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research alert

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

*Barnabe C, Wattiaux A, Petkovic J, Beaton D, Shea B, Greer-Smith R, et al. Validation studies of rheumatoid arthritis patient-reported outcome measures in populations at risk for inequity: a systematic review and analysis using the OMERACT summary of measurement properties equity table. Seminars in Arthritis and Rheumatism. 2022; 55:152029.

https://doi.org/10.1016/j.semarthrit.2022.152029 [open access]

Abstract: Background: Existing patient-reported outcome measures (PROMs) in rheumatoid arthritis (RA) may be limited in their applicability to populations that are at risk for inequities. We conducted a systematic review to identify and rate evidence in the validation studies for PROMs in populations at risk for inequity. Methods: A systematic review of MEDLINE and EMBASE was completed. The search strategy was developed to identify measurement property studies for PROMs of interest (selected pain, disease activity, global evaluation and quality of life scales) in patients with RA. We identified experimental, observational, and qualitative studies reporting analysis of feasibility, construct validity and discriminant ability metrics for populations at risk for inequity by various factors including race, ethnicity, culture or language; employment status; sex and gender identity; education level; socioeconomic status; social support; age; health literacy and disability. These were rated based on the OMERACT Summary of Measurement Properties Equity table. Results: From 19,786 titles and abstracts screened, we identified 14 unique studies reporting validation metrics for pain (n = 3), DAS28-ESR or DAS28-CRP (n = 2), ACR20 (n = 1), patient global assessment (n = 2), EQ5D (n = 4), and PROMIS[®] (n = 3) by race (n = 10 studies), age (n = 6 studies), sex (n = 5 studies),



education level (n = 2 studies), and disability, literacy, employment status, social support level and socioeconomic status (n = 1 study each). Five studies reported on feasibility, 12 reported construct validity metrics, and 4 studies reported on discriminant validity metrics. All studies by culture or language were rated as having good measurement property metrics. There was limited assessment of measurement property metrics for other populations at risk for inequity. Conclusion: Our study highlights important gaps in patient representation in rheumatology research for accepted outcome measures. New outcome measures being developed for research purposes and clinical practice should ensure and report representation of patients from populations at risk for inequities in the testing of metrics of feasibility, construct validity and discriminant ability metrics.

*Pinto AD, Hapsari AP, Ho J, Meaney C, Avery L, Hassen N, Jetha A, et al. Precarious work among personal support workers in the Greater Toronto Area: a respondent-driven sampling study. CMAJ Open. 2022; 10(2):E527-E538.

https://doi.org/10.9778/cmajo.20210338 [open access]

Abstract: BACKGROUND: The COVID-19 pandemic has highlighted the role of personal support workers (PSWs) in health care, as well as their work conditions. Our study aimed to understand the characteristics of the PSW workforce, their work conditions and their job security, as well as to explore the health of PSWs and the impact of precarious employment on their health. METHODS: Our community-based participatory action research focused on PSWs in the Greater Toronto Area. We administered an online, cross-sectional survey between June and December 2020 using respondent-driven sampling. Data on sociodemographics, employment precarity, worker empowerment and health status were collected. We assessed the association between precarious employment and health using multivariable logistic regression models. RESULTS: We contacted 739 PSWs, and 664 consented to participate. Overall, 658 (99.1%) completed at least part of the survey. Using data adjusted for our sampling approach, the participants were predominantly Black (76.5%, 95% confidence interval [CI] 68.2%-84.9%), women (90.1%, 95% CI 85.1%-95.1%) and born outside of Canada (97.4%, 95% CI 94.9%-99.9%). Most worked in home care (43.9%, 95% CI 35.2%-52.5%) or long-term care (34.5%, 95% Cl 27.4%-42.0%). Although most participants had at least some postsecondary education (unadjusted proportion = 83.4%, n = 529), more than half were considered low income (55.1%, 95% CI 46.3%-63.9%). Most participants were precariously employed (86.5%, 95% CI 80.7%-92.4%) and lacked paid sick days (89.5%, 95% CI 85.8%-93.3%) or extended health benefits (74.1%, 95% CI 66.8%-81.4%). Nearly half of the participants described their health as less than very good (46.7%, 95% CI 37.9%-55.5%). Employment precarity was significantly associated with higher risk of depression (odds ratio 1.02, 95% CI 1.01-1.03). INTERPRETATION: Despite being key members of health care teams, most PSWs were precariously employed with low wages that keep them in poverty; the poor work conditions they faced could be detrimental to their physical and mental health.



Equitable strategies are needed to provide decent work conditions for PSWs and to improve their health

Bohatko-Naismith J, McCormack L, Weerasekara I, James D, and Marley J. Health screening questionnaires used in the management of mental distress acquired during an injured worker's return to work: a scoping review. Work. 2022; 72(1):75-90.

https://doi.org/10.3233/WOR-205027 Abstract: BACKGROUND: Mental distress is often endured by injured workers participating in

the rehabilitation or return to work process following a physical injury. Delays in detecting the onset and treating mental distress can lead to a diverse range of cognitive and behavioural changes that may precipitate psychological distress such as anxiety, depression, and posttraumatic stress. OBJECTIVE: The objective of this scoping review was to provide an overview of existing health questionnaires utilised by health care providers and affiliated researchers. It reviewed their effectiveness and suitability to detect mental distress endured by injured workers engaged in the return to work process. METHODS: A scoping review methodology was conducted using the Arksey and O'Malley framework which examined peer-reviewed articles published between 2000 and March 2020 comprising health questionnaires. Database searches included Medline, CINAHL, EMBASE and PsycINFO combining specific MeSH terms and key words. RESULTS: The full search identified 3168 articles. Following full screening a total of 164 articles reviewed the use of health questionnaires and specific criteria to determine their suitability. Most of the health questionnaires reviewed were used as screening measures for identifying both work and nonwork-related psychological hazards. However, they were found to be limited in their application when considering all potential predictors of delayed return to work such as poor or stressful interactions with stakeholders, financial stress and the injured workers experience of the RTW process. CONCLUSION: Earlier identification of mental distress using an optimal MHSQ followed by appropriate intervention will reduce the risk of psychological injury becoming cumulative on a physical workplace injury. Without such complications, early return to work can be achieved with significant cost saving to the economy

De Dios Perez B, Radford K, and das Nair R. Experiences of people with multiple sclerosis at work: towards the understanding of the needs for a job retention vocational rehabilitation intervention. Work. 2022; 72(1):303-313.

https://doi.org/10.3233/WOR-210012

Abstract: BACKGROUND: Supporting people with multiple sclerosis (MS) at work can be challenging due to the unpredictable nature and myriad of disease-related symptoms, and issues related to the work environment. OBJECTIVE: To explore, amongst people with MS in employment, their experiences of and need for vocational rehabilitation (VR), and perceived barriers and facilitators to implementing VR. METHODS: We conducted 20 semi-structured interviews with people with MS, employers, and healthcare professionals. Interviews were audio-recorded, transcribed, and analysed using the framework method. RESULTS: We



| Research Excellence | Safe Work | Healthy Workers identified nine themes reflecting the main MS symptoms (e.g. cognition, fatigue), and environmental factors such as support provided at work (e.g. change of working hours) and workplace characteristics. Providing support tailored to the individual's needs and early intervention were seen as important attributes for the intervention. The barriers identified referred to lack of resources and confidentiality issues; however, having flexibility in the content and delivery of the intervention were seen as facilitators. CONCLUSION: The impact of environmental factors (e.g. attitudes towards disability) on employment difficulties is equal to or greater than disease-related factors. Environmental changes in the attitudes of co-workers and workplace flexibility can enable people with MS to remain in work for longer

Elser H, Chen KT, Arteaga D, Reimer R, Picciotto S, Costello S, et al. Metalworking fluid exposure and stroke mortality among US autoworkers. American Journal of Epidemiology. 2022; 191(6):1040-1049.

https://doi.org/10.1093/aje/kwac002

Abstract: Although air pollution is an important risk factor for stroke, few studies have considered the impact of workplace exposure to particulate matter (PM). We examined implications of exposure to PM composed of metalworking fluids (MWFs) for stroke mortality in the United Autoworkers-General Motors cohort. Cox proportional hazards models with age as the timescale were used to estimate the association of cumulative straight, soluble, and synthetic MWF exposure with stroke mortality, controlling for sex, race, plant, calendar year, and hire year. Among 38,553 autoworkers followed during 1941-1995, we identified 114 ischemic stroke deaths and 113 hemorrhagic stroke deaths. Overall stroke mortality risk was increased among workers in the middle exposure category for straight MWF (hazard ratio (HR) = 1.31, 95% confidence interval (CI): 0.87, 1.98) and workers in the highest exposure category for synthetic MWF (HR = 1.94, 95% CI: 1.13, 3.16) compared with workers who had no direct exposure. Ischemic stroke mortality risk was increased among workers in the highest exposure categories for straight MWF (HR = 1.45, 95% CI: 0.83, 2.52) and synthetic MWF (HR = 2.39, 95% CI: 1.39, 4.50). We observed no clear relationship between MWF exposure and hemorrhagic stroke mortality. Our results support a potentially important role for occupational PM exposures in stroke mortality and indicate the need for further studies of PM exposure and stroke in varied occupational settings

Fadyl JK, Anstiss D, Reed K, and Levack WMM. Living with a long-term health condition and seeking paid work: qualitative systematic review and thematic synthesis. Disability and Rehabilitation. 2022; 44(11):2186-2196.

https://doi.org/10.1080/09638288.2020.1826585

Abstract: PURPOSE: An interplay of complex issues influence opportunities to gain paid work for people living with long-term conditions, but there are patterns that traverse the various contexts. Synthesising findings across qualitative studies can inform vocational rehabilitation approaches. METHODS: Public consultation and PRISMA guidelines were used to develop a protocol and comprehensive search strategy. Seven databases were searched and results



screened against inclusion criteria. Included studies investigated either lived experiences of gaining paid work while living with a long-term condition or the socio-cultural factors affecting opportunities for paid work. Findings were extracted from included studies and then analysed using thematic synthesis. RESULTS: Sixty-two studies met inclusion criteria. Identified themes demonstrate that people living with long-term conditions need access to support through the different stages of gaining paid work. This can include considering the benefits and risks of having paid work and negotiating needs in the workplace prior to and during employment. Positive experiences for workers and employers were influential in changing attitudes about the work-ability of people living with long-term conditions. CONCLUSION: Findings emphasise the interplay between socio-cultural norms and the constraints experienced in trying to gain work. Appropriately targeted support can unlock possibilities that are otherwise hindered by these norms. IMPLICATIONS FOR REHABILITATION Positive experiences of paid work for people living with long-term conditions and those who employ them are important for stimulating future opportunities. "Informal" or alternative routes into paid work are experienced as more successful in contending with discrimination. Job seekers living with long-term conditions need access to pre-placement advocacy, support to negotiate work-related needs, and support to negotiate difficulties that arise in the job. Vocational rehabilitation initiatives need to have good collaboration with other health services to ensure consistent messages about seeking and managing work

Farahat SA, Amin OR, Hamdy HS, and Fouad MM. The impact of work-related stress on the cognition domain of executive functioning of health care workers during the COVID-19 pandemic. International Archives of Occupational & Environmental Health. 2022; 95(5):1079-1090.

https://doi.org/10.1007/s00420-021-01814-8 [open access]

Abstract: Purpose: The current study addressed work-related stress and burnout experienced by health care workers (HCWs) in Cairo University isolation hospital and its impact on the cognitive domain of their executive functioning. Methods: Arabic validated questionnaires of Beverly Potter for sources of work-related burnout and Maslach Burnout Inventory Human Services Survey for evaluation of burnout degree of 81 HCWs were used. Wisconsin Card Sorting Test was used to examine the HCWs cognitive executive functioning during hospital work and 2 weeks after home isolation. Results: A high degree of work-related stress was evident by a high score on Beverly questionnaire with a mean \pm SD of (132.08 \pm 12.573). A high degree of burnout was marked with a mean \pm SD of (28.48 \pm 6.622) for Emotional Exhaustion module, (31.85 \pm 5.439) Personal Achievement, and (17.52 \pm 6.707) Depersonalization. Health care workers experienced impairment of executive functioning in the form of increased total errors of Wisconsin Card Sorting Test during hospital shifts compared to 2 weeks after. There is a positive significant correlation between work-related stress level and Maslach Burnout Inventory and the total errors of Wisconsin Card Sorting Test results during the hospital stay (p = < 0.001), as well as 2 weeks after (p = < 0.001). This

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cognitive decline manifested in increased errors during HCWs' clinical work. Conclusions: Health care workers on the front line experienced a high degree of work-related stress in addition to burnout in the form of Emotional Exhaustion, Depersonalization, and reduced Personal Achievement. They also suffered from impaired cognitive executive functioning due to such stressful exposure.

Lamontagne R, Delisle A, and Major ME. Prevention of musculoskeletal disorders among animal research technicians: understanding difficulties and their determinants through a work activity analysis. Applied Ergonomics. 2022; 103:103792.

https://doi.org/10.1016/j.apergo.2022.103792

Abstract: This study aimed at understanding animal research technicians (ART) work activity to identify difficulties encountered by workers and their determinants which may increase musculoskeletal disorders (MSD) risks. The methods for the work activity analysis combined interviews, observations, events and operations chronicles as well as inclinometry. From the work activity analysis of the three main tasks (changing mouse cages, preparation of water bottles and unloading dirty material), difficulties such as awkward postures, heavy load handling, repetitiveness, high workload, supplementary tasks, interruptions and difficult social interactions emerged. The work activity analysis further allowed the identification of determinants of these difficulties. Some are related to the physical, organizational or social work environment, and others to the interdependence between these determinants. Such an improved understanding of ART work activity will lead to solutions best suited for MSDs prevention in this understudied setting

Liang J, Cai J, Guo J, Mai J, Zhou L, Zhang J, et al. The lead burden of occupational leadexposed workers in Guangzhou, China: 2006-2019. Archives of Environmental & Occupational Health. 2022; 77(5):403-414.

https://doi.org/10.1080/19338244.2021.1916421

Abstract: We analyzed the lead levels in blood and urine from lead-exposed workers in Guangzhou and assessed the influencing factors. The data were analyzed by descriptive statistics, and the time-dependent changes were mapped via analytical statistics. Although the lead burden showed a clear downward trend over time, it remained high among the exposed workers. The highest lead burden was detected in workers of the electrical equipment manufacturing industry, especially among those in lead-acid battery factories where we did field studies. Hazardous as the working conditions of the original lead-acid battery factories were, there were improvements in the applications of occupational disease prevention measures after the relocation of factories, but the lead burdens were still above the average levels of lead-related industries. Improvements are needed in the management and regulations on occupational safety and health to further decrease the lead burden to acceptable levels



Mavroulidis M, Vouros P, Fotiadis S, Konstantakopoulou F, Fountoulakis G, Nikolaou I, et al. Occupational health and safety of multinational construction companies through evaluation of corporate social responsibility reports. Journal of Safety Research. 2022; 81:45-54.

https://doi.org/10.1016/j.jsr.2022.01.005

Abstract: INTRODUCTION: The aim of this paper is to examine Occupational Health and Safety (OHS) behavior in the construction industry through the assessment of Corporate Social Responsibility reports. The level of accident rates in the construction industry place OHS issues at the heart of their strategic management. METHOD: The assessment of OHS issues was made by drawing appropriate data from the Corporate Social Responsibility reports of 19 multinational construction companies published on a voluntary basis. RESULTS: The findings show a low response rate by the companies sampled to the requirements of stakeholders for responsible organizational behavior and accountability for their consequences. Most of the companies sampled have only focused on a small number of OHS issues to assure the transparency of the information published such as OHS governance, accident and illness rates, training hours, third party assurance, and membership of externally developed OHS charters. Similarly, other important OHS issues seem to be less covered by the companies sampled such as the representation of total workforce in OHS committees, the percentage of high risk occupations, and OHS practices in the supply chain

Nelson-Wong E, Corrigan J, Mertz P, Kutcher S, Carlson I, DiRocco T, et al. Office-workers maintain decreased workplace sitting time long-term following participation in a sit-stand desk intervention study. Ergonomics. 2022; 65(6):857-865.

https://doi.org/10.1080/00140139.2021.1998647

Abstract: Previous studies report decreased workplace sitting time when standing desk interventions are provided to office workers. It is unclear whether decreased sedentary behaviours are maintained long-term. This was a follow-up to a previous intervention study to investigate whether observed sitting time decreases of 30-50% were sustained 12-24 months later. A secondary aim was to compare overall physical activity between office workers with and without standing desks. Although sitting time increased over the follow-up period, this did not reach significance and reductions in workplace sitting remained significantly lower (23.5% decrease) from baseline values. There were no differences in the physical activity measures between workers with and without access to standing desks, although this was a small sample size and further research is needed. Individuals who are motivated to try standing desks at work can benefit through decreased sitting time longterm, however this may not extend to increased overall physical activity levels. Practitioner summary: Providing standing desk options to office-based employees can have long-lasting impacts with reducing sitting time at work. Office workers who choose to stand at work do not appear to compensate with overall activity level reduction outside of work. Abbreviations: LBP: low back pain; OSPAQ: occupational sitting and physical activity

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Research Excellence Safe Work Healthy Workers questionnaire; VAS: visual analog scale; ANOVA: analysis of variance; BMI: body mass index; ICC: intraclass correlation coefficient

Pfeffer J, Singer S, and Stepanek M. Volunteering improves employee health and organizational outcomes through bonding with coworkers and enhanced identification with employers. Journal of Occupational & Environmental Medicine. 2022; 64(5):370-376. https://doi.org/10.1097/JOM.0000000002485

Abstract: OBJECTIVE: To understand the consequences of employee volunteering and possible psychological mechanisms that produce these effects. METHODS: Using data from more than 50,000 responses to Britain's Healthiest Workplace survey, we employed structural equation modeling to investigate the effects of people volunteering. RESULTS: Net of a number of controls, people who volunteered reported better self-reported health, less risk of depression, and higher levels of engagement and satisfaction. These results were partly explained by volunteering creating higher levels of interpersonal social bonding and greater identification with their employers. CONCLUSION: Employers Employers should sponsor volunteer activities and provide workplace flexibility, because employees who volunteer have greater individual wellbeing and also higher levels of pro-employer outcomes such as engagement and job satisfaction

Phoo NNN and Reid A. Determinants of violence towards care workers working in the home setting: a systematic review. American Journal of Industrial Medicine. 2022; 65(6):447-467. https://doi.org/10.1002/ajim.23351

Abstract: BACKGROUND: Home care is a rapidly growing industry. Violence towards home care workers is common, while also likely underreported. This violence adversely affects the physical and mental health of both workers and care recipients. The current study aims to identify and appraise recent evidence on the determinants of violence towards care workers working in the home setting. METHODS: Six electronic databases: the Cumulative Index to Nursing and Allied Health Literature (CINAHL), EMBASE, Informit, Medline, PsycINFO, and Web of Science, were systematically searched. A systematic review was conducted in accordance with the Joanna Briggs Institute manual for evidence synthesis. RESULTS: A total of 18 papers met the inclusion criteria. All were cross-sectional surveys. The majority of studies were from the United States. The most commonly investigated associations were those between the medical history of clients, workers' apprehension of violence, workerclient relationship, or care plans, and any form of violence or verbal abuse. CONCLUSION: Violence was common in clients with cognitive disorders, substance abuse disorder, and limited mobility; toward workers who feared that violence might happen; toward those who had very close or very distant worker-client relationships; and when care plans were not inclusive of clients' needs. The current review highlights a gap in evidence on determinants of violence towards care workers working in the home setting, and suggests potential areas to be addressed to reduce such violence

Institute for Work & Health Research Excellence Safe Work Healthy Workers Stawarz N, Arranz BO, and Ruger H. Work-related internal migration and changes in mental and physical health: a longitudinal study using German data. Health and Place. 2022; 75:102806.

https://doi.org/10.1016/j.healthplace.2022.102806

Abstract: Work-related internal migration can be associated with various labor market benefits such as improved career opportunities. However, benefits can be offset by specific burdens (relocation stress) which, in turn, can lead to adverse health outcomes. These burdens include organizing the move, difficulties in maintaining social relationships, homesickness or feelings of displacement. However, there is a particular lack of longitudinal studies which deploy advanced methods to examine how internal migration affects shifts in health-related quality of life (HRQOL) over time. Also, there has been little research into whether the consequences of relocations differ by socio-economic position. In order to address these gaps, we apply fixed effects (FE) panel regression models to representative data from the German Socio-Economic Panel (SOEP). We use the SF-12 Health Survey items to capture the subjective assessment of overall mental and physical well-being. Overall, we find an increase in physical HRQOL after the relocation event. Mental HRQOL tends to decrease before the event and then increases afterwards, on average, but there seems to be very little lasting change. Subgroup analyses, however, reveal differential trajectories by educational level, i.e. a clear educational health gradient around migration. While physical and mental HRQOL increases among movers with high educational attainment, individuals with lower levels of education show decreases in both health dimensions upon moving

Subramaniam M, Zhang Y, Shahwan S, Vaingankar JA, Satghare P, Teh WL, et al. Employment of young people with mental health conditions: making it work. Disability and Rehabilitation. 2022; 44(10):2033-2043.

https://doi.org/10.1080/09638288.2020.1822932

Abstract: Purpose: The current study was undertaken to understand and describe the meaning of work as well as the barriers and facilitators perceived by young people with mental health conditions for gaining and maintaining employment. Materials and methods: Employing a purposive and maximum variation sampling, 30 young people were recruited and interviewed. The respondents were Singapore residents with a mean age of 26.8 years (SD = 4.5, range 20-34 years); the majority were males (56.7%), of Chinese ethnicity (63.3%), and employed (73.3%), at the time of the interview. Verbatim transcripts were analysed using inductive thematic analysis. Results: Three global themes emerged from the analyses of the narratives, which included (i) the meaning of employment, (ii) barriers to employment comprising individual, interpersonal and systemic difficulties and challenges participants faced while seeking and sustaining employment and (iii) facilitators of employment that consisted of individual and interpersonal factors that had helped the young persons to gain and maintain employment. Conclusions: Stigma and discrimination emerged as one of the most frequently mentioned employment barriers. These barriers are not insurmountable and can be overcome both through legislation as well as through the training and support of

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| Research Excellence | Safe Work | Healthy Workers young people with mental health conditions. IMPLICATIONS FOR REHABILITATION Employment offers several benefits to people with mental health conditions, including improvement in economic status, self-efficacy, and empowerment. Stigma is a significant barrier to employment for young people with mental health conditions; remaining optimistic about career prospects and getting support from peers is vital to employment success. Disclosure of the mental health condition at the place of work is beneficial to the person's own recovery and helpful to others; however, young people must be empowered to choose when and what they want to disclose and under what circumstances. Families help young people with mental health conditions in achieving their employment goals by offering emotional and instrumental support, as well as motivating them to accomplish more.

Zhang P and Chen S. Association between workplace and mental health and its mechanisms during COVID-19 pandemic: a cross-sectional, population-based, multi-country study. Journal of Affective Disorders. 2022; 310:116-122.

https://doi.org/10.1016/j.jad.2022.05.038 [open access]

Abstract: Background: The COVID-19 pandemic worsens populations' mental health. However, little is known about the COVID-19-related mental health among remote workers. Methods: We retrieved data from survey of Health, Ageing and Retirement in Europe, covering 27 countries. Eligible people were those employed. The main outcome is the mental disorder, covering four aspects: depression, anxiety, sleep disorder, and loneliness. Countryspecific weighted mixed models were fitted to estimate the association of workplaces with mental health, controlled for age, gender, education level, living alone, making ends meets, working hours, closing to suspected or confirmed COVID-19 cases, received anti-virus protection, social contact, disability, and chronic disease. Moderate analyses were conducted to explore possible mechanisms. Results: 11,197 participants were included, among them 29.3% suffered at least one worse mental disorder. After controlling for covariates, compared with those who worked at the usual workplace, those who worked at home only or part of the time did not associate with worse mental disorders (p-value =0.1395), and those who worked at neither the usual workplace nor home had a 55% higher likelihood of suffering from worse mental disorders (OR = 1.55, 95%CI 1.03-2.36). The mediation analyses identified three indirect pathways by which workplaces influence mental health, including making ends meets, social contact, and receiving anti-virus protection. Detailed results on subtypes of mental disorders were also provided. Limitations: All assessments were self-reported, resulting in a risk of method bias. Conclusions: During the COVID-19 pandemic, working at other places, neither at the usual workplace nor home, worsened mental health. Evidence provided in this study will contribute to more nuanced and practical public health policy strategy making.



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