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**\*Giesinger I, Buajitti E, Siddiqi A, Smith PM, Krishnan RG, Postill G, et al. Population-based clustering of co-occurring social determinants: an application of unsupervised machine learning. *Annals of Epidemiology*. 2026; 117110062.**

<https://doi.org/10.1016/j.annepidem.2026.110062> [open access]

Abstract: PURPOSE: This study aimed to develop a cluster-based measure of multiple co-occurring social determinants of health by applying unsupervised machine learning to a population-based cohort, offering a data-driven approach to organize complex social exposures. METHODS: Unsupervised clustering was applied to a population-based cohort of Ontario respondents to six-cycles of the Canadian Community Health Survey (2001-2012) linked to the Canadian census and vital statistics data. Clusters were evaluated using internal metrics, visualization techniques, descriptive analysis and theoretical considerations to determine the optimal number of clusters. Sensitivity analyses were integrated across the iterative clustering process. Premature mortality rates were generated assess validity. RESULTS: Optimal clustering solutions included 4-clusters and 6-clusters. Both cluster solutions revealed distinct social typologies. The 6-cluster solution offered greater granularity and theoretical interpretability. The 4-cluster solution showed greater heterogeneity within certain marginalized groups. Premature mortality rates differed meaningfully across clusters, supporting the clustering approach in capturing risk associated with social exposure. CONCLUSIONS: Unsupervised machine learning methods identified meaningful population subgroups reflecting complex patterns of social exposures. This approach offers a flexible, data-driven method for characterizing social exposures that can be considered alongside theoretical frameworks and used for equity monitoring, intervention planning and policy development

**Bernini C and Tampieri A. Disentangling job satisfaction: the roles of monetary and non-monetary factors across job types and income levels. *British Journal of Industrial Relations*. 2026; 64(1):52-75. <https://doi.org/10.1111/bjir.70013> [open access]**

**Abstract:** ABSTRACT We examine how specific components of job satisfaction influence overall job satisfaction and how these vary by job type and income. We use the British Household Panel Survey (BHPS), which includes measures of satisfaction with total pay, job security, type of work and hours worked. Our results show significant variation in the composition of job satisfaction across job types and income levels. First, we find that pay satisfaction is less important in explaining overall satisfaction than other non-monetary aspects. However, individuals in some job types systematically rate the monetary aspects of their job more highly than others. In addition, job satisfaction of individuals with different income levels is explained differently by job satisfaction domains. Our results are robust when we narrow down the sample by considering factors such as gender (males or females), employment type (full- or part-time) and further job satisfaction components

**Caner V. Active learning and sector-specific simulations mitigate the first-month injury risk in young workers. *Frontiers in Public Health*. 2026; 14:1767451. <https://doi.org/10.3389/fpubh.2026.1767451> [open access]**

**Abstract:** INTRODUCTION: Occupational health and safety education is a critical preventive strategy for mitigating workplace accidents, particularly among young workers who face disproportionate risks during their transition from school to work. This study aims to evaluate the effectiveness of current educational interventions and analyze sectoral accident patterns to inform curriculum development. METHODS: A systematic review was conducted synthesizing data from 32 international studies published between 2004 and 2025. The study employed a mixed-methods design, integrating quantitative accident statistics with qualitative assessments of pedagogical models to correlate training methods with safety outcomes. RESULTS: The analysis reveals that active learning methods significantly improve safety motivation and internal locus of control compared to traditional passive instruction. Crucially, accident data identifies a "first-month vulnerability," with up to 67% of injuries in vocational settings occurring within the initial weeks of employment. Furthermore, sectoral comparisons demonstrate that generic safety curricula fail to address specific lethal risks, such as falls in construction or transport-related injuries in healthcare. DISCUSSION: Current vocational training models are insufficient for ensuring early-career safety. Sustainable injury prevention requires a paradigm shift in curricula from generic compliance rules to sector-specific simulations and mandatory transition phases that mimic real-world workplace pressures

**Chen SP, Shankar J, Turin TC, Joseph S, Narayanan R, Suleman Z, et al. Workplace injuries work challenges among immigrants in Canada: implications for occupational health policy and practice. *New Solutions*. 2026; [epub ahead of print]. <https://doi.org/10.1177/10482911261426646>**

**Abstract:** This study examined the experiences of immigrant workers in Alberta, Canada, following work-related injuries, with a focus on postinjury reporting and return-to-work challenges. Twenty-seven injured immigrant employees from various industries were interviewed. Using an interpretive analysis approach, the study identified key factors shaping their experiences. Most participants were educationally overqualified for their roles and unfamiliar with high-risk, labor-intensive work environments. Findings revealed significant barriers to accessing information about injury reporting,

workers' compensation, and available benefits. Participants also reported adverse interactions with employers and insurers, inadequate work accommodations, and inappropriate retraining options. Discrimination, language barriers, fear of job loss, and systemic discrimination exacerbated these challenges. The findings highlight an urgent need for policy interventions, including occupational health and safety training for new immigrants, stronger employer accountability, culturally responsive return-to-work planning, and improved communication of workers' rights. These measures can enhance injury prevention and promote more equitable return-to-work outcomes for immigrant workers

**Eldeeb N, Ren C, and Shapiro VB. Promoting the use of research evidence from websites: optimising microsurveys as feedback loops to drive improvement. Evidence and Policy. 2025; 22(1):134-160.**

<https://doi.org/10.1332/17442648Y2025D000000057>

Abstract: BACKGROUND: Educators' use of research evidence (URE) from intermediary websites is not well understood. Current studies measure URE through periodic, retrospective user reports or by passively tracking website usage, neither of which adequately inform the continuous improvement efforts of intermediaries. This study examines the feasibility of microsurveys - brief, behaviour-triggered surveys embedded within websites - as a tool for assessing and informing the improvement of URE. Specifically, this article explores configurations to optimise microsurvey response rates. METHODS: A plug-in embedded microsurveys across web pages. Microsurveys included a five-point Likert emoticon rating scale and an open-ended follow-up. Four pilot studies tested variations in: (a) question wording, (b) time delays before triggering, (c) number of clicks, and (d) optimised conditions integrating the best configurations. Chi-square tests and logistic regression analysed differences in response rates and relationships between conditions, scores and response rates. RESULTS: Response rates improved by discarding low-performing (that is, low response rate) questions, selecting better time delays, and reducing the number of clicks to complete the microsurvey. Likert scale response rates increased from 4.18 per cent to 11.31 per cent under optimised conditions. Follow-up response rates remained stable, with higher engagement associated with favourable Likert scores. CONCLUSIONS: This study establishes the potential of microsurveys for measuring URE from intermediary websites, achieving response rates understood to yield reliable estimates for informing the promotion of evidence in practice. Future research should explore additional configurations to further optimise response rate, integrate microsurveys with observational and behavioural data to assess validity, and study integrating microsurvey feedback into organisational change processes

**Gynning BE, De Beer LT, Karlsson E, Teoh K, Gustavsson P, Ekberg K, et al. Relative impact of psychosocial factors on burnout across healthcare professional roles. Occupational Medicine. 2026; 76(1):21-28.**

<https://doi.org/10.1093/occmed/kqaf121> [open access]

Abstract: BACKGROUND: High demands and limited resources characterise the work of healthcare professionals, often resulting in negative outcomes, including burnout. Yet, how burnout is affected by demands and resources may vary depending on professional roles. AIMS: This study examines (i) the relative impact of psychosocial work factors (high job demands and low job resources) on subsequent burnout complaints, and (ii) how different healthcare professional roles may moderate the relationship between psychosocial work factors and burnout complaints. METHODS: Data were drawn from the Longitudinal Occupational Health Survey in Healthcare in Sweden in 2022 and 2023. The analytical sample comprises 4132 healthcare professionals, with 40% being physicians, 39% registered nurses

(RNs) and 21% nurse assistants (NAs). The Burnout Assessment Tool was used to assess burnout complaints, and various scales were used to measure different job demands and resources. Dominance analysis investigated the relative impact of each exposure included in the analysis (psychosocial work factors) on burnout complaints. Thereafter, a moderation analysis was performed by the healthcare professional role, that is physicians, RNs and NAs. RESULTS: Generally, work-life interference was the most important psychosocial work factor in the development of subsequent burnout complaints. Further, work tasks, effort-reward imbalance and work-life interference had a stronger negative effect on physicians' burnout complaints than on RNs. Effort-reward imbalance also had a stronger negative effect on NAs' level of burnout complaints compared to RNs. CONCLUSIONS: Addressing burnout and supporting healthcare professionals' well-being requires tailored interventions for specific work-related factors alongside broader strategies for the widespread challenges of burnout

**Howse D and Neis B. Getting to work with a physical disability: gaps in disability, transportation, and workers' compensation return-to-work policies and programs. Disability and Rehabilitation. 2026; [epub ahead of print].**

<https://doi.org/10.1080/09638288.2026.2637190>

Abstract: Purpose: Disabled people are less likely to be employed than those without disabilities. Research on the relationship between accessibility and the employment of physically disabled people has focused primarily on accessibility concerns within workplaces, neglecting challenges associated with travel to and within work, or 'work mobility'. Those few researchers who have addressed work mobility largely deal either with people with nonwork-related disabilities or with the return-to-work experiences of injured workers. Both literatures pay insufficient attention to the potential role of policy and practice in helping workers navigate work mobility challenges. This paper presents findings from a qualitative study of work disability policies that affect the work mobility of disabled people, with both work and nonwork-related physical disabilities, in the Canadian context. Materials and methods: Findings are based on a combination of document analysis of policy texts related to work injury and disability support programs in two Canadian provinces, and semi-structured interviews with key informants (N = 6) and disabled people (N = 6). Results: Important weaknesses in both workers' compensation and general disability policies negatively influence employment options and enhance reliance on informal support. Conclusions: Work mobility challenges contribute to unemployment and poverty among disabled people. Ways to better support work mobility are identified.

**Jeon JR, Cho SS, Kim HR, Choi S, Lee HE, and Kang MY. Association of working time control with health-related productivity loss and work engagement: evidence from the Fifth Korean Work, Sleep, and Health Study. Journal of Occupational & Environmental Medicine. 2026; 68(2):115-120.**

<https://doi.org/10.1097/JOM.0000000000003577>

Abstract: OBJECTIVE: This study examined the association of working time control (WTC)-the degree of employee autonomy over work hours-with health-related productivity loss (HRPL) and work engagement among Korean waged workers. METHODS: Data were drawn from 4612 wage workers in the 2024 Korean Work, Sleep, and Health Study. HRPL and work engagement were measured using validated instruments. Generalized linear models and logistic regression were used to assess associations, controlling for demographic and occupational covariates. RESULTS: Lower WTC was linked to higher HRPL and decreased work engagement. A slight HRPL decrease in the lowest control group appeared driven by reduced absenteeism. Men, younger workers, and nonshift workers were more

vulnerable to low WTC. CONCLUSIONS: WTC is significantly associated with both productivity and work engagement. Enhancing employee autonomy in scheduling may improve health and organizational outcomes in workplaces

**Lidwall U. Rejected sickness cash benefit claims after 180 days of sick leave in the Swedish rehabilitation chain: a nationwide register-based study. *Scandinavian Journal of Public Health*. 2026; 54(1):16-23.**

<https://doi.org/10.1177/14034948241279949> [open access]

Abstract: AIM: Since a lack of financial security among vulnerable groups could further hamper health and well-being, this study scrutinises factors predicting rejected prolonged sickness cash benefit claims among people on compensated sick leave of more than 180 days with a rejection between days 181 and 365. METHODS: All 246,872 claims for employed people on sick leave recorded in the Swedish official statistics register between January 2018 and June 2021 were analysed. Claim outcome was evaluated using logistic regression with odds ratios recalculated to relative risks (RR) with 95% confidence intervals (CI), mutually adjusted for sociodemographic, work and health-related factors. RESULTS: Overall, 46,611 (19%) of the claims were rejected, with slightly lower rates among women (RR=0.97; 95% CI 0.95-0.99). Musculoskeletal diseases had the highest rejection rates (RR=1.84; 95% CI 1.75-1.94) followed by injuries (RR=1.57; 95% CI 1.50-1.64) and symptoms (RR=1.51; 95% CI 1.46-1.56). Mental disorders also had above-average rates (RR=1.14; 95% CI 1.09-1.19), whereas the lowest rates were found among pregnancy-related diagnoses (RR=0.13; 95% CI 0.12-0.14) and neoplasms (RR=0.18; 95% CI 0.18-0.18). Higher rates were found among immigrants (RR=1.37; 95% CI 1.34-1.40), those with only primary education (RR=1.09; 95% CI 1.06-1.12) and among blue-collar workers. The regional variation was substantial (RR range 0.41-1.72). CONCLUSIONS: High rejection rates were found for complex diagnoses and diagnoses with presupposed work ability in physically lighter occupations and among groups with assumed precarious positions at the labour market. Systematic differences in rates were identified between geographic regions. More studies are warranted to conclude if the differences found could be justified by other factors

**Mondragon KM, Tan-Lim CS, Velasco R, Jr., Cordero CP, Strebhel HM, Palileo-Villanueva L, et al. A scoping review of critical appraisal tools and user guides for systematic reviews with network meta-analysis: methodological gaps and directions for tool development. *Journal of Clinical Epidemiology*. 2026; 190:112056.**

<https://doi.org/10.1016/j.jclinepi.2025.112056>

Abstract: BACKGROUND: Systematic reviews (SRs) with network meta-analyses (NMAs) are increasingly used to inform guidelines, health technology assessments (HTAs), and policy decisions. Their methodological complexity, as well as the difficulty in assessing the exchangeability assumption and the large amount of results, makes appraisal more challenging than for SRs with pairwise NMAs. Numerous SR- and NMA-specific appraisal tools exist, but they vary in scope, intended users, and methodological guidance, and few have been validated. OBJECTIVES: To identify and describe appraisal instruments and interpretive guides for SRs and NMAs specifically, summarizing their characteristics, domain coverage, development methods, and measurement-property evaluations. METHODS: We conducted a methodological scoping review which included structured appraisal instruments or interpretive guides for SRs with or without NMA-specific domains, aimed at review authors, clinicians, guideline developers, or HTA assessors from published or gray literature in English. Searches (inception-August 2025) covered

major databases, registries, organizational websites, and reference lists. Two reviewers independently screened records; data were extracted by one and checked by a second. We synthesized the findings narratively. First, we classified tools as either structured instruments or interpretive guides. Second, we grouped them according to their intended audience and scope. Third, we assessed available measurement-property data using relevant CONsensus-based Standards for the selection of health Measurement INstruments items. RESULTS: Thirty-four articles described 22 instruments (11 NMA-specific, nine systematic reviews with meta-analysis-specific, 2 encompassing both systematic reviews with meta-analysis and NMA). NMA tools added domains such as network geometry, transitivity, and coherence, but guidance on transitivity evaluation, publication bias, and ranking was either limited or ineffective. Reviewer-focused tools were structured with explicit response options, whereas clinician-oriented guides posed appraisal questions with explanations but no prescribed response. Nine instruments reported measurement-property data, with validity and reliability varying widely. CONCLUSION: This first comprehensive map of systematic reviews with meta-analysis and NMA appraisal resources highlights the need for clearer operational criteria, structured decision rules, and integrated rater training to improve reliability and align foundational SR domains with NMA-specific content. PLAIN LANGUAGE SUMMARY: NMA is a way to compare many treatments at once by combining results from multiple studies—even when some treatments have not been directly compared head-to-head. Because NMAs are complex, users need clear tools to judge whether an analysis is trustworthy. We reviewed and mapped 22 instruments published over the last 3 decades that are used to appraise or interpret SRs and NMAs. About half were designed specifically for NMAs; the rest were general SR tools that are applicable to NMAs. Most tools cover the basics of good reviews (clear question, fair search, bias assessment, and transparent synthesis). NMA-specific tools also address issues unique to networks, such as how the network is connected, whether indirect and direct evidence agree (consistency), and how to interpret treatment rankings. However, important gaps remain. Few tools give step-by-step checks for transitivity/consistency, network-level publication bias, or ranking uncertainty, and reported reliability between raters is inconsistent. Reporting checklists (eg, Preferred Reporting Items for Systematic Reviews and Meta-Analyses Extension for Network Meta-Analyses) specify what information should be reported but not how well it should be presented. Certainty frameworks (eg, Grading of Recommendations Assessment, Development, and Evaluation or Confidence in Network Meta-Analysis) outline how confidence in results is rated across domains such as inconsistency or imprecision, but they do not explain or standardize the different ways these domains are evaluated. What this means: guideline developers, HTA assessors, and clinicians should seek collaboration with statisticians experienced in NMA, and favor instruments with clear decision rules and user training. Better-tested, clearer tools will make NMA assessments more consistent and trustworthy.

**Porta M, Casu G, Lim S, Nussbaum MA, and Pau M. Use of wearable sensors for continuous field monitoring of upper arm and trunk postures among construction workers. *Ergonomics*. 2026; 69(3):511-524.**

<https://doi.org/10.1080/00140139.2025.2470235>

Abstract: Construction is considered amongst the highest risk sectors for the development of work-related musculoskeletal disorders (MSDs) considering the large number of unfavourable environmental and task-specific factors typical in this sector. Thus, it is important to have quantitative tools to support the assessment of the exposure to physical MSD risk factors. We employed wearable inertial sensors (ISs) to perform a real-world characterisation of static postures and repetitive movements involving the

trunk and upper arms (UA), among 15 workers during 2 hours of their regular shifts. IS data were processed according to ISO 11226 and EN 1005-4 standards. We found that workers spent ~25% of the monitored time in static trunk flexion >20° and more than 50% of the time with UA elevations >20°. The ability to assess working postures for prolonged periods may represent a useful tool for different stakeholders involved in the protection of construction worker health.

**Rose LM, Orrenius UE, and Neumann P. Predicting discomfort from workload parameters: towards the design of comfortable work. *IISE Transactions on Occupational Ergonomics and Human Factors*. 2026; 14(1):62-78.**

<https://doi.org/10.1080/24725838.2025.2583993> [open access]

Abstract: OCCUPATIONAL APPLICATIONS We present empirical data on how perceived discomfort varies under different loading situations based on analyzed experimental data. We propose mathematical models to calculate endurance time and recovery needs based on employees' perceived physical discomfort. While this modeling approach needs further research and field trials, it opens the door for a novel, positively oriented approach for proactive ergonomics, supporting job design aimed at creating comfortable work

**Seco-Calvo J, Royuela A, Rodriguez-Perez V, and Kovacs F. Predicting low back pain-related absenteeism in the Spanish general working population. *Occupational and Environmental Medicine*. 2026; 82(11):547-555.**

<https://doi.org/10.1136/oemed-2025-110435> [open access]

Abstract: Objectives: To identify factors associated with an increased risk of low back pain (LBP)-related sick leave and to develop prognostic models for both the likelihood and duration of such leave. Methods: A total of 7262 actively working adults were recruited consecutively during their annual check-ups. Seventy-seven variables were assessed, including sociodemographic, clinical, work-related, LBP-related and psychosocial factors. Outcomes included the occurrence of LBP-related sick leave and the number of days on leave over an 18-month follow-up period. Multivariable prognostic models were developed RESULTS: During the follow-up, 535 participants (7.4%, 95% CI 6.8 to 8.0) took LBP-related sick leave, of whom 162 were off work for ≥30 days. Predictors of taking sick leave were older age, not being self-employed, a usual LBP episode duration >14 days, higher job insecurity, greater self-expectations of taking sick leave and stronger perceived economic consequences of being on leave. Predictors of longer sick leave (≥ 30 days) were not being self-employed and experiencing LBP while in bed. The models demonstrated good calibration but poor discrimination (C-statistics: 0.607 and 0.604). Conclusion: Predicting LBP-related sick leave and its duration among the general Spanish workforce remains challenging. Psychosocial and economic variables outweigh clinical or biological predictors. Self-employment is the only factor associated with a lower risk of both sick leave and being off work for ≥30 days.

**Shirzadeh A, Haghighi A, Bashash M, and Abdoli-Eramaki M. Safety boots' impact on comfort, mobility, performance, musculoskeletal disorders, slips, and falls in Canadian construction. *Applied Ergonomics*. 2026; 134:104731.**

<https://doi.org/10.1016/j.apergo.2026.104731> [open access]

Abstract: Construction is a hazardous industry, with slips, falls, and musculoskeletal disorders (MSDs) among the most common occupational hazards. Safety boots are vital for reducing these risks and enhancing workers' comfort, mobility, and overall performance. Therefore, this study examines

associations between winter safety boot features and construction workers' comfort, performance and mobility, slips, falls, and MSDs due to slips and falls. Cross-sectional survey data from 110 Canadian construction workers were analyzed using descriptive, bivariate, and multivariable logistic regression analyses. Boots' arch support, shaft flexibility, and inside warmth were the most consistently associated features across outcomes. Poor arch support was associated with lower comfort (OR = 0.09) and performance and mobility (OR = 0.089), and higher odds of falls (OR = 4.843) and MSDs due to slips and falls (OR = 3.255). Limited ankle inversion was linked to higher risks of slips, falls, and MSDs; the corresponding ORs for workers with "no limitation" were 0.126, 0.286, and 0.161, respectively, while boots with cold interiors were associated with higher odds of slips (OR = 5.657) and lower comfort (OR = 0.213). These findings suggest the potential importance of prioritizing adequate arch support, balanced shaft flexibility, and inside warmth in safety boot design, which may help enhance comfort and performance and mobility while reducing slips, falls, and MSD-related risks.

**Tattarini G, Uccheddu D, and Bertogg A. Staying sharp: gendered work-family life courses and later-life cognitive functioning across four European welfare states. *American Journal of Epidemiology*. 2026; 195(2):442-454.**

<https://doi.org/10.1093/aje/kwaf194>

**Abstract:** Cognitive functioning in later life is influenced by reserves accumulated through employment and family roles over the life course. This study examined men's and women's combined employment, parenthood, and partnership roles between ages 15 and 49 years, and their associations with later-life memory. We used retrospective and prospective data from nine waves of the Survey of Health, Aging and Retirement in Europe (SHARE) for 5638 men (24 199 observations) and 6371 women (27 114 observations) in Italy, France, the Netherlands, and Sweden. Multichannel sequence analysis (MCSQA) and hierarchical clustering identified six work-family life course types for men and nine for women. Random-effects linear regression models indicate that weak labor market attachment is associated with lower memory performance among women, whereas the absence of family roles is more strongly negatively associated with memory among men. Women's cognitive gaps were most pronounced in Italy and least in Sweden and the Netherlands, while men's gaps were greater in Sweden and France. These findings suggest that gendered life courses contribute to different patterns of cognitive and relational reserve accumulation for men and women, and that welfare states buffer the negative consequences of adverse life courses on cognitive health. This article is part of a Special Collection on Cross-National Gerontology.

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