both. Some studies referred to bullying using common synonyms such as mobbing and incivility and antonyms such as civility. Organisational/employer level interventions Two studies with 2969 participants found that the Civility, Respect, and Engagement in the Workforce (CREW) intervention produced a small increase in civility that translates to a 5% increase from baseline to follow-up, measured at 6 to 12 months (mean difference (MD) 0.17; 95% CI 0.07 to 0.28). One of the two studies reported that the CREW intervention produced a small decrease in supervisor incivility victimisation (MD -0.17: 95% CI -0.33 to -0.01) but not in co-worker incivility victimisation (MD -0.08: 95% CI -0.22 to 0.08) or in self-reported incivility perpetration (MD -0.05 95% CI -0.15 to 0.05). The study did find a decrease in the number of days absent during the previous month (MD -0.63; 95% CI -0.92 to -0.34) at 6-month follow-up. Individual/job interface level interventionsOne controlled before-after study with 49 participants compared expressive writing with a control writing exercise at two weeks follow-up. Participants in the intervention arm scored significantly lower on bullying measured as incivility perpetration (MD -3.52; 95% CI -6.24 to -0.80). There was no difference in bullying measured as incivility victimisation (MD -3.30) 95% CI -6.89 to 0.29). One controlled before-after study with 60 employees who had learning disabilities compared a cognitive-behavioural intervention with no intervention. There was no significant difference in bullying victimisation after the intervention (risk ratio (RR) 0.55; 95% CI 0.24 to 1.25), or at the three-month follow-up (RR 0.49; 95% CI 0.21 to 1.15), nor was there a significant difference in bullying perpetration following the intervention (RR 0.64: 95% CI 0.27 to 1.54), or at the three-month follow-up (RR 0.69; 95% CI 0.26 to 1.81). Multilevel Interventions A five-site cluster-RCT with 1041 participants compared the effectiveness of combinations of policy communication, stress management

training, and negative behaviours awareness training. The authors reported that bullying victimisation did not change (13.6% before intervention and 14.3% following intervention). The authors reported insufficient data for us to conduct our own analysis. Due to high risk of bias and imprecision, we graded the evidence for all outcomes as very low quality. AUTHORS' CONCLUSIONS: There is very low quality evidence that organisational and individual interventions may prevent bullying behaviours in the workplace. We need large well-designed controlled trials of bullying prevention interventions operating on the levels of society/policy, organisation/employer, job/task and individual/job interface. Future studies should employ validated and reliable outcome measures of bullying and a minimum of 6 months follow-up

Goh J, Pfeffer J, and Zenios SA. The relationship between workplace stressors and mortality and health costs in the United States. Management Science. 2016; 62(2):608-628.

http://dx.doi.org/10.1287/mnsc.2014.2115

Huijs JJ, Koppes LL, Taris TW, and Blonk RW. Work characteristics and return to work in long-term sick-listed employees with depressive symptoms. Journal of Occupational Rehabilitation. 2017; [Epub ahead of print].

http://dx.doi.org/10.1007/s10926-017-9696-z

Abstract: Purpose The present study investigated the relations between work characteristics, depressive symptoms and duration until full return to work (RTW) among long-term sick-listed employees. This knowledge may add to the development of effective interventions and prevention, especially since work characteristics can be subjected to interventions more easily than many disorderrelated or personal factors. Methods this prospective cohort study with a two-year follow-up employs a sample of 883 Dutch employees who had been sick-listed for at least 13 weeks at baseline, who filled out three questionnaires: at 19 weeks, 1 and 2 years after the start of sick leave. The dependent measure was duration until full RTW. Results not working (partially) at baseline, low decision authority, high psychological demands, low supervisor support and low RTW selfefficacy were related to more depressive symptoms. The duration until full RTW was longer for employees with depressive symptoms. Low physical exertion, high RTW self-efficacy, working partially at baseline, being married or cohabiting, and young age were related to less time until full RTW. Other work characteristics appeared no independent predictors of RTW. Conclusions although the role of job demands and job resources in the RTW process is limited for long-term sicklisted employees with depressive symptoms, a few work characteristics are prognostic factors of full RTW. Focus on these elements in the selection or development of interventions may be helpful in preventing sickness absence, and in supporting long-term sick-listed employees towards full RTW

Jacobs NW, Berduszek RJ, Dijkstra PU, and van der Sluis CK. Validity and reliability of the upper extremity work demands scale. Journal of



# Occupational Rehabilitation. 2016; [Epub ahead of print]. http://dx.doi.org/10.1007/s10926-016-9683-9

Abstract: Purpose To evaluate validity and reliability of the upper extremity work demands (UEWD) scale. Methods Participants from different levels of physical work demands, based on the Dictionary of Occupational Titles categories, were included. A historical database of 74 workers was added for factor analysis. Criterion validity was evaluated by comparing observed and self-reported UEWD scores. To assess structural validity, a factor analysis was executed. For reliability, the difference between two self-reported UEWD scores, the smallest detectable change (SDC), test-retest reliability and internal consistency were determined. Results Fifty-four participants were observed at work and 51 of them filled in the UEWD twice with a mean interval of 16.6 days (SD 3.3, range = 10-25 days). Criterion validity of the UEWD scale was moderate (r = .44, p = .001). Factor analysis revealed that 'force and posture' and 'repetition' subscales could be distinguished with Cronbach's alpha of .79 and .84, respectively. Reliability was good; there was no significant difference between repeated measurements. An SDC of 5.0 was found. Test-retest reliability was good (intraclass correlation coefficient for agreement = .84) and all item-total correlations were >.30. There were two pairs of highly related items. Conclusion Reliability of the UEWD scale was good, but criterion validity was moderate. Based on current results, a modified UEWD scale (2 items removed, 1 item reworded, divided into 2 subscales) was proposed. Since observation appeared to be an inappropriate gold standard, we advise to investigate other types of validity, such as construct validity, in further research

Moll S, Zanhour M, Patten SB, Stuart H, and MacDermid J. Evaluating mental health literacy in the workplace: development and psychometric properties of a vignette-based tool. Journal of Occupational Rehabilitation. 2017; [Epub ahead of print].

http://dx.doi.org/10.1007/s10926-017-9695-0

Abstract: Purpose Early intervention and support for workers with mental health problems may be influenced by the mental health literacy of the worker, their colleagues and their supervisor. There are gaps, however, in our understanding of how to develop and evaluate mental health literacy within the context of the workplace. The purpose of this study was to evaluate the psychometric properties of a new Mental Health Literacy tool for the Workplace (MHL-W). Methods The MHL-W is a 16-question, vignette-based tool specifically tailored for the workplace context. It includes four vignettes featuring different manifestations of mental ill-health in the workplace, with parallel questions that explore each of the four dimensions of mental health literacy. In order to establish reliability and construct validity, data were collected from 192 healthcare workers who were participating in a mental health training project. Baseline data was used to examine the scale's internal consistency, factor structure and correlations with general knowledge ratings, confidence ratings, attitudes towards people with mental illness, and attitudes towards seeking help. Paired t-tests were used to

examine pre and post intervention scores in order to establish responsiveness of the scale. Results There was strong support for internal consistency of the tool and a one-factor solution. As predicted, the scores correlated highly with an overall rating of knowledge and confidence in addressing mental health issues, and moderately with attitudes towards seeking professional help and (decreased) stigmatized beliefs. It also appears to be responsive to change. Conclusions The MHL-W scale is promising tool to track the need for and impact of mental health education in the workplace

Ng AWY and Chan AHS. Mental models of construction workers for safetysign representation. Journal of Construction Engineering and Management. 2017; 143(2):04016091-1-04016091-10.

http://dx.doi.org/10.1061/(ASCE)CO.1943-7862.0001221

Plopa M, Plopa W, and Skuzinska A. Bullying at work, personality and subjective well-being. Journal of Occupational Health Psychology. 2017; 22(1):19-27.

http://dx.doi.org/10.1037/a0040320

Abstract: The present study examines the role of personality in the relationship between bullying at work and the subjective well-being of employees. The study was conducted with 359 participating employees of administrative bodies, the police force, and the health care sector. Four selected groups of persons with various personality profiles based on the 5-factor model underwent analysis. The obtained results attest to a protective role of a configuration of low neuroticism, high agreeableness, and high conscientiousness and a configuration of low neuroticism, high extraversion, and high openness to experience. (PsycINFO Database Record

Rudolph CW and Baltes BB. Age and health jointly moderate the influence of flexible work arrangements on work engagement: evidence from two empirical studies. Journal of Occupational Health Psychology. 2017; 22(1):40-58.

### http://dx.doi.org/10.1037/a0040147

Abstract: Research and theory support the notion that flexible work arrangements (i.e., job resources in the form of formal policies that allow employees the latitude to manage when, where, and how they work) can have a positive influence on various outcomes that are valued both by organizations and their constituents. In the present study, we integrate propositions from various theoretical perspectives to investigate how flexible work arrangements influence work engagement. Then, in 2 studies we test this association and model the influence of different conceptualizations of health and age as joint moderators of this relationship. Study 1 focuses on functional health and chronological age in an age-diverse sample, whereas study 2 focuses on health symptom severity and subjective age in a sample of older workers. In both studies, we demonstrate that the influence of flexible work arrangements on work engagement is contingent upon age and health. (PsycINFO Database Record

Schmid JA, Jarczok MN, Sonntag D, Herr RM, Fischer JE, and Schmidt B. Associations between supportive leadership behavior and the costs of absenteeism and presenteeism: an epidemiological and economic approach. Journal of Occupational & Environmental Medicine. 2017; 59(2):141-147.

#### http://dx.doi.org/10.1097/JOM.0000000000000919

Abstract: OBJECTIVE: This study investigates associations between supportive leadership behavior (SLB) and presenteeism/absenteeism, and estimates related costs. METHODS: Cross-sectional data from a German industrial sample (n = 17,060) assessing SLB and presenteeism/absenteeism were used. Adjusted interval regressions were performed. The study population was split into tertiles with respect to SLB, and minimum and maximum costs for each tertile were estimated on the basis of national industry averages. RESULTS: Low SLB was associated with higher presenteeism [-0.31, 95% confidence interval (95% CI) - 0.33 to -0.28)] and absenteeism (-0.36, 95% CI -0.40 to -0.32). Compared with high SLB, the costs of low SLB for absenteeism are between 534.54 and 1675.16 Euro higher per person and year. For presenteeism, this difference ranges between 63.76 and 433.7 Euro. CONCLUSIONS: SLB has the potential to reduce absenteeism, presenteeism, and associated costs. To contribute to workforce health, productivity, and efficiency, SLB merits being fostered by corporate policy

Sears JM and Bowman SM. State trauma registries as a resource for occupational injury surveillance and research: lessons from Washington state, 1998-2009. Public Health Reports. 2016; 131(6):791-799. http://dx.doi.org/10.1177/0033354916669358

Abstract: OBJECTIVES: Work-related traumatic injury is a leading cause of death and disability among US workers. Occupational injury surveillance is necessary for effective prevention planning and assessing progress toward Healthy People 2020 objectives. Our objectives were to (1) describe the Washington State Trauma Registry (WTR) as a resource for occupational injury surveillance and research, (2) compare the WTR with 2 population-based data sources more widely used for these purposes, and (3) compare the number of injuries ascertained by the WTR with other data sources. METHODS: We linked WTR records to hospital discharge records in the Comprehensive Hospital Abstract Reporting System for 2009 and to workers' compensation claims from the Washington State Department of Labor and Industries for 1998 to 2008. We assessed the 3 data sources for overlap, concordance, and case ascertainment. RESULTS: Of 9185 work-related injuries in the WTR, 3380 (37%) did not link to workers' compensation claims. Use of payer information in hospital discharge records along with the WTR work-relatedness field identified 20% more linked injuries as work related (n = 720) than did use of payer information alone (n = 720) 602). The WTR identified substantial numbers of work-related injuries that were not identified through workers' compensation or hospital discharge records. CONCLUSIONS: Workers' compensation and hospital discharge databases are

important but incomplete data sources for work-related injuries; many work-related injuries are not billed to, reported to, or covered by workers' compensation. Trauma registries are well positioned to capture severe work-related injuries and should be included in comprehensive injury surveillance efforts

Shatte A, Perlman A, Smith B, and Lynch WD. The positive effect of resilience on stress and business outcomes in difficult work environments. Journal of Occupational & Environmental Medicine. 2017; 59(2):135-140. http://dx.doi.org/10.1097/JOM.000000000000914 [open access] Abstract: OBJECTIVE: To examine whether resilience has a protective effect in difficult work environments. METHODS: A survey of 2063 individuals measured individual resilience, stress, burnout, sleep problems, likelihood of depression, job satisfaction, intent to quit, absences, and productivity. It also measured work characteristics: job demands, job influence, and social support. Multivariate and logistic regression models examined the main effects and interactions of resilience and job characteristics. RESULTS: High strain work environments (high demand, low influence, and low support) have an unfavorable effect on all outcomes. Resilience has a protective effect on all outcomes. For stress, burnout, and sleep, higher resilience has a more protective effect under lowstrain conditions. For depression, absence and productivity, resilience has a more protective effect when job strain is high. CONCLUSIONS: Workers with high resilience have better outcomes in difficult work environments

Shearer HM, Cote P, Boyle E, Hayden JA, Frank J, and Johnson WG. Who will have sustainable employment after a back injury? The development of a clinical prediction model in a cohort of injured workers. Journal of Occupational Rehabilitation. 2016; [Epub ahead of print]. http://dx.doi.org/10.1007/s10926-016-9678-6

Abstract: Purpose Our objective was to develop a clinical prediction model to identify workers with sustainable employment following an episode of workrelated low back pain (LBP). Methods We used data from a cohort study of injured workers with incident LBP claims in the USA to predict employment patterns 1 and 6 months following a workers' compensation claim. We developed three sequential models to determine the contribution of three domains of variables: (1) basic demographic/clinical variables; (2) health-related variables; and (3) work-related factors. Multivariable logistic regression was used to develop the predictive models. We constructed receiver operator curves and used the c-index to measure predictive accuracy. Results Seventy-nine percent and 77 % of workers had sustainable employment at 1 and 6 months, respectively. Sustainable employment at 1 month was predicted by initial back pain intensity, mental health-related quality of life, claim litigation and employer type (c-index = 0.77). At 6 months, sustainable employment was predicted by physical and mental health-related quality of life, claim litigation and employer type (c-index = 0.77). Adding health-related and work-related variables to models improved predictive accuracy by 8.5 and 10 % at 1 and 6 months respectively. Conclusion We developed clinically-relevant models to predict sustainable employment in injured workers who made a workers' compensation claim for LBP. Inquiring about back pain intensity, physical and mental health-related quality of life, claim litigation and employer type may be beneficial in developing programs of care. Our models need to be validated in other populations

Silva MC, Peduzzi M, Sangaleti CT, da Silva D, Agreli HF, West MA, and Anderson NR. Cross-cultural adaptation and validation of the teamwork climate scale. Revista de Saude Publica. 2016; 50:52. http://dx.doi.org/10.1590/S1518-8787.2016050006484

Tikka C, Verbeek J, Tamminga S, Leensen M, and de Boer A. Rehabilitation and return to work after cancer. Literature review - European risk observatory. Luxembourg: Publications Office of the European Union; 2017.

https://osha.europa.eu/sites/default/files/publications/documents/Rehabilitation\_return\_to\_work\_after\_cancer\_0.pdf

Vooijs M, Leensen MC, Hoving JL, Wind H, and Frings-Dresen MH. Perspectives of people with a chronic disease on participating in work: a focus group study. Journal of Occupational Rehabilitation. 2017; [Epub ahead of print].

http://dx.doi.org/10.1007/s10926-016-9694-6

Abstract: Purpose To explore solutions that people with a chronic disease use to overcome difficulties they experience regarding participating in work, and the support they require to identify or implement these solutions. Methods Focus groups were held to explore solutions and support requirements of people with a chronic disease. Participants were recruited through a research institution's patient panel, a patient federation and personal networks. Analysis was conducted by means of open and selective coding, using the MAXQDA software package. Results Five focus groups were held with 19 participants with different chronic diseases. Solutions that were identified included learning to accept and cope with the disease, which is frequently supported by family and friends. Disclosing the disease to employers and colleagues, identifying active ways to help with duties, and implementing adaptations to the work environment were all effective solutions with the help, empathy and understanding of people in the work environment. Solutions mostly supported by patient associations included providing sufficient information about the disease, relevant help and protective legal regulations regarding work participation. Finally, health professionals could support solutions such as incorporating periods of rest, promoting self-efficacy and gaining insight into an individual's ability to participate in work. Conclusions People with a chronic disease suggested various solutions that can help overcome difficulties surrounding participating in work. Support from friends and family, patient associations, employers, colleagues and occupational health professionals is needed to help identify and implement suitable solutions

\*IWH authored publications.