

IWH Research Alert
December 20, 2019

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Aikas AH, Absetz P, Hirvensalo MH, and Pronk NP. What can you achieve in 8 years? A case study on participation, effectiveness, and overall impact of a comprehensive workplace health promotion program. *Journal of Occupational and Environmental Medicine*. 2019; 61(12):964-977.

<https://doi.org/10.1097/JOM.0000000000001699> [open access]

Abstract: OBJECTIVE: The aim of this study was to investigate participation and effectiveness of a multiyear comprehensive workplace health promotion (WHP) program. METHODS: Participation and effectiveness data came from employer and vendor systems. Health data came from health risk assessments (HRA) and biometric screenings. Participation and effectiveness were analyzed using descriptive analyses, t tests, and Mann-Whitney U tests where appropriate. Overall impact was assessed using the PIPE Impact Metric. RESULTS: Eighty-six percent of employees completed the HRA and 80% the biometrical screenings. Annual participation rate was 24%, and total reach was 58%. The portion of successful participants was 23% in 2010 to 2013 and 18% in 2014 to 2017. PIPE Impact scores were 18% for 2010 to 2013 and 14% for the 2014 to 2017 study periods. CONCLUSION: Despite modest annual participation rates, overall 8-year reach was considered reasonable. Conservatively, we consider the overall program impact to be moderate

Athirah Diyana MY, Karmegam K, Shamsul BMT, Irniza R, Vivien H, Sivasankar S, et al. Risk factors analysis: work-related musculoskeletal disorders among male traffic policemen using high-powered motorcycles.

International Journal of Industrial Ergonomics. 2019; 74:102863.
<https://doi.org/10.1016/j.ergon.2019.102863>

Black KJ, Munc A, Sinclair RR, and Cheung JH. Stigma at work: the psychological costs and benefits of the pressure to work safely. Journal of Safety Research. 2019; 70:181-191.

<https://doi.org/10.1016/j.jsr.2019.07.007>

Abstract: INTRODUCTION: Workplace accidents and injuries can be quite costly to both individual employees and their organizations. While safety climate (i.e., perceptions of policies and procedures related to safety that should reflect an organization's value of safety) has been established as a predictor of safety behaviors, less research has considered the possible negative pressures that could result from an environment that emphasizes safety. Though organizations may intend to create a positive safety climate, concerns about being treated differently if an employee were to be involved in a safety incident may result in unintended, but detrimental safety and health outcomes. METHOD: This study investigated the stigma associated with being involved in a safety-related incident in relation to self-reported safety behaviors and psychological health outcomes. The data were acquired through a two-wave prospective design, surveying workers from Amazon Mechanical Turk (MTurk; N=528) who indicated they were exposed to at least one physical work stressor (e.g., heavy lifting; air quality; standing for extended periods) a few times each month or more. RESULTS: When controlling for safety climate, safety stigma was related to decreased safety compliance and poorer psychological health. There was a marginally significant interaction between safety stigma and safety motivation in relation to safety compliance. CONCLUSIONS: These findings suggest that experiencing pressure to work safely, for fear of being evaluated negatively, may actually come at the cost of employees' safety compliance and psychological health. Practical applications: These results may be useful in assessing and intervening to improve an organization's safety climate. Organizations should closely examine the climate for safety to ensure that positive aspects of safety are not undermined by a stigmatizing pressure associated with safety in the work environment

Blome MW, Borell J, Hakansson C, and Nilsson K. Attitudes toward elderly workers and perceptions of integrated age management practices. International Journal of Occupational Safety and Ergonomics. 2020; 26(1):112-120.

<https://doi.org/10.1080/10803548.2018.1514135>

Abstract: This qualitative study investigates attitudes toward elderly workers and their work situation in different sectors, and explores perceptions and organizational measures that can enable an extended working life. Previous age management studies indicate that there are several interconnected measures and key areas of importance, and that there is a general need for strategies to strengthen sustainable age management at the organizational level. A structured

content analysis was used to analyze data from focus group interviews with informants from a variety of organizations. The study identified three themes that highlight attitudes and perceptions of integrated age management practices: (a) contemporary policies and practices in the work environment; (b) social participation and attitudes; (c) experience and mentorship. These themes can form the basis of a good approach to an integrated age management strategy. Such a strategy can be achieved through intervention studies where research on sustainable working life meets the real problems faced by employees and managers

Bolin M and Olofsdotter G. Bringing organizations back in: going from healthy work to healthy workplaces. *Nordic Journal of Working Life Studies*. 2019; 9(4):3-17.

<https://doi.org/10.18291/njwls.v9i4.117779> [open access]

Abstract: The aim of this article is to discuss how the concept of inequality regimes can contribute to theoretical and methodological advances in occupational health research. We posit the mutual advantages of bringing together feminist intersectional analysis of inequality in working life with studies of working conditions and health. The job demands and control model (JDC) is used as a starting point for the discussion. Reintegration of organizational analysis into studies of working conditions and health is warranted, as organizations influence how working conditions are distributed and individuals are stratified in the labor market. We refer to that development as going from healthy work to healthy workplaces. We discuss how the concept of inequality regimes is open for mixed method analysis and how it can be used as a theoretical framework for unraveling the ways in which inequalities in working conditions and health are (re)created in different types of organizations

Boye K. Care more, earn less? The association between taking paid leave to care for sick children and wages among Swedish parents. *Work, Employment and Society*. 2019; 33(6):983-1001.

<https://doi.org/10.1177/0950017019868138>

Brelhoff SP, Sinsel EW, Dutta A, Carey RE, Warren CM, Dai F, et al. Are knee savers and knee pads a viable intervention to reduce lower extremity musculoskeletal disorder risk in residential roofers? *International Journal of Industrial Ergonomics*. 2019; 74:102868.

<https://doi.org/10.1016/j.ergon.2019.102868>

Busto Serrano N, Suarez Sanchez A, Sanchez Lasheras F, Iglesias-Rodriguez FJ, and Fidalgo Valverde G. Identification of gender differences in the factors influencing shoulders, neck and upper limb MSD by means of multivariate adaptive regression splines (MARS). *Applied Ergonomics*. 2020; 82:102981.

<https://doi.org/10.1016/j.apergo.2019.102981>

Abstract: In the present research, models based on multivariate adaptive

regression splines (MARS) are proposed to study the influence of gender in the factors affecting the development of shoulders, neck and upper limb MSD. Two different MARS models, corresponding to men and women, are constructed to identify variables with the strongest effect on the target MSD. Both models are capable to predict successfully the occurrence of the studied disorders. Men seem to be more vulnerable to physical risk factors and some other working conditions, whereas women appear to be more affected by psychosocial risk factors and activities carried out outside their working hours. According to the results, gender needs to be considered to ensure the success and effectiveness of ergonomic interventions on the whole working population

Das D, Kumar A, and Sharma M. A systematic review of work-related musculoskeletal disorders among handicraft workers. International Journal of Occupational Safety and Ergonomics. 2020; 26(1):55-70.

<https://doi.org/10.1080/10803548.2018.1458487>

Abstract: Purpose. Handicraft manufacturing appears to be an occupation where work-related musculoskeletal disorders (WMSDs) are a major threat to workers. For the multifactorial nature and varying prevalence of WMSDs between different body areas, the current study aimed to evaluate the prevalence of WMSDs and associated risk factors among handicraft workers. Methods. This review was based on literature collected from three electronic databases, and the retrieved articles were screened following the inclusion/exclusion criteria. After applying the literature selection criteria to 182 articles, 30 citations were selected and examined in detail. Results. The findings suggest that the prevalence of musculoskeletal symptoms among handicraft workers is 38.5-100%, and the most affected body areas were the neck, back, knees and upper limbs. Risk factors including working posture, daily working hours, repetitive and forceful movements, work experience, age, gender and working under stressful conditions were found to be highly associated with the occurrence of WMSDs. However, higher educational qualification of the workers led to a reduction in the odds of developing WMSDs. Conclusion. Handicraft workers are at high risk of developing WMSDs. Further research, preferably longitudinal studies, with more emphasis on work-related factors should now be undertaken to thoroughly investigate WMSDs in this occupational group

Ferreira Faisting ALR and de Oliveira Sato T. Effectiveness of ergonomic training to reduce physical demands and musculoskeletal symptoms: an overview of systematic reviews. International Journal of Industrial Ergonomics. 2019; 74:102845.

<https://doi.org/10.1016/j.ergon.2019.102845>

Fubini L, Pasqualini O, Ferro E, Marino M, Santoro S, Tosco E, et al. Injury narratives in occupational safety and health prevention in Italy. Occupational Medicine. 2019; 69(7):500-503.

<https://doi.org/10.1093/occmed/kqz135>

Abstract: BACKGROUND: Storytelling is an effective information source when

coupled with technical-scientific evidence. It can promote a structured relationship between evidence-based knowledge and field experience of workplace safety and prevention services (WSPS) inspectors. This is key to identifying the causes of workplace injuries and to set priorities for prevention strategies. **AIMS:** The main aim was to describe and report how story collection can be used for deriving validated indications for injury prevention. The specific objectives were to report the results of the creation and dissemination on the web of the story collection and the experience of setting up a community of practice (CoP) to develop preventive recommendations. **METHODS:** WSPS inspectors from local health boards in Piedmont (northwest Italy) were asked to write injury stories. They identified the key elements of their stories and developed a narrative of witness accounts to explore the critical issues identified during the investigation. In sessions with the CoP, the inspectors validated the indications for prevention elaborated in each story to reduce bias and standardize recommendations. **RESULTS:** Between 2012 and 2017, 60 WSPS inspectors wrote 53 injury stories which were collected and published on the institutional website. Twenty-two stories were selected for discussion during peer review sessions in the CoP and the indications for prevention were transformed as preventive solutions. **CONCLUSIONS:** Occupational safety and health prevention can benefit from a narrative-based approach that provides a more comprehensive look at health and safety by facilitating knowledge improvement and sharing

Goldenhar LM, Schwatka N, and Johnson SK. Leadership skills for strengthening jobsite safety climate. Journal of Safety Research. 2019; 70:263-271.

<https://doi.org/10.1016/j.jsr.2019.04.011>

Abstract: **INTRODUCTION:** Construction foremen may lack the leadership skills needed to create a strong jobsite safety climate. Many construction companies address this by sending their lead workers to the OSHA 30-h course; however the course does not include a leadership training module. This article describes the development and pilot testing of such a module and evaluation surveys designed to address this training gap. **METHODS:** A 17-member curriculum development team, numerous subject matter experts, and an instructional design company helped us develop a comprehensive set of teaching resources and a set of survey instruments for evaluating the materials' effectiveness on improving safety leadership and safety climate. All materials and surveys were pilot tested with representative members of the target population. **RESULTS:** Pilot surveys showed high reliability and data collected on the resulting Foundations for Safety Leadership (FSL) module indicated that the majority of foremen thought the training was helpful or valuable, particularly the discussion questions. The majority said they intended to use the skills on the jobsite. With the exception of the role-play activities, the trainers rated highly all other components, especially the videos and discussion questions. Modifications were made to the training materials and surveys based on pilot test findings. The most important result of

the development and pilot testing efforts is that the OSHA Training Institute (OTI) included the FSL as an elective in the OSHA 30-h course. CONCLUSIONS: The FSL module fills a needed skills gap by providing safety leadership training to all foremen who might otherwise not have access to it through their company or union. The continued success of the FSL training will be ensured by dissemination via the OSHA 30-h course, an established nationwide safety training program. Practical applications: The FSL training module has already been widely accepted by the construction industry as a useful approach for providing construction foremen/See new abstract lead workers with the knowledge and skills they need to become more effective jobsite safety leaders.

Harrati A, Hepburn P, Meausoone V, and Cullen MR. Characterizing long-term trajectories of work and disability leave: the role of occupational exposures, health, and personal demographics. Journal of Occupational and Environmental Medicine. 2019; 61(11):936-943.

<https://doi.org/10.1097/JOM.0000000000001705>

Abstract: OBJECTIVE: This article characterizes trajectories of work and disability leave across the tenure of a cohort of 49,595 employees in a large American manufacturing firm. METHODS: We employ sequence and cluster analysis to group workers who share similar trajectories of work and disability leave. We then use multinomial logistic regression models to describe the demographic, health, and job-specific correlates of these trajectories. RESULTS: All workers were clustered into one of eight trajectories. Female workers (RR 1.3 to 2.1), those experiencing musculoskeletal disease (RR 1.3 to 1.5), and those whose jobs entailed exposure to high levels of air pollution (total particulate matter; RR 1.9 to 2.4) were more likely to experience at least one disability episode. CONCLUSIONS: These trajectories and their correlates provide insight into disability processes and their relationship to demographic characteristics, health, and working conditions of employees

Jeon SH, Liu H, and Ostrovsky Y. Measuring the gig economy in Canada using administrative data. Analytical Studies Branch Research Paper Series (11F0019M). No. 437. Ottawa: Statistics Canada: 2019.

<https://www150.statcan.gc.ca/n1/pub/11f0019m/11f0019m2019025-eng.pdf>

Kukla M, Salyers MP, Strasburger AM, Johnson-Kwochka A, Amador E, and Lysaker PH. Work-focused cognitive behavioral therapy to complement vocational services for people with mental illness: pilot study outcomes across a 6-month posttreatment follow-up. Psychiatric Rehabilitation Journal. 2019; 42(4):366-371.

<https://doi.org/10.1037/prj0000365>

Abstract: OBJECTIVE: People with mental illness frequently have trouble obtaining and keeping competitive employment and struggle with on-the-job performance. To address these issues, the manualized, group-based, 12-session Cognitive Behavioral Therapy for Work Success (CBTw) intervention was developed and tested in an open trial. Although posttreatment work outcomes

were promising, lasting effects associated with the intervention are unknown. **METHOD:** This article presents the 6-month posttreatment work outcomes of the open trial of CBTw in 52 adults with mental illness who were concurrently receiving VA vocational services. Work outcomes included work status, hours worked and wages earned, steady work status, and work performance and effectiveness. Data were analyzed using repeated measures analysis of variances (ANOVAs) and within groups t tests. **RESULTS:** Findings demonstrate that 75% of unemployed participants at baseline obtained competitive work during the study period. During the 6-month follow-up period, 73% of workers attained steady work status (i.e., working at least 50% of the follow-up period). In addition, during the 6-month follow-up period, working participants averaged significantly more hours of work per week and higher wages earned per hour as compared with the baseline period and the 12-week postintervention period. Finally, among workers, reports of work effectiveness remained high at 6 months and work productivity disruptions remained low at follow-up. **CONCLUSIONS AND IMPLICATIONS FOR PRACTICE:** These findings suggest that CBTw may potentially be a useful tool to enhance the effects of vocational programs. Future work should test CBTw in a randomized controlled trial and examine strategies for implementation in real-world vocational service settings. (PsycINFO Database Record (c) 2019 APA, all rights reserved)

Lexen A, Emmelin M, Hansson L, and Bejerholm U. Exploring the service and knowledge gap between rehabilitation professionals and employers in the return-to-work process of people with mental health problems in Sweden. *Work*. 2019; 64(3):495-506.

<https://doi.org/10.3233/WOR-193011>

Abstract: **BACKGROUND:** Research is needed on how to optimize the return-to-work process for persons with mental health problems. **OBJECTIVE:** To develop a model that explains how employer and rehabilitation professional mental health literacy may influence strategies used in the return-to-work of persons with mental health problems. **METHODS:** A grounded theory study design was used to collect and analyse interview data from 23 employers and 22 rehabilitation professionals. **RESULTS:** The analysis resulted in four categories, illustrated in a conceptual process model: 1) seeing mental health problems through past experiences; 2) separating understandable and incomprehensible mental health problems; 3) balancing safeguarding one's personal interest with providing adequate support; and 4) facing conflicts and uncertainty in employee/service user return-to-work. A positional map of employer/rehabilitation types was created based on level of negative attitudes and uncertainty in supporting employees/service users and the employer in relation to the level of comprehensive understanding of mental health problems. **CONCLUSIONS:** Professional mental health literacy needs to be increased. Interventions need to be developed that provide employers with targeted support and knowledge in mental health literacy. Education on how to prevent and detect common mental health problems in the workplace is needed

Mei Q, Wang Q, Liu S, Zhou Q, and Zhang J. Effects of organizational safety on employees' proactivity safety behaviors and occupational health and safety management systems in Chinese high-risk small-scale enterprises. International Journal of Occupational Safety and Ergonomics. 2020; 26(1):101-111.

<https://doi.org/10.1080/10803548.2018.1470287>

Abstract: Based on the characteristics of small-scale enterprises, the improvement of occupational health and safety management systems (OHS MS) needs an effective intervention. This study proposed a structural equation model and examined the relationships of perceived organization support for safety (POSS), person-organization safety fit (POSF) and proactivity safety behaviors with safety management, safety procedures and safety hazards identification. Data were collected from 503 employees of 105 Chinese high-risk small-scale enterprises over 6 months. The results showed that both POSS and POSF were positively related to improvement in safety management, safety procedures and safety hazards identification through proactivity safety behaviors. Our findings provide a new perspective on organizational safety for improving OHS MS for small-scale enterprises and extend the application of proactivity safety behaviors

Phillips A, Cooney R, Harris Z, Myrttil D, and Hodgson M. Noise and occupational medicine: common practice problems. Journal of Occupational and Environmental Medicine. 2019; 61(12):1019-1029.

<https://doi.org/10.1097/JOM.0000000000001728>

Raeder S, Bamberger SG, Nielsen P, Nielsen RN, Larsen A, Vinding AL, et al. Globalization and Job insecurity in Danish firms: a multilevel study. Nordic Journal of Working Life Studies. 2019; 9(4):59-80.

<https://doi.org/10.18291/njwls.v9i4.117776> [open access]

Abstract: Globalization is on the agenda as a cause of job insecurity, but knowledge regarding the relationship between globalization, management practices, and employee job insecurity is in fact limited. This study aims to investigate this multilevel association, defining globalization by the interrelated aspects of competition, liberalization, and technological innovation, and management by offensive practices such as external collaboration, organizational change, numerical flexibility, and work intensification. Questionnaire data were collected in 2010 from 3392 employees of 569 Danish companies and analyzed with multilevel modeling. The results show that international collaboration and numerical flexibility are associated with higher job insecurity. The level of job insecurity varies with occupational position, age group, and company size. Because globalization and the management of globalization are associated with employee job insecurity, companies should react in a timely way to globalization pressures: for example, by involving employees, communicating clearly, and supporting employees with lower education

Rost KA and Alvero AM. Participatory approaches to workplace safety management: bridging the gap between behavioral safety and participatory ergonomics. International Journal of Occupational Safety and Ergonomics. 2020; 26(1):194-203.

<https://doi.org/10.1080/10803548.2018.1438221>

Abstract: Many researchers and practitioners argue the importance of end-user involvement in workplace safety management, but the research literature and practices remain fractured across orientations. The primary aim of this article is to bridge the gap between two major participatory safety management approaches: behavioral safety and participatory ergonomics. First, an overview and brief history of participative management is presented to provide context for its application to workplace safety. Next, behavioral safety and participatory ergonomics are separately examined in terms of their origins and core elements. Finally, based on this examination, unifying elements between behavioral safety and participatory ergonomics will be presented to provide a comprehensive account of participatory safety management

Tang F, Mehlum L, Mehlum IS, and Qin P. Physical illness leading to absence from work and the risk of subsequent suicide: a national register-based study. European Journal of Public Health. 2019; 29(6):1073-1078.

<https://doi.org/10.1093/eurpub/ckz101>

Abstract: BACKGROUND: Studies have shown that people with physical illness are at increased risk of suicide, but knowledge on the association between absence from work due to specific physical health problems and suicide risk is limited. This study aimed to examine the relationship between suicide risk and physical illness requiring leave from work across a range of specific physical diagnoses, and to study the interactions of mental illness and socioeconomic factors on this relationship. METHODS: Using a nested case-control design, 9313 suicide cases and 169 235 matched controls were retrieved and interlinked from Norwegian national registries. Data on sick leave and related physical illness were derived from claims for sickness benefit and analyzed using conditional logistic regression. RESULTS: For males, the risk of suicide increased progressively with the number of previous physical illness-related absences and the duration of recent physical illness-related absences. Absences related to digestive, musculoskeletal and neurological disorders as well as cancer and accidents/injuries were associated with a significantly increased risk of suicide. In contrast, females with a history of physical illness-related absence and a diagnosis of most organ or system specific illnesses were at a relatively reduced risk of suicide. In both genders, the suicide risk associated with physical illness resulting in absence from work differentiated significantly by history of sickness absence due to mental illness, and by education and income levels. CONCLUSIONS: The risk of suicide associated with physical illness requiring leave from work varied significantly by gender and by education and income status

Woods M, Macklin R, Dawkins S, and Martin A. Mental illness, social suffering and structural antagonism in the labour process. *Work, Employment and Society*. 2019; 33(6):948-965.

<https://doi.org/10.1177/0950017019866650>

Xia N, Xie Q, Hu X, Wang X, and Meng H. A dual perspective on risk perception and its effect on safety behavior: a moderated mediation model of safety motivation, and supervisor's and coworkers' safety climate. *Accident Analysis & Prevention*. 2020; 134:105350.

<https://doi.org/10.1016/j.aap.2019.105350>

Abstract: Previous studies have acknowledged the impact of risk perception on safety behavior, but were largely controversial. This study aims to clarify this conflict and the mechanism through which risk perception can have an impact on safety behavior. From the perspective of the dual attribute of the job demand concept in job demands-resources theory, we posit that risk perception can be considered as a job hindrance or a job challenge depending on the context, thereby resulting in a negative or positive impact on safety behavior, respectively. The current research context is the construction industry and the hypotheses were tested using hierarchically nested data collected from 311 workers in 35 workgroups. Risk perception was demonstrated to be a job hindrance exerting a negative impact on safety behavior and safety motivation mediated this effect. In addition, two dimensions of group-level safety climate--supervisor's and coworkers'--were expected to alleviate or even reverse the detrimental effects of hindrance risk perception on safety motivation and on safety behavior via motivation. A moderation model and a first-stage moderated mediation model were established, respectively, for testing the moderating roles of safety climate in the relationship between risk perception and safety motivation, and in the indirect relationship of risk perception with safety behavior via motivation. Surprisingly, contrary to the hypotheses, when supervisor's safety climate changed from a low level to a high level, the impact of risk perception on safety motivation changed from positive to negative, and the negative effect of risk perception on safety behavior via safety motivation was not alleviated but worsened. As expected, for workers in a positive coworkers' safety climate, the negative effect of risk perception on motivation and the indirect negative effect of risk perception on behavior were both reversed to the positive. This indicates that coworkers' safety climate helped to change perceived risk from a job hindrance to a challenge. This research contributes to workplace risk perception and safety behavior research by theoretically viewing risk perception as a dual job hindrance-challenge concept and proposing two competing hypotheses concerning the impact of risk perception on safety behavior. The empirical investigation confirmed the hindrance attribute of risk perception in the construction context. It provides a theoretical framework and empirical evidence for future research to synthesize the conflict risk perception-safety behavior relationship. We also contribute to the literature by pointing out the potential

negative role of certain supervisor safety activities such as paternalistic leadership in influencing employee safety