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Journal articles marked with an asterisk indicate an IWH scientist or adjunct scientist is included in the list of authors.

**\*Morassaei S, Irvin E, Smith PM, Wilson K, and Ghahari S. The role of immigrant admission classes on the health and well-being of immigrants and refugees in Canada: a scoping review. *Journal of Immigrant & Minority Health*. 2022; [epub ahead of print].**

<https://doi.org/10.1007/s10903-022-01352-6>

Abstract: Many countries offer different pathways through which migrants can enter a new country. In Canada, there are three main immigrant admission classes: economic, family, and refugee. Previous research suggests that there are differences in health outcomes among various subgroups of migrants. A scoping review was conducted to characterize the role of immigrant admission classes on the health and well-being of immigrants and refugees in Canada. MEDLINE, Embase, PsycINFO, Sociological Abstracts, and EconLit databases were searched for quantitative studies published in English after 1990. The screening and selection process identified 27 relevant studies. Studies were categorized into four key reported outcomes: health care and services utilization, self-rated health and mental health, medical conditions and chronic illnesses, and social integration and satisfaction. Findings confirm that certain subgroups have worse health outcomes after arrival, particularly refugees, family class and other dependent immigrants. Health outcomes vary significantly across immigrant subgroups defined by the admission class through which they entered Canada

**\*Sandhu HK, Shaw J, Carnes D, Furlan AD, Tysall C, Adjei H, et al. Development and testing of an opioid tapering self-management intervention for chronic pain: I-WOTCH. *BMJ Open*. 2022; 12(3):e053725.**

<https://doi.org/10.1136/bmjopen-2021-053725> [open access]

Abstract: OBJECTIVES: To describe the design, development and pilot of a multicomponent intervention aimed at supporting withdrawal of opioids for people with chronic non-malignant pain for future evaluation in the Improving the Wellbeing of people with Opioid Treated CHronic pain (I-WOTCH) randomised controlled trial. DESIGN: The I-WOTCH intervention draws on previous literature and collaboration with stakeholders (patient and public involvement). Intervention mapping and development activities of Behaviour Change Taxonomy are described. SETTING: The intervention development was conducted by a multidisciplinary team with clinical, academic and service user perspectives. The team had expertise in the development and testing of complex health behaviour interventions, opioid tapering and pain management in primary and secondary care, I.T programming, and software development-to develop an opioid tapering App. PARTICIPANTS: The I-WOTCH trial participants are adults (18 years and over) with chronic non-malignant pain using strong opioids for at least 3 months and on most days in the preceding month. OUTCOMES: A multicomponent self-management support package to help people using opioids for chronic non-malignant pain reduce opioid use. INTERVENTIONS AND RESULTS: Receiving information on the impact of long-term opioid use, and potential adverse effects were highlighted as important facilitators in making the decision to reduce opioids. Case studies of those who have successfully stopped taking opioids were also favoured as a facilitator to reduce opioid use. Barriers included the need for a 'trade-off to fill the deficit of the effect of the drug'. The final I-WOTCH intervention consists of an 8-10 week programme incorporating: education; problem-solving; motivation; group and one to one tailored planning; reflection and monitoring. A detailed facilitator manual was developed to promote consistent delivery of the intervention across the UK. CONCLUSIONS: We describe the development of an opioid reduction intervention package suitable for testing in the I-WOTCH randomised controlled trial. TRIAL REGISTRATION NUMBER: ISRCTN49470934

**Batson A, Newnam S, and Koppel S. Health, safety, and wellbeing interventions in the workplace, and how they may assist ageing heavy vehicle drivers: a meta review. *Safety Science*. 2022; 150:105676.**

<https://doi.org/10.1016/j.ssci.2022.105676>

**Dong XS, Brooks RD, Brown S, and Harris W. Psychological distress and suicidal ideation among male construction workers in the United States. *American Journal of Industrial Medicine*. 2022; [epub ahead of print].**

<https://doi.org/10.1002/ajim.23340>

Abstract: Background: Male workers in the US construction industry have a higher suicide rate than other workers in the nation. However, related research on this population remains

sparse. This study evaluated psychological distress and suicidal ideation in these workers, and possible underlying factors. Methods: Data from the National Survey of Drug Use and Health from 2008 to 2014 were analyzed. Stratified and multiple logistic regression analyses were conducted to examine factors associated with psychological distress and suicidal ideation among male construction workers aged  $\geq 18$  years ( $n = 12,034$ ). Results: Nearly one-third (29.6%) of male construction workers in the United States experienced psychological distress (23.8% graded as moderate, 5.8% as severe), and 2.5% reported suicidal ideation in the past year. Higher odds of serious psychological distress and suicidal ideation were found among workers who were younger, worked part-time, missed workdays due to injury or illness, or were in poor health. Illicit opioid use (odds ratio [OR] = 1.87, 95% confidence interval [CI]: 1.22-2.89) and alcohol dependence or abuse (OR = 2.64, 95% CI: 1.74-3.99) significantly escalated the odds of suicidal ideation. The odds of suicidal ideation among workers with serious psychological distress were 33 times higher than those having no or minor psychological distress (OR = 32.91, 95% CI: 19.82-54.65) when other factors were constant. Conclusions: Occupational and nonoccupational factors were associated with construction workers' psychological distress and suicidal ideation. Both illicit opioid use and alcohol dependence or abuse were risk factors, and psychological distress was a strong predictor for suicidal ideation. To improve workers' mental health, it is necessary to integrate workplace injury prevention with illicit opioid-use reduction programs and suicide prevention.

**de Groot S, Veldman K, Amick III BC, and Bultmann U. Work functioning among young adults: the role of mental health problems from childhood to young adulthood.**

**Occupational and Environmental Medicine. 2022; 79(4):217-223.**

<https://doi.org/10.1136/oemed-2021-107819> [open access]

Abstract: OBJECTIVES: Mental health problems (MHPs) during childhood and adolescence are negatively associated with having a paid job in young adulthood. Yet, little is known about how young adults function at work, that is, do they experience difficulties in meeting their job demands given their health state. This longitudinal study aims to examine the impact of MHPs from childhood to young adulthood on young adults' work functioning (WF).

METHODS: Data were used from 1004 participants in the TRacking Adolescents' Individual Lives Survey, a Dutch prospective cohort study with 18-year follow-up. MHP trajectories, including 11, 13.5, 16, 19, 22 and 26 age points, were identified using growth mixture models. WF was assessed at age 29 with the Work Role Functioning Questionnaire 2.0 (WRFQ).

Regression analyses were conducted to examine the association between MHP trajectories and WF. RESULTS: Young adults with high-stable trajectories of internalising and externalising problems reported lower WF (mean WRFQ scores of 70.5 and 70.7, respectively) than those with low-stable trajectories (78.4 and 77.2), that is, they experience difficulties in meeting the work demands for more than one work day per full-time work week. Young adults with moderate-stable or decreasing MHP trajectories reported lower WF scores compared with those with low-stable trajectories. CONCLUSIONS: Both persistent high and elevated levels of

MHPs from childhood to young adulthood are associated with lower WF scores in young adulthood compared with low-level MHPs. Occupational healthcare professionals should support young workers with a history of MHPs to optimise their work functioning

**Kameyama J, Hashizume Y, Takamura Y, Nomura S, Gomi T, and Yanagi H. Work engagement, well-being, and intent to continue working based on educational support among foreign care workers in Japan. *Environmental Health and Preventive Medicine*. 2022; 27:4.**

<https://doi.org/10.1265/ehpm.21-00248> [open access]

**Abstract:** Background: Global aging continues to progress. The shortage of human resources involved in long-term care (LTC) is a serious problem worldwide. It is necessary to promote the stable employment of foreign care workers. The purpose of this study was to identify which factors, including well-being, work engagement, and original items, contribute to foreign care workers' intent to continue working. Methods: We conducted an anonymous self-administered questionnaire survey of 259 foreign LTC workers at LTC facilities in Japan. The questionnaire survey items included the Japanese version of the Subjective Well-being Scale (J-SWBS), the Japanese version of the Utrecht Work Engagement Scale (J-UWES), and original items related to educational needs and issues. We used multiple regression analysis to predict variability from correlations among variables. And after that, we conducted a path analysis using structural equation modeling (SEM), and added that the explanatory variables (IV) were well-being, work engagement, and the original item component, and that the outcome variable (DV) was intention to continue working. We set a hypothetical model based on structural equations, corrected by path analysis, and examined its suitability. Results: The number of returned questionnaires for 259 foreign care workers was 147 (response rate 56.7%), and the number of analyzable questionnaires was 129 (valid response rate 49.8%). For intention to continue working, the results of structural equation modeling showed direct effects for satisfaction with low back pain measure guidance ( $\beta = .255$ ), satisfaction with the national examination guidance method ( $\beta = .217$ ), well-being ( $\beta = .046$ ), and work engagement ( $\beta = .026$ ). In work-engagement, there was a direct effect of happiness ( $\beta = .715$ ), willingness to learn good care ( $\beta = 4.849$ ), and confidence in my ability ( $\beta = 2.902$ ), whilst in well-being, satisfaction with low back pain measure guidance ( $\beta = 1.582$ ) and confidence in my ability ( $\beta = 1.999$ ) were found to have direct effects. Conclusions: To increase the intent of foreign care workers to continue working, appropriate guidance should be given related to the development of lumbago. In addition, to provide a place and scene where they can learn good care, having a relationship in practice where foreign care workers can feel that their abilities are being utilized, and developing and maintaining educational support that motivates them to learn good care may be effective.

**Kang BA, Kwon S, You M, and Lee H. Perceived sources of occupational burn-out and embitterment among front-line health workers for COVID-19 control in Gyeonggi province, South Korea: a qualitative study. Occupational and Environmental Medicine. 2022; 79(4):245-252.**

<https://doi.org/10.1136/oemed-2021-107635> [open access]

Abstract: OBJECTIVES: Front-line health workers (FHWs) for COVID-19 control in South Korea have implemented a labour-intensive contact tracing programme, which places them at high risk for mental health problems. However, a few studies have examined mental health conditions in this population. We employed a qualitative approach to understand the factors perceived as causes of burn-out and embitterment among temporary FHWs to provide recommendations for supporting the workforce. METHODS: We recruited 20 FHWs to participate in semistructured focus group interviews through purposive sampling. The sample size was determined on the basis of data saturation. We collected data from October to November 2020, audiorecording and transcribing the interviews. Data analysis was conducted manually, applying the principles of grounded theory. RESULTS: Five levels of perceived sources of occupational burn-out and embitterment emerged. FHWs showed considerable mistrust of patients and faced ethical dilemmas in accessing and disclosing personal information. Poor collaboration with community health centre workers and interested parties as well as inadequate organisational support aggravated their conditions. Lack of social recognition and employment instability also presented challenges for FHWs' mental health. CONCLUSIONS: The current pandemic response system imposes great moral and emotional burdens on the workforce, prompting the need for initiatives to safeguard the values and needs of those who represent the backbone of the system. This study suggests that multilevel strategies, including providing organisational support and establishing contingency plans for workforce management and resource distribution, may improve FHWs' mental health outcomes as well as the health system for emergency preparedness

**Li L. Workplace safety and worker productivity: evidence from the MINER Act. ILR Review. 2022; 75(1):117-138.**

<https://doi.org/10.1177/0019793920931495>

**Martinez Gomez D, Coenen P, Celis-Morales C, Mota J, Rodriguez-Artalejo F, Matthews C, et al. Lifetime high occupational physical activity and total and cause-specific mortality among 320 000 adults in the NIH-AARP study: a cohort study. Occupational and Environmental Medicine. 2022; 79(3):147-154.**

<https://doi.org/10.1136/oemed-2021-107393>

Abstract: Objectives: We examined the associations of history and duration in high occupational physical activity (OPA) with long-term total and cause-specific mortality. Methods: The sample included 322 126 participants (135 254 women) from the National Institutes of Health-AARP Diet and Health Study, established in 1995-1996. History and duration in high OPA were reported by participants. All-cause, cardiovascular, cancer and

other cause mortality records available through 31 December 2011. Results: The prevalence of high OPA was 52.1% in men and 16.1% in women. During 13.6 years (SD, 3.3) of follow-up, 73 563 participants (25 219 women) died. In age-adjusted models, the risk of death was higher among men (HR 1.14, 95% CI 1.12 to 1.16) and women (HR 1.22, 95% CI 1.18 to 1.26) with a history of high OPA. However, these associations were substantially attenuated in women (HR 1.04, 95% CI 1.00 to 1.07, an 81.8% attenuation) and eliminated in men (HR 1.02, 95% CI 0.99 to 1.04, 85.7% attenuation) after multivariable adjustments. Similar important attenuation results were found when examining duration in high OPA, as well as using cause-specific deaths as the outcomes. Educational attainment and smoking patterns were the main contributors in the excess mortality among people working in highly physically active jobs in both men and women. Conclusion: Participating in high OPA was not consistently associated with a higher mortality risk, after adjustments for education and smoking factors. Workers in high OPA should be aware that they might not be getting all well-known health benefits of being physically active if they are only very active at work.

**Mascayano F, van der Ven E, Moro MF, Schilling S, Alarcon S, Al Barathie J, et al. The impact of the COVID-19 pandemic on the mental health of healthcare workers: study protocol for the COVID-19 HEalth caRe wOrkErS (HEROES) study. *Social Psychiatry and Psychiatric Epidemiology*. 2022; 57(3):633-645.**

<https://doi.org/10.1007/s00127-021-02211-9> [open access]

**Abstract:** Background: Preliminary country-specific reports suggest that the COVID-19 pandemic has a negative impact on the mental health of the healthcare workforce. In this paper, we summarize the protocol of the COVID-19 HEalth caRe wOrkErS (HEROES) study, an ongoing, global initiative, aimed to describe and track longitudinal trajectories of mental health symptoms and disorders among health care workers at different phases of the pandemic across a wide range of countries in Latin America, Europe, Africa, Middle-East, and Asia. Methods: Participants from various settings, including primary care clinics, hospitals, nursing homes, and mental health facilities, are being enrolled. In 26 countries, we are using a similar study design with harmonized measures to capture data on COVID-19 related exposures and variables of interest during two years of follow-up. Exposures include potential stressors related to working in healthcare during the COVID-19 pandemic, as well as sociodemographic and clinical factors. Primary outcomes of interest include mental health variables such as psychological distress, depressive symptoms, and posttraumatic stress disorders. Other domains of interest include potentially mediating or moderating influences such as workplace conditions, trust in the government, and the country's income level. Results: As of August 2021, ~ 34,000 health workers have been recruited. A general characterization of the recruited samples by sociodemographic and workplace variables is presented. Most participating countries have identified several health facilities where they can identify denominators and attain acceptable response rates. Of the 26 countries, 22 are collecting data and 2 plan to start shortly. Conclusions: This is one of the most extensive global studies on the mental health of healthcare workers during the COVID-19 pandemic,



including a variety of countries with diverse economic realities and different levels of severity of pandemic and management. Moreover, unlike most previous studies, we included workers (clinical and non-clinical staff) in a wide range of settings.

**Muhamad Hasani MH, Hoe Chee Wai Abdullah V, Aghamohammadi N, and Chinna K. The role of active ergonomic training intervention on upper limb musculoskeletal pain and discomfort: a cluster randomized controlled trial. *International Journal of Industrial Ergonomics*. 2022; 88:103275.**

<https://doi.org/10.1016/j.ergon.2022.103275>

**Muller AE, Ames HMR, Jardim PSJ, and Rose CJ. Machine learning in systematic reviews: comparing automated text clustering with Lingo3G and human researcher categorization in a rapid review. *Research Synthesis Methods*. 2022; 13(2):229-241.**

<https://doi.org/10.1002/jrsm.1541>

Abstract: Systematic reviews are resource-intensive. The machine learning tools being developed mostly focus on the study identification process, but tools to assist in analysis and categorization are also needed. One possibility is to use unsupervised automatic text clustering, in which each study is automatically assigned to one or more meaningful clusters. Our main aim was to assess the usefulness of an automated clustering method, Lingo3G, in categorizing studies in a simplified rapid review, then compare performance (precision and recall) of this method compared to manual categorization. We randomly assigned all 128 studies in a review to be coded by a human researcher blinded to cluster assignment (mimicking two independent researchers) or by a human researcher non-blinded to cluster assignment (mimicking one researcher checking another's work). We compared time use, precision and recall of manual categorization versus automated clustering. Automated clustering and manual categorization organized studies by population and intervention/context. Automated clustering failed to identify two manually identified categories but identified one additional category not identified by the human researcher. We estimate that automated clustering has similar precision to both blinded and non-blinded researchers (e.g., 88% vs. 89%), but higher recall (e.g., 89% vs. 84%). Manual categorization required 49% more time than automated clustering. Using a specific clustering algorithm, automated clustering can be helpful with categorization of and identifying patterns across studies in simpler systematic reviews. We found that the clustering was sensitive enough to group studies according to linguistic differences that often corresponded to the manual categories

**Piao X and Managi S. Long-term improvement of psychological well-being in the workplace: what and how. *Social Science & Medicine*. 2022; 298:114851.**

<https://doi.org/10.1016/j.socscimed.2022.114851>

Abstract: OBJECTIVE: The World Health Organization states that by 2030, mental illness will become the leading global disease burden. Thus, investigations of job stress might require

more heterogeneous and innovative solutions. Existing literature demonstrates that good workplace environments have favorable effects on employees' psychological well-being. However, studies on long-term effects are scarce. This study examined the long-term impact of comprehensive workplace characteristics and employee responses to stress (coping strategies) on job stress in Japan. METHODS: Under a large-scale 3-year longitudinal study, 1,021,178 observations collected from employees in 390 companies from 2017 to 2019 were used. Employee job stress trends were confirmed based on company-fixed-effects linear regression. The relationship between one-year or two-year lagged comprehensive workplace characteristics or coping strategies, and employee job stress was estimated using linear regression. Favorable effects of the work environment and coping strategy improvement were illustrated based on the regression results simulation. RESULTS: First, job stress appeared to be steadily worsening among the employees of Japanese companies from 2017 to 2019. Second, low job and psychological demand, high job control, a high level of support from the people around, balanced effort-reward, strong job security, and strong interpersonal relationship have favorable long-term effects on employee job stress. Third, employees' coping strategies, such as positive thinking, changing mood, requiring help from other people, reduced negative thinking, and avoiding inappropriate emotional divergence have long-term effects on mitigating job stress. Particularly, thinking positively, changing mood, and avoiding directing feelings of anger and frustration toward others reduce high stress in 46% of respondent employees. CONCLUSIONS: A comprehensive well-organized workplace environment and appropriate responses to stress have a long-term favorable effect on employee job stress. These results provide policy measures for improving the workplace environment and for employees to adopt coping strategies to enhance their psychological well-being in the long term

**Rodriguez-Romero B, Smith MD, Pertega-Diaz S, Quintela-Del-Rio A, and Johnston V. Thirty minutes identified as the threshold for development of pain in low back and feet regions, and predictors of intensity of pain during 1-h laboratory-based standing in office workers. International Journal of Environmental Research and Public Health. 2022; 19(4):2221. <https://doi.org/10.3390/ijerph19042221> [open access]**

Abstract: This study with 40 office workers investigated (a) the effect of time spent standing on low- back and lower limb pain during a 1-h laboratory-based task; (b) the standing time after which a significant increase in pain is likely; and (c) the individual, physical and psychosocial factors that predict pain. The primary outcome was bodily location of pain and pain intensity on a 100-mm Visual Analogue Scale recorded at baseline and every 15 min. Physical measures included trunk and hip motor control and endurance. Self-report history of pain, physical activity, psychosocial job characteristics, pain catastrophizing and general health status were collected. Univariate analysis and regression models were included. The prevalence of low-back pain increased from 15% to 40% after 30 min while feet pain increased to 25% from 0 at baseline. The intensity of low-back and lower limb pain also increased over time. A thirty-minute interval was identified as the threshold for the



development and increase in low-back and feet pain. Modifiable factors were associated with low-back pain intensity-lower hip abductor muscle endurance and poorer physical health, and with feet symptoms-greater body mass index and less core stability

**Schofield KE, Ryan AD, and Stroinski C. Risk factors for occupational injuries in schools among educators and support staff. *Journal of Safety Research*. 2022; 80:67-77.**

<https://doi.org/10.1016/j.jsr.2021.11.008>

**Abstract:** Introduction: School districts employ a large number of employees who work in educational (e.g., teachers) or other support roles, including educational assistants, custodians, food service, bus drivers, and community and recreation workers. District employees perform a wide array of job tasks and experience a wide spectrum of work-related risks and injuries. Methods: Workers' compensation data were coupled with Minnesota Department of Education district employee denominator data to evaluate risk factors for injury and severity. Variables included district location and type, employee job classification, age, and gender. Rates of injury and rate ratios were calculated to measure comparative injury risk using negative binomial regression and 95% confidence intervals. Incidence and frequency of injury cause, nature, and body part were calculated. Results: Saint Paul and Minneapolis metropolitan area (versus non-metro) districts had higher risk (RR = 1.35, 95%CI = 1.18-1.54) of employee injuries. All job classifications in support roles had increased risk of injury claims versus educators, however food service (RR = 5.14, 95%CI = 4.61-5.74), custodial (RR = 3.85, 95%CI = 3.41-4.34), and transportation (RR = 4.15, 95%CI = 3.38-5.10) exhibited the highest comparative risk to educators; significant risk of lost-time injury was also present in these workers. Males and females had similar risk of injury for all claims, however males had elevated risk of lost-time injury (RR = 1.46, 95%CI = 1.26-1.69) versus females. All age groups >41-years-old exhibited increased risk of injury as compared to 31-40-year-olds. The magnitude of lost-time injury risk also increased with age. Falls and slips (29.1%), strains/sprains/ruptures (45.2%), and upper extremities (31.3%) most frequent cause, nature, and body part injured, respectively. Conclusions: Characteristics of districts, schools, workers, and their jobs tasks and hazards vary. Many categories of support staff in schools have elevated risk of injury, including lost-time injury, as compared to educators. Practical Applications: Injury prevention in schools should be approached by targeting job classifications; high risk jobs can be prioritized for prevention.

**Stienstra M, Edelaar MJA, Fritz B, and Reneman MF. Measurement properties of the work ability score in sick-listed workers with chronic musculoskeletal pain. *Journal of Occupational Rehabilitation*. 2022; 32(1):103-113.**

<https://doi.org/10.1007/s10926-021-09982-7>

**Abstract:** Purpose Chronic musculoskeletal pain can have a major impact on ability to work. The work ability score is a commonly used single-item question to assess work ability but has not been fully validated yet. The aim of the present study was to evaluate test-retest reliability, agreement, construct validity, and responsiveness of the work ability score among

sick-listed workers with chronic musculoskeletal pain. **Methods** Data of sick-listed workers with chronic musculoskeletal pain was routinely collected at seven rehabilitation centres in the Netherlands. Assessments included a set of questionnaires, administered at admission and discharge from a fifteen-week vocational rehabilitation program. Test-retest reliability was determined with the intraclass correlation coefficient. For agreement, the standard error of measurement and smallest detectable changes were calculated. Construct validity was assessed by testing hypotheses regarding Spearman rank correlation coefficient. Area under the curve obtained from the receiver operating characteristic curve and minimal clinically important change were determined for the total sample and work ability score baseline tertile groups to assess responsiveness. **Results** In total, 34 workers were analyzed for reliability and agreement, 1291 workers for construct validity, and 590 responded to the responsiveness questionnaire. Reliability reached an intraclass correlation coefficient of 0.89; 95% CI 0.77-0.94, a standard error of measurement of 0.69 points, and the smallest detectable change of 1.92 points. For construct validity, six of the seven predefined hypotheses were not refuted. The area under the curve was 0.76 (95% CI 0.71-0.81) allowing for discrimination between stable and improved workers, with a minimal clinically important change of 2.0 points for the total sample. **Conclusion** The work ability score showed good measurement properties among sick-listed workers with chronic musculoskeletal pain

**Wang R, Dwan K, Showell MG, van Wely M, Mol BW, Askie L, et al. Reporting of Cochrane systematic review protocols with network meta-analyses: a scoping review. Research Synthesis Methods. 2022; 13(2):164-175.**

<https://doi.org/10.1002/jrsm.1531>

**Abstract:** Publishing systematic review protocols is a fundamental part of systematic reviews to ensure transparency and reproducibility. In this scoping review, we aimed to evaluate reporting of Cochrane systematic review protocols with network meta-analyses (NMA). We searched all Cochrane NMA protocols published in 2018 and 2019, and assessed the characteristics and reporting of methodologies relevant to NMA. We reported frequencies for each reporting item. Forty-five protocols were assessed, including two for overviews and 43 for intervention reviews. Thirty-three (73%) were labelled as NMA protocols in the title. Forty-two (95%) justified the need of an NMA and 40 (89%) used appropriate search strategies to identify potential eligible studies. About half (24, 53%) considered the transitivity assumption when reporting inclusion criteria and 35 (78%) specified potential effect modifiers. Forty-three (96%) reported statistical software for NMA, 25 (56%) reported NMA model choice, 32 (71%) reported framework choice and 32 (71%) reported assumption about heterogeneity variances. Protocols varied in whether they reported methods for relative ranking (35, 78%), statistical inconsistency (40, 89%), reporting bias (44, 98%) and sources of heterogeneity (39, 87%). In conclusion, Cochrane NMA protocols reported multiple NMA-specific items well, but could be further improved, especially regarding

transitivity assumptions. Our recommendations for NMA protocol reporting based on this scoping review could assist authors, reviewers, and editors to improve NMA protocols

**Zywien U, Barczyk-Pawelec K, and Sipko T. Associated risk factors with low back pain in white-collar workers: a cross-sectional study. *Journal of Clinical Medicine*. 2022; 11(5):1275. <https://doi.org/10.3390/jcm11051275> [open access]**

**Abstract:** OBJECTIVE: The purpose of the study was to compare the pressure pain threshold (PPT) of soft tissue and the curvatures of the spine in a sitting position and to estimate associated physical risk factors with low back pain (LBP) in young adults. SUBJECTS: White-collar workers (n= 139), both women (n = 51) and men (n = 88) were separated into a control group (n = 82) and a low-intensity LBP (NRS < 3) (n = 57). METHODS: The PPTs were tested utilizing the Wagner algometer. The curvatures of the spine were measured employing the photogrammetric method. In the logistic regression model, the odds ratio (OR) was estimated with  $\hat{\pm}95\%$  confidence interval (CI) indicating the probability of the reported LBP. RESULTS: The PPTs of soft tissue (OR = 1.1; CI = 1.02-1.19; p < 0.05) and the angle of the thoracolumbar spine in the everyday, habitual sitting position (OR = 1.19; CI = 1.05-1.34; p < 0.05) were associated with low-intensity LBP in female subjects. Additionally, the low intensity LBP were associated with the angles of the torso (OR = 1.14; CI = 1.01-1.29; p < 0.05) and the lumbosacral spine in the corrected sitting position (OR = 1.06; CI = 0.98-1.15; p > 0.05) and BMI (OR = 1.56; CI = 0.84-2.90; p > 0.05) in male subjects. CONCLUSION: Individual risk factors were associated with the low-intensity LBP only in females utilizing the PPT and the thoracolumbar angle in the habitual sitting position study factors. Men from the LBP group did not effectively correct the lumbosacral angle. Therefore, re-educated, self-corrected posture with specific postural training would be expected to improve proprioception in postural control capacity and result in decreasing pain

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