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April 30, 2021

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***Jones AM, Koehoorn M, Bultmann U, and McLeod CB. Impact of anxiety and depression disorders on sustained return to work after work-related musculoskeletal strain or sprain: a gender stratified cohort study. *Scandinavian Journal of Work, Environment & Health*. 2021; 47(4):296-305.**

<https://doi.org/10.5271/sjweh.3951> [open access]

Abstract: OBJECTIVE: The aim of this study was to examine the impact of anxiety and depression disorders on sustained return to work (RTW) for men and women with musculoskeletal strain or sprain. METHODS: Accepted lost-time claims for spine and upper-extremity strain or sprain were extracted for workers in the Canadian province of British Columbia from 2009 to 2013 (N=84 925). Pre-existing and new onset anxiety and depression disorders were identified using longitudinal health claims data. Probability of sustained RTW was analyzed using Cox proportional hazards models, stratified by gender and adjusted for potential confounders. RESULTS: For pre-existing disorders, compared to men with no anxiety and no depression, men with anxiety only [hazard ratio (HR) 0.88, 95% confidence interval (CI) 0.84-0.93], depression only (HR 0.94, 95% CI 0.89-1.00), and anxiety and depression (HR 0.93, 95%



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CI 0.90-0.97) had lower probabilities of sustained RTW in adjusted models. The same direction of effect was found for women, but anxiety only had a smaller effect size among women compared to men (HR anxiety only 0.95, 95% CI 0.92-0.99; HR depression only 0.98, 95% CI 0.93-1.03, HR anxiety and depression 0.94, 95% CI 0.91-0.97). Among men and women, new onset disorders were associated with lower probability of sustained RTW and the effect estimates were larger than for pre-existing disorders.

CONCLUSIONS: Findings suggest that workers' compensation benefits and programs intended to improve RTW after musculoskeletal injury should take pre-existing and new onset anxiety and depression disorders into consideration and that gender-sensitive work disability strategies may be warranted

***Macpherson RA, Yousefi M, and McLeod CB. Determining hazard management changes in workplaces following workplace safety inspections by WorkSafeBC in British Columbia, Canada. Safety Science. 2021; 140:105298.**

<https://doi.org/10.1016/j.ssci.2021.105298>

***Minh A, Bultmann U, Reijneveld SA, Van Zon SKR, and McLeod CB. Depressive symptom trajectories and early adult education and employment: comparing longitudinal cohorts in Canada and the United States. International Journal of Environmental Research and Public Health. 2021; 18(8):4279.**

<https://doi.org/10.3390/ijerph18084279>

Abstract: Adolescent depressive symptoms are risk factors for lower education and unemployment in early adulthood. This study examines how the course of symptoms from ages 16-25 influences early adult education and employment in Canada and the USA. Using data from the National Longitudinal Survey of Children and Youth (n = 2348) and the National Longitudinal Survey of Youth 79 Child/Young Adult (n = 3961), four trajectories (low-stable; increasing; decreasing; and increasing then decreasing, i.e., mid-peak) were linked to five outcomes (working with a post-secondary degree; a high school degree; no degree; in school; and NEET, i.e., not in employment, education, or training). In both countries, increasing, decreasing, and mid-peak trajectories were associated with higher odds of working with low educational credentials, and/or NEET



relative to low-stable trajectories. In Canada, however, all trajectories had a higher predicted probability of either being in school or working with a post-secondary degree than the other outcomes; in the USA, all trajectory groups were most likely to be working with a high school degree. Higher depressive symptom levels at various points between adolescent and adulthood are associated with working with low education and NEET in Canada and the USA, but Canadians are more likely to have better education and employment outcomes

***Premji S, Begum M, Medley A, MacEachen E, Cote D, and Saunders R. Return-to-work in a language barrier context: comparing Quebec's and Ontario's workers' compensation policies and practices. Perspectives interdisciplinaires sur le travail et la santé. 2021; 23(1):1-22.**

<https://doi.org/10.4000/pistes.7144>

Andrijic M, Tepavcevic DK, Nikitovic M, Miletic N, and Pekmezovic T. Prevalence of burnout among healthcare professionals at the Serbian National Cancer Center. International Archives of Occupational & Environmental Health. 2021; 94(4):669-677.

<https://doi.org/10.1007/s00420-020-01621-7>

Abstract: Objective: The aim of this study was to investigate the level of burnout and identify who is at highest risk among healthcare professionals (HCPs) working at the largest referent national institution. Methods: A cross-sectional survey was conducted at the Institute of Oncology and Radiology of Serbia from May 2019 to July 2019, evaluating the level of burnout, depression, fatigue, socio-demographic, behavioral and professional characteristics, and quality of life among healthcare professionals. Of the 576 distributed questionnaires among physicians, nurses/technicians and healthcare coworkers, 432 participants returned their questionnaires (75%). All instruments used in our study had been validated and cross-culturally adapted to Serbian language. Results: The overall prevalence of burnout was 42.4%, with the greatest proportion of burned out in emotional exhaustion domain (66.9%). The multivariable-adjusted model analysis showed that nurses/technicians had a 1.41 times greater chance of experiencing burnout, compared to physicians (OR = 1.41, 95% CI 1.16-7.10), and that with each year of work



experience, the chance of burnout increased by about 2% (OR = 1.02, 95% CI 1.00-1.92). Furthermore, it was shown that, with each point in the PHQ-9 score for depression, probability of burnout increased by 14% (OR = 1.14, 95% CI 1.07-1.94). Finally, after controlling all these potential confounders, the Mental Composite Score of SF-36 score showed an independent prognostic value in exploring the burnout presence among HCPs (OR = 1.17, 95% CI 1.03-2.47). Conclusion: Our research showed a significant level of burnout among healthcare professionals working in oncology, especially among nurses/technicians. The development of effective interventions at both individual and organizational level toward specific risk groups is needed.

Beemster TT, van Bennekom CAM, van Velzen JM, Frings-Dresen MHW, and Reneman MF. Vocational rehabilitation with or without work module for patients with chronic musculoskeletal pain and sick leave from work: longitudinal impact on work participation. Journal of Occupational Rehabilitation. 2021; 31(1):72-83.

<https://doi.org/10.1007/s10926-020-09893-z> [open access]

Abstract: Purpose To study the longitudinal relationship between interdisciplinary vocational rehabilitation (VR) with and without additional work module on work participation of patients with chronic musculoskeletal pain and sick leave from work. **Methods** Retrospective longitudinal data retrieved from care as usual in seven VR centers in the Netherlands was used. The VR program without work module consisted of multi-component healthcare (physical exercise, cognitive behavioral therapy, education, relaxation). The other program with additional work module (VR+) included case management and a workplace visit. Generalized estimating equations using binary logistic was applied. The dependent variable was work participation (achieved/not achieved) on discharge and 6-months follow-up. Independent variables were type of intervention, return to work expectation, sick leave duration, working status, job strain, and job dissatisfaction. **Results** Data from N = 470 patients were analyzed, of which 26% received VR and 74% VR+. Both programs increased work participation at 6-months follow-up (VR 86%, VR+ 87%). The crude model showed a significant longitudinal relationship between type of intervention and work participation in favor of VR+



(OR 1.8, $p = 0.01$). The final model showed a non-significant relationship on discharge (OR 1.3, $p = 0.51$) and a significant relationship on 6-months follow-up in favor of VR+ (OR 1.7, $p = 0.04$). RTW expectation was a significant confounder in the final model on discharge and 6-months follow up (OR 3.1, $p = 0.00$). Conclusions Both programs led to increased work participation. The addition of a work module to the VR program lead to a significant increase in odds of work participation at 6-months follow-up.

van den Berge M, van der Beek AJ, Turkeli R, van Kalken M, and Hulsegge G. Work-related physical and psychosocial risk factors cluster with obesity, smoking and physical inactivity.

International Archives of Occupational & Environmental Health. 2021; 94(4):741-750.

<https://doi.org/10.1007/s00420-020-01627-1>

Abstract: **OBJECTIVE:** This study investigated associations between the co-existence of multiple types of work-related psychosocial and physical risk factors, and (1) obesity; (2) smoking; and (3) leisure-time physical inactivity. It also aimed to identify sociodemographic characteristics related to clustering of work-related risk factors and lifestyle factors. **METHODS:** Cross-sectional data on work-related risk factors (e.g., decision authority and repetitive movements) and lifestyle was measured using a standardized questionnaire among 52,563 Dutch workers in health care, services, manufacturing and public sector. Multiple-adjusted logistic regression models assessed associations between the co-existence of multiple types of psychosocial and physical risk factors and lifestyle factors. Additionally, logistic regression models related age, gender and educational level to clustering of risk factors and lifestyle factors. **RESULTS:** The co-existence of multiple types of work-related psychosocial risk factors was associated with higher odds of smoking and being physically inactive. For example, workers exposed to three psychosocial risk factors had a 1.55 times higher odds of being physically inactive (95%CI: 1.42-1.70) compared to unexposed workers. A higher number of physical risk factors was also significantly associated with higher odds of smoking and obesity. The co-existence of multiple types of physical risk factors was not associated with higher odds of physical inactivity. Clustering of work-related risk factors and at least one unhealthy lifestyle factor occurred



in particular among workers with low educational level.

CONCLUSIONS: Results imply that interventions are needed that focus on workers with a low educational level and address work-related physical and psychosocial risk factors as well as lifestyle

Dewa CS, Hoch JS, Loong D, Trojanowski L, and Bonato S. Evidence for the cost-effectiveness of return-to-work interventions for mental illness related sickness absences: a systematic literature review. Journal of Occupational Rehabilitation. 2021; 31(1):26-40.

<https://doi.org/10.1007/s10926-020-09904-z>

Abstract: Purpose The purpose of this systematic literature review (SLR) is to examine the state of knowledge about the cost-effectiveness of return-to-work (RTW) interventions targeted at workers with medically certified sickness absences related to mental disorders. Our SLR addresses the question, "What is the evidence for the cost-effectiveness of RTW interventions for mental illness related sickness absences?" Methods This SLR used a reviewer pair multi-phase screening of publically available peer-reviewed studies published between 2002 and 2019. Five electronic databases were searched: (1) MEDLINE 1946-Present, (2) MEDLINE: Epub-Ahead of Print and In-Process, (3) PsycINFO, (4) Econlit, and (5) Web of Science. Results 6138 unique citations were identified. Ten articles were included in the review. Eight of the ten studies were conducted in the Netherlands, one in Sweden, and one in Canada. Results of this SLR suggest there is evidence that RTW interventions for workers with medically certified sickness absences can be cost-effective. Conclusions Although this SLR's results suggest that economic evaluations of RTW interventions can be cost-effective, the use of economic evaluations for studies of these program types is in its infancy. Some jurisdictions (e.g., the Netherlands) seem to have recognized the need for economic evaluations. However, more research is needed in different disability system contexts. Furthermore, use of the standard economic evaluation approaches for healthcare interventions may limit the usefulness of results if the end-user is an employer or non-health organization. This may present the opportunity to introduce newer approaches that include work-related measures of effectiveness and analytical approaches.



Faes Y and Elfering A. When unnecessary tasks weigh heavily on the back: a diary study on musculoskeletal pain. Workplace Health & Safety. 2021; [epub ahead of print].

<https://doi.org/10.1177/2165079921994830>

Abstract: BACKGROUND: Auxiliary tasks such as administrative work often include tasks that are unnecessary in the view of workers but still have to be done. These tasks can threaten a worker's self-esteem. The purpose of this study was to examine the effects of unnecessary and unreasonable tasks on musculoskeletal pain.

METHODS: Fifty-five office workers (29 male; mean age = 41.96, SD = 14.2 years) reported their unnecessary and unreasonable tasks at the beginning of the study and kept a diary of their daily musculoskeletal pain over 5 weeks, using a visual analogue scale.

Other work-related risk factors (prolonged sitting), job resources (participation in decision-making), and individual risk factors (sex, smoking, exercise, body mass index, maladaptive back beliefs) were controlled for in multilevel regression analysis. **FINDINGS:** Multilevel regression analysis with 742 reports showed unnecessary tasks (B = 4.27, p = .006)-but not unreasonable tasks (B = 3.05, p = .074)-to predict the daily intensity of musculoskeletal pain, beyond other significant risk factors, such as prolonged sitting (B = 2.06, p = .039), body mass index (B = 1.52, p < .001), and maladaptive back beliefs (B = 3.78, p = .003). Participation in decision-making was not a significant protective factor (B = -1.67, p = .176).

CONCLUSIONS/APPLICATION TO PRACTICE: The higher frequency of unnecessary tasks-compared with unreasonable tasks-could place workers at risk for musculoskeletal pain. Work redesign that reduces unnecessary and unreasonable tasks can make a valuable contribution to worker health and safety among office workers

Farbu EH, Hoper AC, Brenn T, and Skandfer M. Is working in a cold environment associated with musculoskeletal complaints 7-8 years later? A longitudinal analysis from the Tromsø Study. International Archives of Occupational & Environmental Health. 2021; 94(4):611-619.

<https://doi.org/10.1007/s00420-020-01606-6>

Abstract: Objective: Exposure to a cold environment at work is associated with a higher prevalence of musculoskeletal pain and



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chronic pain in cross-sectional studies. This study aims to determine the association between working in a cold environment $\geq 25\%$ of the time and musculoskeletal complaints (MSC) 7-8 years later. Methods: We followed participants from the sixth survey (Tromsø 6, 2007-2008) to the seventh survey (Tromsø 7, 2015-2016) of the Tromsø Study. Analyses included 2347 men and women aged 32-60 years who were not retired and not receiving full-time disability benefits in Tromsø 6. Three different binary outcomes were investigated in Tromsø 7: any MSC, severe MSC, and MSC in ≥ 3 anatomical regions. We excluded participants with severe MSC, MSC in ≥ 3 regions, or missing values in Tromsø 6. The association between working in a cold environment and future MSC were examined using Poisson regression and adjusted for age, sex, number of moderate MSC, education, physical activity at work, smoking status, body mass index, and self-reported health in Tromsø 6. Results: 258 participants reported to work in a cold environment $\geq 25\%$ of the time in Tromsø 6. They had an increased risk of having any MSC in Tromsø 7 (incidence rate ratio 1.15; 95% confidence interval 1.03-1.29). There was no significantly increased risk of severe MSC or MSC in ≥ 3 regions. Conclusion: Working in a cold environment was associated with future MSC, but not with future severe MSC or future MSC in ≥ 3 regions.

Hauser W, Morlion B, Vowles KE, Bannister K, Buchser E, Casale R, et al. European clinical practice recommendations on opioids for chronic noncancer pain: part 1: role of opioids in the management of chronic noncancer pain. *European Journal of Pain.* 2021; 25(5):949-968.

<https://doi.org/10.1002/ejp.1736>

Abstract: BACKGROUND: Opioid use for chronic non-cancer pain (CNCP) is complex. In the absence of pan-European guidance on this issue, a position paper was commissioned by the European Pain Federation (EFIC). METHODS: The clinical practice recommendations were developed by eight scientific societies and one patient self-help organization under the coordination of EFIC. A systematic literature search in MEDLINE (up until January 2020) was performed. Two categories of guidance are given: Evidence-based recommendations (supported by evidence from systematic reviews of randomized controlled trials or of observational studies) and Good



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Clinical Practice (GCP) statements (supported either by indirect evidence or by case-series, case-control studies and clinical experience). The GRADE system was applied to move from evidence to recommendations. The recommendations and GCP statements were developed by a multiprofessional task force (including nursing, service users, physicians, physiotherapy and psychology) and formal multistep procedures to reach a set of consensus recommendations. The clinical practice recommendations were reviewed by five external reviewers from North America and Europe and were also posted for public comment. RESULTS: The key clinical practice recommendations suggest: (a) first optimizing established non-pharmacological treatments and non-opioid analgesics and (b) considering opioid treatment if established non-pharmacological treatments or non-opioid analgesics are not effective and/or not tolerated and/or contraindicated. Evidence- and clinical consensus-based potential indications and contraindications for opioid treatment are presented. Eighteen GCP recommendations give guidance regarding clinical evaluation, as well as opioid treatment assessment, monitoring, continuation and discontinuation. CONCLUSIONS: Opioids remain a treatment option for some selected patients with CNCP under careful surveillance. SIGNIFICANCE: In chronic pain, opioids are neither a universal cure nor a universally dangerous weapon. They should only be used for some selected chronic noncancer pain syndromes if established non-pharmacological and pharmacological treatment options have failed in supervised pain patients as part of a comprehensive, multi-modal, multi-disciplinary approach to treatment. In this context alone, opioid therapy can be a useful tool in achieving and maintaining an optimal level of pain control in some patients

Krcevski Skvarc N, Morlion B, Vowles KE, Bannister K, Buchsner E, Casale R, et al. European clinical practice recommendations on opioids for chronic noncancer pain: part 2: special situations. European Journal of Pain. 2021; 25(5):969-985.

<https://doi.org/10.1002/ejp.1744>

Abstract: BACKGROUND: Opioid use for chronic non-cancer pain (CNCP) is under debate. In the absence of pan-European guidance on this issue, a position paper was commissioned by the European



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Pain Federation (EFIC). **METHODS:** The clinical practice recommendations were developed by eight scientific societies and one patient self-help organization under the coordination of EFIC. A systematic literature search in MEDLINE (up until January 2020) was performed. Two categories of guidance are given: Evidence-based recommendations (supported by evidence from systematic reviews of randomized controlled trials or of observational studies) and Good Clinical Practice (GCP) statements (supported either by indirect evidence or by case-series, case-control studies and clinical experience). The GRADE system was applied to move from evidence to recommendations. The recommendations and GCP statements were developed by a multiprofessional task force (including nursing, service users, physicians, physiotherapy and psychology) and formal multistep procedures to reach a set of consensus recommendations. The clinical practice recommendations were reviewed by five external reviewers from North America and Europe and were also posted for public comment. **RESULTS:** The European Clinical Practice Recommendations give guidance for combination with other medications, the management of frequent (e.g. nausea, constipation) and rare (e.g. hyperalgesia) side effects, for special clinical populations (e.g. children and adolescents, pregnancy) and for special situations (e.g. liver cirrhosis). **CONCLUSION:** If a trial with opioids for chronic noncancer pain is conducted, detailed knowledge and experience are needed to adapt the opioid treatment to a special patient group and/or clinical situation and to manage side effects effectively. **SIGNIFICANCE:** If a trial with opioids for chronic noncancer pain is conducted, detailed knowledge and experience are needed to adapt the opioid treatment to a special patient group and/or clinical situation and to manage side effects effectively. A collaboration of medical specialties and of all health care professionals is needed for some special populations and clinical situations

Lauzardo M, Kovacevich N, Dennis A, Myers P, Flocks J, and Morris JGJr. An outbreak of COVID-19 among H-2A temporary agricultural workers. American Journal of Public Health. 2021; 111(4):571-573.

<https://doi.org/10.2105/AJPH.2020.306082> [open access]



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Liu D, Chen Y, and Li N. Tackling the negative impact of COVID-19 on work engagement and taking charge: a multi-study investigation of frontline health workers. Journal of Applied Psychology. 2021; 106(2):185-198.

<https://doi.org/10.1037/apl0000866>

Abstract: The COVID-19 pandemic, as a stressful event, has posed unprecedented challenges for employees worldwide. This research investigated whether and when an employee's perceived COVID-19 crisis strength affected his or her work engagement and taking charge at work. In a time-lagged field study of health workers on the coronavirus frontline (Study 1), we found that when work meaningfulness was lower, a health worker's perceived COVID-19 crisis strength exerted a more negative effect on his or her work engagement and taking charge at work. In a longitudinal field experiment (Study 2), we collaborated with a hospital to carry out two organizational interventions based on event system theory and work meaningfulness research. The interventions significantly decreased perceived COVID-19 crisis strength and increased work meaningfulness for medical staff in an intensive care unit (ICU), who were tasked with caring for COVID-19 patients in critical condition. The findings of Study 2 demonstrate the effectiveness of organizational training and interventions in alleviating the negative impact of COVID-19 on an employee's work engagement and taking charge at work. (Psychnfo Database Record (c) 2021 APA, all rights reserved)

Robertson J, Jayne C, and Oakman J. Work-related musculoskeletal and mental health disorders: are workplace policies and practices based on contemporary evidence? Safety Science. 2021; 138:105098.

<https://doi.org/10.1016/j.ssci.2020.105098>

Valero E, Martin U, Bacigalupe A, and Utzet M. The impact of precarious jobs on mental health: a gender-sensitive literature review. International Archives of Occupational & Environmental Health. 2021; 94(4):577-589.

<https://doi.org/10.1007/s00420-020-01605-7>

Abstract: PURPOSE: The aim of this study is to analyse the extent to which research and knowledge production on a key occupational



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health issue-the impact of precarious employment on health-incorporates, and is sensitive to, a gender perspective. **METHODS:** A systematic literature review was carried out to identify studies that analysed the relationship between precarious employment and mental health in the period January 2010-May 2018 through. A minimum of two independent reviewers assessed each article for quality and eligibility. A checklist was used to determine whether the articles included in the review incorporated a gender perspective. **RESULTS:** The search retrieved 1522 papers, of which 54 (corresponding to 53 studies) met the inclusion criteria. Of these 54 papers, 22 (40.7%) stratified the analyses by sex. Only 5.4% of the total of articles both stratified by sex and considered variables of household composition and marital status, while only 33.3% incorporated an intersectional perspective. None considered the distribution of domestic work and only a quarter (25.9%) approached the study and interpreted the results in terms of gender. **CONCLUSION:** Too few studies researching paid work and health include a gender perspective. This omission necessarily implies a biased interpretation of the reality of precarious employment and its impact on health

Yu K, Zhang L, Zhang Y, Yu Q, Li X, and Krishnamoorthy S. Design of a workstation based on a human-interfacing robot for occupational health and safety. *Work*. 2021; 68(3):863-870.

<https://doi.org/10.3233/WOR-203420>

Abstract: **BACKGROUND:** Robots communicate with the physical world program with the mechanic's simulations. They recommend that people-to-people robotics will prepare for cognitive models. Presently, there is a considerable concern for greater flexibility and efficiency in the scope of human-robot interfacing collaboration across hospitals. Nevertheless, interfacing is still in its infancy in manufacturing; industrial practitioners have many questions and doubts about the efficiency of the device and the health of human operators. **OBJECTIVES:** Therefore, research on processes and methods of design is required to ensure that the intended human-computer interaction-based workstations effectively meet system performance, human safety, and ergonomics standards for realistic applications. This study provides a design process for a workstation appropriate for occupational health and safety. This article outlines



the perspectives learned from incorporation into the preparation and operation of robotics of digital cognitive models. **RESULTS:** This ends with an overarching game-theoretical model of contact and analyses how different approaches contribute to effective communicating activities for the robot in its interaction with people. **CONCLUSION:** The new feature of this design process is the approach for testing alternative workstation designs, taking into account efficiency and safety features with computer simulations

*IWH authored publications.