

IWH Research Alert
March 5, 2021

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Alvarez G, Nuez-Cortes R, Sola I, Sitja-Rabert M, Fort-Vanmeerhaeghe A, Fernandez C, et al. Sample size, study length, and inadequate controls were the most common self-acknowledged limitations in manual therapy trials: a methodological review. *Journal of Clinical Epidemiology*. 2021; 130:96-106.

<https://doi.org/10.1016/j.jclinepi.2020.10.018>

Abstract: OBJECTIVES: The aim of this study was to quantify and analyze the presence and type of self-acknowledged limitations (SALs) in a sample of manual therapy (MT) randomized controlled trials. STUDY DESIGN AND SETTING: We randomly selected 120MT trials. We extracted data related to SALs from the original reports and classified them into 12 categories. After data extraction, specific limitations within each category were identified. A descriptive analysis was performed using frequencies and percentages for qualitative variables. RESULTS: The number of SALs per trial article ranged from 0 to 8, and more than two-thirds of trials acknowledged at least two different limitations. Despite its small proportion, 9% of trials did not report SALs. The most common limitation declared, in almost half of our sample, related to sample size (47.5%) followed by



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limitations related to study length and follow-up (33.3%) and inadequate controls (32.5%). CONCLUSION: Our results indicate that at least two different limitations are consistently acknowledged in MT trial reports, the most common being those related to sample size, study length, follow-up, and inadequate controls. Analysis of the reasons behind the SALs gives some insights about the main difficulties in conducting research in this field and may help develop strategies to improve future research

Bhandari S, Hallowell MR, Alruqi W, and Salas R. Modeling the relationship between personal risk tolerance, work-related risk tolerance, and risk-taking behavior of construction workers. Journal of Construction Engineering and Management. 2021; 147(4):04021016.

[https://doi.org/10.1061/\(ASCE\)CO.1943-7862.0002021](https://doi.org/10.1061/(ASCE)CO.1943-7862.0002021)

Broday EE. Participatory Ergonomics in the context of Industry 4.0: a literature review. Theoretical Issues in Ergonomics Science. 2021; 22(2):237-250.

<https://doi.org/10.1080/1463922X.2020.1801886>

Brolin K, Lanner D, and Halldin P. Work-related traumatic brain injury in the construction industry in Sweden and Germany. Safety Science. 2021; 136:105147.

<https://doi.org/10.1016/j.ssci.2020.105147>

Guseva Canu I, Marca SC, Dell'Oro F, Balazs A, Bergamaschi E, Besse C, et al. Harmonized definition of occupational burnout: a systematic review, semantic analysis, and Delphi consensus in 29 countries. Scandinavian Journal of Work, Environment & Health. 2021; 47(2):95-107.

<https://doi.org/10.5271/sjweh.3935>

Abstract: Objective A consensual definition of occupational burnout is currently lacking. We aimed to harmonize the definition of occupational burnout as a health outcome in medical research and reach a consensus on this definition within the Network on the Coordination and Harmonisation of European Occupational Cohorts (OMEGA-NET). Methods First, we performed a systematic review in MEDLINE, PsycINFO and Embase (January 1990 to August 2018) and a semantic analysis of the available definitions. We used the



definitions of burnout and burnout-related concepts from the Systematized Nomenclature of Medicine Clinical Terms (SNOMED-CT) to formulate a consistent harmonized definition of the concept. Second, we sought to obtain the Delphi consensus on the proposed definition. Results We identified 88 unique definitions of burnout and assigned each of them to 1 of the 11 original definitions. The semantic analysis yielded a first proposal, further reformulated according to SNOMED-CT and the panelists` comments as follows: "In a worker, occupational burnout or occupational physical AND emotional exhaustion state is an exhaustion due to prolonged exposure to work-related problems". A panel of 50 experts (researchers and healthcare professionals with an interest for occupational burnout) reached consensus on this proposal at the second round of the Delphi, with 82% of experts agreeing on it. Conclusion This study resulted in a harmonized definition of occupational burnout approved by experts from 29 countries within OMEGA-NET. Future research should address the reproducibility of the Delphi consensus in a larger panel of experts, representing more countries, and examine the practicability of the definition

Fischer SL, Koltun S, and Lee J. A cross-sectional survey of musculoskeletal disorder hazard exposures and self-reported discomfort among on-shore wind turbine service technicians. *Ergonomics*. 2021; 64(3):383-395.

<https://doi.org/10.1080/00140139.2020.1831079>

Abstract: BACKGROUND: Servicing and maintaining wind turbines may expose wind turbine technicians (wind techs) to musculoskeletal disorder (MSD) hazards. We aimed to characterise MSD hazard exposures and identify work elements that should be prioritised for MSD prevention efforts. METHODS: A cross-sectional online survey methodology gathered data from 144 wind techs based on a convenience, non-probability sampling approach. The survey was developed using resources from the Ontario MSD Prevention Guideline, where cognitive interviewing yielded wind tech specific modifications. RESULTS: Climbing was the most physically demanding task, followed by torqueing/tensioning and manual materials handling (MMH). However, working in awkward and constrained postures emerged as the task most likely to cause or aggravate discomfort. CONCLUSIONS: Injecting ergonomic and



human factors principles into wind turbine design should be a high priority. Re-engineering tools like torque tensioning devices may reduce MSD hazard exposures associated with tasks including torqueing/tensioning and MMH. PRACTITIONER SUMMARY: We know little about musculoskeletal disorder (MSD) hazards associated with green jobs. By surveying wind turbine technicians, we learned that MSD hazards exists, and can be addressed by better considering human factors/ergonomics principles in the design of wind turbines and the tools required for service and maintenance operations. Abbreviations: MSD: musculoskeletal disorder; MMH: manual materials handling; Wind techs: wind turbine technicians; CRE-MSD: centre of research expertise for the prevention of musculoskeletal disorders; CanWEA: Canadian wind energy association; HFE: human factors/ergonomics; ASME: American Society of Mechanical Engineers; CSA: Canadian Standards Association

Greulich B, Debus ME, Kleinmann M, and Konig CJ. Response behavior in work stress surveys: a qualitative study on motivational and cognitive processes in self- and other-reports. European Journal of Work and Organizational Psychology. 2021; 30(1):40-57.

<https://doi.org/10.1080/1359432X.2020.1812580>

Harari D and Casarotto RA. Effectiveness of a multifaceted intervention to manage musculoskeletal disorders in workers of a medium-sized company. International Journal of Occupational Safety & Ergonomics. 2021; 27(1):247-257.

<https://doi.org/10.1080/10803548.2019.1575052>

Abstract: Purpose. This study investigated the effectiveness of a workplace-based multifaceted intervention to manage musculoskeletal disorders (MSDs) and their consequences in the workers of a medium-sized company. Materials and methods. A program consisting of participatory ergonomics (PE), workplace exercises (WE) and acupuncture as the main resources of physical therapy (PT) performed at the workstations was conducted for 22 months with 126 workers. The outcomes were complaints of MSDs and absenteeism measured by the Nordic musculoskeletal questionnaire. We also measured workers' perceptions about the intervention using a Likert-based questionnaire. Results. The rate of



MSDs was significantly reduced in at least one body region ($p=0.001$). Absenteeism was also significantly reduced ($p=0.020$). For workers with pain at baseline, at least 40% improved totally, while for others the duration, frequency and intensity of pain was reduced for all body regions, except for the lower back and fingers. For workers without pain at baseline, a 70% target for prevention of MSDs was achieved. Most workers (56-99%) agreed that the intervention improved the consequences of MSDs. Conclusions. A multifaceted intervention consisting of PE, WE and acupuncture as the main resources of PT performed at the workstations may be relevant to managing MSDs in working populations

Jonsson J, Matilla-Santander N, Kreshpaj B, Johansson G, Kjellberg K, Burstrom B, et al. Precarious employment and general, mental and physical health in Stockholm, Sweden: a cross-sectional study. *Scandinavian Journal of Public Health*. 2021; 49(2):228-236.

<https://doi.org/10.1177/1403494820956451> [open access]

Abstract: Objectives: To investigate the association between precarious employment and health in a sample of non-standard employees in Stockholm County, Sweden, by addressing three specific research questions: is the degree of precarious employment (low, moderate, high) associated with self-rated. . . (a) general health, (b) mental health, (c) musculoskeletal pain? Methods: Web-based respondent-driven sampling was used to recruit a sample of 415 employees in Stockholm, Sweden, during 2016-2017. Questionnaire data were collected on employment conditions (the Swedish version of the employment precariousness scale (EPRES-Se)), general health, mental health and musculoskeletal pain. EPRES-Se scores were categorised as low, moderate or high. Generalised linear models with Poisson distribution, log link functions and robust variances were applied for calculating crude and adjusted prevalence ratios (PR; aPR) with 95% confidence intervals (CIs) for all outcomes. Results: The prevalence ratios of poor self-rated general and mental health increased with increased degree of precariousness, as indicated by estimates of moderate precarious employment (a(2)PR(Moderate) 1.44 (CI 0.98-2.11); a(2)PR(Moderate) 1.13 (CI 0.82-1.62)), and high precarious employment (a(2)PR(High) 1.78 (CI 1.21-2.62); a(2)PR(High) 1.69 (CI 1.25-2.28)), albeit only significantly



so for high precarious employment. Conclusions: This is the first study in Sweden reporting on the association between precarious employment, as measured with a multidimensional scale, and multiple health outcomes. The results add to the evidence of an association between precarious employment and self-rated poor general and mental health. Larger, representative studies with longitudinal designs using the EPRES-Se are called for in order to strengthen these results and the already existing evidence of the harm of precarious employment

Kristensen P, Hanvold TN, Hasting RL, Merkus SL, Hoff R, and Mehlum IS. Work participation in young Norwegians: a 19-year follow up in a registry-based life-course cohort. Scandinavian Journal of Public Health. 2021; 49(2):176-187.

<https://doi.org/10.1177/1403494820917507> [open access]

Abstract: Aims: The study objectives were to provide a quantitative description of work participation among young adults, and to outline the relations between work participation and social, educational and health-related characteristics throughout the life-course. Methods: We collected data in several national registries for all 318,705 individuals born in Norway 1967-1971 who were national residents on 1 January 1993. The criterion for work was annual occupational income above the boundary which identifies the core workforce. We analysed associations between social, educational and health-related characteristics, and the number of years at work and the risk of never working during 19 years of follow-up (1993-2011; age 22-44 years). Results: The overall work participation was high, with a median of 14 years and a 0.074 risk of never working. Women worked fewer years than men (medians 11 v. 16 years) and had higher risk of never working (0.103 v. 0.047). Combined educational and health problems before 1993 had a strong influence on subsequent work participation. The educational gradient in risks of never working was considerably stronger for women than for men. Diagnostic groups of mental disorders had high risks of never working, ranging from affective (risk 0.150) and stress-related disorders (risk 0.163) to intellectual disability (risk 0.933). Conclusions: The complex problems characterising individuals with low work participation suggest that preventive measures should take sex into account and be targeted at



social, educational and mental issues in early life, and focusing on identified vulnerable groups

Lee SJ, Stock L, Michalchuk V, Adesoye K, and Mullen K. Impact of California safe patient handling legislation: health care workers' perspectives. Workplace Health & Safety. 2021; 69(3):124-133.

<https://doi.org/10.1177/2165079920975388>

Abstract: **BACKGROUND:** Musculoskeletal injuries from patient handling are significant problems among health care workers. In California, legislation requiring hospitals to implement safe patient handling (SPH) programs was enacted in 2011. This qualitative study explored workers' experiences and perceptions about the law, their hospital's SPH policies and programs, patient handling practices, and work environment. **METHODS:** Three focus groups were conducted with 21 participants (19 nurses and 2 patient handling specialists) recruited from 12 hospitals located in the San Francisco Bay Area and San Joaquin Valley. Qualitative content analysis was used for data analysis. **RESULTS:** Multiple themes emerged from diverse experiences and perceptions. Positive perceptions included empowerment to advocate for safety, increased awareness of SPH policies and programs, increased provision of patient handling equipment and training, increased lift use, and improvement in safety culture. Perceived concerns included continuing barriers to safe practices and lift use such as difficulty securing assistance, limited availability of lift teams, understaffing, limited nursing employee input in the safety committee, blaming of individuals for injury, increased workload, and continuing injury concerns. Participants indicated the need for effective training, sufficient staffing, and management support for injured workers. **CONCLUSIONS/APPLICATION TO PRACTICE:** This study identified improvements in hospitals' SPH programs and practices since the passage of California's SPH law, as well as continuing challenges and barriers to safe practices and injury prevention. The findings provide useful information to understanding the positive impacts of the SPH law but also notes the potential limitations of this legislation in the view of health care workers

Mastekaasa A, Dale-Olsen H, Hellevik T, Loset GK, and Ostbakken KM. Gender difference in sickness absence: do



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managers evaluate men and women differently with regard to the appropriateness of sickness absence? *Scandinavian Journal of Public Health*. 2021; 49(2):125-131.

<https://doi.org/10.1177/1403494819890783>

Abstract: Aims: Women have much higher rates of sickness absence than men, but the causes of the difference are not well understood. This study examines whether managers have more lenient attitudes towards women's than towards men's absence, as this might contribute to higher rates of sickness absence among women. Differences between managers and other employees are also assessed. **Methods:** Vignettes were used to measure attitudes towards the legitimacy of sickness absence. The vignettes consisted of brief case descriptions of individuals considering asking their physicians for sick leave, with information about the medical condition (mainly taken from the descriptions in ICPC-2), occupation and gender. Respondents judged how appropriate sickness absence was in each case. Quota sampling was used, and the effective sample size was 899 managers and 1396 other employees, with each respondent evaluating either four or six vignettes. Generalised ordinal logistic regression was used. **Results:** The gender of the vignette person had no effect on the managers' evaluations of the appropriateness of sickness absence. Irrespective of the gender of the vignette person, however, managers were generally more restrictive than non-managers. **Conclusions:** Different attitudes on the part of managers towards sickness absence in men and women do not seem to contribute to gender differences in sickness absence, but managers are generally more restrictive compared to non-managerial employees

Sterman Y, Tarazi E, Berman O, Gur Y, Parnas H, Tareef R, et al. Safety on demand: a case study for the design and manufacturing-on-demand of personal protective equipment for healthcare workers during the COVID-19 pandemic. *Safety Science*. 2021; 136:105162.

<https://doi.org/10.1016/j.ssci.2021.105162>

Toth-Kiraly I, Morin Alexandre JS, and Salmela-Aro K. A longitudinal perspective on the associations between work engagement and workaholism. *Work and Stress*. 2021; 35(1):27-



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<https://doi.org/10.1080/02678373.2020.1801888>

Watts SL, Winkelmann ZK, Eberman LE, and Games KE. The promotion of injury and illness prevention and reporting in the fire service. *Work*. 2021; 68(2):437-447.

<https://doi.org/10.3233/WOR-203384>

Abstract: BACKGROUND: Injury prevention interventions are limited in the fire service due to a lack of widespread implementation and underreporting. This creates a significant challenge to improving occupational health. OBJECTIVE: To determine how fire chiefs are promoting reporting and the prevention of physical and mental injuries and illnesses. METHODS: We used an open-ended, qualitative instrument to assess the presence of prevention programs and actions to promote injury and illness reporting in the fire service. The instrument contained six content validated items related to the promotion of prevention interventions and reporting. RESULTS: A total of 54 fire chiefs (age=51±8y; females=4, males=50, years of experience as fire chief=7±6y) responded to the instrument. A majority (n=37/54, 68.5%) of the fire chiefs indicated their department had an established health and wellness program. Most fire chiefs reported using established guidelines, education, and a supportive culture to promote prevention and reporting. The cultural stigma of being a firefighter and fear of repercussions were barriers to the promotion of reporting of illness and injury. Fire chiefs stated that they struggled to find ways to effectively promote reporting and prevention strategies. CONCLUSIONS: The success of a fire chief's promotional efforts was greater in instances where multiple factors were addressed

Yang Q, Huo J, and Xi Y. Exploring the risk-taking tendency among migrant workers in the COVID-19 pandemic: the role of ontological security. *Work*. 2021; 68(2):269-283.

<https://doi.org/10.3233/WOR-205017>

Abstract: BACKGROUND: The COVID-19 pandemic has changed the social environment of most laborers around the world and has profoundly affected people's ontological security and behavior choices. Among them, the migrant workers are one of the groups most affected by the pandemic. OBJECTIVE: This study explored the



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mechanism of the impact of the scarcity of ontological security caused by the pandemic on the risk-taking tendency of migrant workers in China through two studies. **METHODS:** This study adopts two experimental method, with 514 participants in the first study and 357 participants in the second study. **RESULTS:** The results show that the pandemic-induced scarcity perception of ontological security promotes their risk-taking tendency, and the migrant workers' cognitive reflection ability, sense of unfairness and expected benefits play a significant mediating role in this process. The scarcity perception of ontological security promotes migrant workers' risk-taking tendency by reducing the cognitive reflection ability, triggering the sense of unfairness and overstating expected benefits. **CONCLUSIONS:** The conclusion of this study can help migrant workers, enterprises and government to avoid potential workplace and social bad behavior

