

IWH Research Alert
June 11, 2021

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***Kokorelias KM, Naglie G, Gignac MA, Rittenberg N, and Cameron JI. A qualitative exploration of how gender and relationship shape family caregivers' experiences across the Alzheimer's disease trajectory. *Dementia*. 2021; [epub ahead of print].**

<https://doi.org/10.1177/14713012211019502> [open access]

Abstract: Caregiving experiences are not static. They change across the disease trajectory and care continuum. However, it is not clear how caregiver gender or relationship type is related to evolving caregiver experiences over time. This qualitative study informed by constructivist grounded theory and framework analysis explored the experiences over time of men and women who were adult children and spousal caregivers to persons with Alzheimer's disease. Forty spousal (10 husbands and 10 wives) and adult children (10 sons and 10 daughters) caregivers to persons with Alzheimer's disease were interviewed using a semi-structured interview guide. Our findings suggest the experiences of caregiving, examined through a gender and relationship type lens, are complex and variable. The caregiving experience was not related to gender or relationship type alone, but often to a combination of the two. For instance, spousal caregivers did not immediately accept the diagnosis, with wives being more



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optimistic than husbands about a slow progression of the disease. Adult children caregivers were concerned about the ways the caregiving role would impact their personal and career obligations and sought ways to mitigate the changes to their daily lives. Sons and husband caregivers largely utilized home and community health services to assist with personal care tasks, whereas daughters and wives utilized the same services to allow them to complete other caregiving tasks (e.g., housekeeping). Recognition of the complex inter-relationships among gender and relationship type on caregiving experiences supports the need for family-centered interventions. This article also extends sex and gender research as it highlights that an in-depth understanding of the caregiving experience cannot be understood by gender alone and relationship type must also be considered

***Tomba E, Mofidi A, Jetha A, Lahey P, and Buettgen A.**
Development and implementation of a framework for estimating the economic benefits of an accessible and inclusive society. Equality, Diversity and Inclusion. 2021; [epub ahead of print].
<https://doi.org/10.1108/EDI-07-2020-0186> [open access]

Abstract: Purpose: To develop a framework for estimating the economic benefits of an accessible and inclusive society and implement it for the Canadian context. The framework measures the gap between the current situation in terms of accessibility and inclusiveness, and a counterfactual scenario of a fully accessible and inclusive society. Design/methodology/approach: The method consists of three steps. First, the conceptual framework was developed based on a literature review and expert knowledge. Second, the magnitudes for each domain of the framework was estimated for the reference year 2017 using data from various sources. Third, several sensitivity analyses were run using different assumptions and scenarios. Findings: It was estimated that moving to a fully accessible and inclusive society would create a value of \$337.7bn (with a range of \$252.8–\$422.7bn) for Canadian society in the reference year of 2017. This is a sizeable proportion of gross domestic product (17.6%, with a range of 13.1–22.0%) and is likely a conservative estimate of the potential benefits. Originality/value: Understanding the magnitude of the economic benefits of an accessible and inclusive society can be extremely useful for



governments, disability advocates and industry leaders as it provides invaluable information on the benefits of efforts, such as legislation, policies, programs and practices, to improve accessibility and inclusion of persons with disabilities. Furthermore, the total economic benefits and the benefits per person with a disability can serve as inputs in economic evaluations and impact assessments.

***Van Eerd D, Cullen K, Irvin E, Le Pouésard M, and Gignac M. Support for depression in the workplace: perspectives of employees, managers, and OHS personnel. Occupational Health Science. 2021; [epub ahead of print].**

<https://doi.org/10.1007/s41542-021-00090-9>

Aldasoro JC and Cantonnet ML. The management of the new and emerging musculoskeletal and psychosocial risks by EU-28 enterprises. Journal of Safety Research. 2021; 77:277-287.

<https://doi.org/10.1016/j.jsr.2021.03.011>

Abstract: INTRODUCTION: Although the strategic framework of the European Union in the field of Health and Safety at Work 2014-2020 considers as one of its main challenges to improve the prevention of diseases related to NERs (New and Emerging Risks) (European Commission, 2014) there are still not many studies in the literature related to them. METHOD: An exploratory study was carried out in order to get a picture of the NERs management in the UE-28 countries. The sample was extracted from the ESENER-2 datasets. ESENER-1 was carried out in 2009 and ESENER- 2 in 2014. This survey explores managers' and workers representatives' opinions on health and safety management. It surveyed over 49,000 enterprises in 36 countries. Results: The results obtained confirm that there are significant differences between the EU-28 countries in terms of the identification and the management of NERs. Conclusions NERs are becoming an increasingly studied phenomenon due to the changes that are taking place in the labour market: the percentage of temporary workers is increasing, the demands to the workers due to the globalization of the market are more complex and all this with an aging working force. Practical Applications: It would be necessary to rethink the management of OHS, so that managers are aware that the combination of musculoskeletal and psychosocial risks should



have a global approach in order to reduce accident and disability rates.

Arikan F and Sozen SK. A hierarchical solution approach for occupational health and safety inspectors' task assignment problem. Safety and Health at Work. 2021; 12(2):154-166.

<https://doi.org/10.1016/j.shaw.2021.01.004> [open access]

Abstract: Background Occupational health and safety (OHS) is a significant interest of all governments to prevent workplace hazards. Although appropriate legislation and regulations are essentials for the protection of workers, they are solely not enough. Application of them in practice should be secured by an efficient inspection system. Fundamental components of an inspection system are inspectors and their audit tasks. Maintaining the fair balanced task assignment among inspectors strictly enhances the efficiency of the overall system. Methods This study proposes a two-phased goal programming approach for OHS inspectors' task assignments and presents a case study. Results The solution approach gives the balanced assignment of inspectors to the workplaces in different cities of the country in the planning period. The obtained schedule takes into account the distances covered by the work places and the number of the workplaces' employees to be audited and pays attention to the human factors by considering the preferences of the inspectors. The comparisons between the obtained optimal schedule and the implemented one that is produced manually show that the approach not only maintains the technical requirements of the problem, but also provides social and physical balance to the task assignment. Conclusion Both the approach and the application study are expected to offer fruitful inspirations in the area of safety management and policy and they provide a good guide for social policy and organizational aspects in the field of OHS inspectors' task assignment

Bernardes JM, Ruiz-Frutos C, Moro ARP, and Dias A. A low-cost and efficient participatory ergonomic intervention to reduce the burden of work-related musculoskeletal disorders in an industrially developing country: an experience report. International Journal of Occupational Safety & Ergonomics. 2021; 27(2):452-459.



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<https://doi.org/10.1080/10803548.2019.1577045>

Abstract: Work-related musculoskeletal disorders (WMSDs) are the first cause of occupational illness in Brazil and the number of cases in the industrial sector has increased progressively in the last 6 years. In order to prevent WMSDs, workplace ergonomics interventions are frequently implemented worldwide. This article describes the implementation strategy of a participatory ergonomic intervention conducted in the quality control department of a medium-sized Brazilian garment company. The intervention was carried out based on the nine steps presented by Vink, Imada and Zinck, and workers' exposure to risk factors was investigated using the rapid upper limb assessment method. A low-tech and low-cost solution that successfully reduced workers' exposure to WMSD risk factors was proposed, prototyped, tested and, finally, introduced. Participatory ergonomic interventions can be a feasible and effective approach to reduce the exposure to work-related risk factors for WMSDs in industrially developing countries

Bicego A, Monseur J, Rousseaux F, Faymonville ME, Malaise N, Salamun I, et al. Drop-out from chronic pain treatment programmes: is randomization justified in biopsychosocial approaches? Journal of Rehabilitation Medicine. 2021; 53(4):jrm00185.

<https://doi.org/10.2340/16501977-2824> [open access]

Abstract: OBJECTIVE: To identify profiles of patients who are at risk of dropping out from biopsychosocial approaches to chronic pain management. PATIENTS: A total of 575 patients were included in the study. Of these, 203 were randomized into 4 treatment groups: self-hypnosis/self-care; music/self-care; self-care; and psychoeducation/cognitive behavioural therapy. The remaining 372 patients were not randomized, as they presented with the demand to learn self-hypnosis/self-care, and therefore were termed a "self-hypnosis/self-care demanders" group. METHODS: Socio-demographics and behavioural data were included in the analyses. Univariate analyses, comparing early drop-outs (never attended treatment), late drop-outs (6/9 sessions' treatment) and continuers were conducted in order to select variables to include in a multivariate logistic regression. RESULTS: Univariate analyses yielded 8 variables, out of 18 potential predictors for drop-out, which were



eligible for inclusion in the multivariate logistic regression. The model showed that having an intermediate or high educational level protects against dropping out early or late in the pain management process. Having to wait for more than 4 months before starting the treatment increases the risk of never starting it. Being randomized increases the risk of never starting the treatment. CONCLUSION: In a context in which randomization is considered a "gold standard" in evidence-based practice, these results indicate that this very principle could be deleterious to pain management in patients with chronic pain

Flannery J, Ajayi SO, and Oyegoke AS. Alcohol and substance misuse in the construction industry. International Journal of Occupational Safety & Ergonomics. 2021; 27(2):472-487.

<https://doi.org/10.1080/10803548.2019.1601376>

Abstract: This study investigates factors contributing to the menace of alcohol and substance misuse (ASM) in the construction industry, and its mitigation. A sequential exploratory mixed-method design, involving interview and questionnaire, was used for collecting data that were subsequently analysed by thematic analysis, factor analysis and Kruskal-Wallis test. Findings suggest that the problem of ASM is largely caused and exacerbated by mental strain, site working conditions, male dominance and ineffective human resource management. Screening and educational approaches were confirmed as carrot and stick methods for mitigating the menace in the construction industry. The finding implies that by making construction companies more accountable for the well-being of their workers, a change could be brought in the industry. These changes could be incentivized by initiatives like PREVENT to mitigate the crisis currently endemic in construction. The study suggests some practical measures for tackling the menace of ASM that is bedeviling the industry

Friel CP, Duran AT, Abdalla M, Unkart JT, Bellettiere J, Sims M, et al. Occupational standing and change in the Ankle-Brachial Index: the Jackson Heart Study. Occupational and Environmental Medicine. 2021; 78:445-447.

<https://doi.org/10.1136/oemed-2020-106905>

Abstract: Background: A growing interest in reducing occupational sitting has resulted in public health efforts to encourage intermittent



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standing in workplaces. However, concerns have been raised that standing for prolonged periods may expose individuals to new health hazards, including lower limb atherosclerosis. These concerns have yet to be corroborated or refuted. The purpose of this study was to investigate the association between occupational standing and adverse changes in the Ankle-Brachial Index (ABI). Methods: We studied 2121 participants from the Jackson Heart Study, a single-site community-based study of African-Americans residing in Jackson, MS. Occupational standing ('never/seldom', 'sometimes', 'often/always') was self-reported at baseline (2000-2004). ABI was measured at baseline and again at follow-up (2009-2013). Results: Over a median follow-up of 8 years, 247 participants (11.6%) exhibited a significant decline in ABI (eg, ABI decline >0.15). In multivariable-adjusted models, higher occupational standing was not significantly associated with ABI decline (occupational standing sometimes vs never/seldom: OR 1.05; 95% CI 0.67, 1.66; occupational standing often/always vs never/seldom: OR 1.22; 95% CI 0.77, 1.94). Similarly, higher occupational standing was not associated with low ABI at follow-up reflective of peripheral artery disease (ABI <0.90) or high ABI at follow-up reflective of incompressible vessels (ABI >1.40). Conclusions: In this community-based study of African-Americans, we found no evidence that occupational standing is deleteriously associated with adverse changes in ABI over a median follow-up of 8.0 years. These findings do not provide evidence implicating occupational standing as a risk factor for lower limb atherosclerosis.

Hashemi F, Eghbali SR, Mallory-Hill S, and Hamedi M. A method for prioritizing the modification of ergonomic and physical aspects of the workplace to enhance overall worker satisfaction in control centre buildings. International Journal of Occupational Safety & Ergonomics. 2021; 27(2):323-335.

<https://doi.org/10.1080/10803548.2021.1872334>

Abstract: This article aims to develop a method for prioritizing indoor environmental quality parameters in the workplace (i.e., temperature, lighting, acoustics, air quality, layout, furnishing, cleanliness and maintenance) to enhance occupants' workspace satisfaction. Data were collected using a web-based survey of 12 Iranian control centre buildings (CCBs) of combined cycle power plants. The results



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showed that fewer than half of occupants are satisfied with their workplace. Corrective measures would cost the owners an exorbitant amount of money if they were to try to address all of the parameters. Therefore, a statistical analysis framework was applied to determine each parameter's importance in relation to overall workspace satisfaction. Based on detailed analysis, two levels of importance have been defined for ergonomic modification of each CCB. The statistical approach developed in this study can be applied to all kinds of buildings to determine where ergonomic modification is most likely to produce higher workspace satisfaction

MacLean CL and Dror IE. The effect of contextual information on professional judgment: reliability and biasability of expert workplace safety inspectors. Journal of Safety Research. 2021; 77:13-22.

<https://doi.org/10.1016/j.jsr.2021.01.002>

Abstract: Introduction: A critical aspect of occupational safety is workplace inspections by experts, in which hazards are identified. Scientific research demonstrates that expectation generated by context (i.e., prior knowledge and experience) can bias the judgments of professionals and that individuals are largely unaware when their judgments are affected by bias. Method: The current research tested the reliability and biasability of expert safety inspectors' judgments. We used a two-study design (Study 1, N = 83; Study 2, N = 70) to explore the potential of contextual, task-irrelevant, information to bias professionals' judgments. We examined three main issues: (1) the effect that biasing background information (safe and unsafe company history) had on professional regulatory safety inspectors' judgments of a worksite; (2) the reliability of those judgments amongst safety inspectors and (3) inspectors' awareness of bias in their judgments and confidence in their performance. Results: Our findings establish that: (i) inspectors' judgments were biased by historical contextual information, (ii) they were not only biased, but the impact was implicit: they reported being unaware that it affected their judgments, and (iii) independent of our manipulations, inspectors were inconsistent with one another and the variations were not a product of experience. Conclusion: Our results are a replication of findings from a host of other professional domains, where honest, hardworking professionals underappreciate the biasing effect of context on their decision



making. The current paper situates these findings within the relevant research on safety inspection, cognitive bias and decision making, as well as provides suggestions for bias mitigation in workplace safety inspection. Practical Application: Our results have implications for occupational health and safety given that inspection is an integral aspect of an effective safety system. In addition to our findings, this study contributes to the literature by providing recommendations regarding how to mitigate the effect of bias in inspection

MacMillan F, Kolt GS, Le A, and George ES. Systematic review of randomised control trial health promotion intervention studies in the fire services: study characteristics, intervention design and impacts on health. Occupational and Environmental Medicine. 2021; 78:454-463.

<https://doi.org/10.1136/oemed-2020-106613>

Abstract: The objective of this study was to systematically review health promotion interventions in the fire services. Four databases were searched for articles reporting on health promotion interventions for firefighters evaluated in randomised controlled trials (RCT) and measuring efficacy on health or lifestyle behaviour outcomes. Data were extracted to create a narrative synthesis regarding study design, intervention characteristics and impact on outcomes. Risk of bias was assessed using a 13-item tool. Of 448 papers identified, after removal of duplicates, 209 were excluded based on title/abstract screening. A further 60 papers were excluded, mostly due to studies not being RCTs, not including a lifestyle behaviour intervention, or not focusing on health or lifestyle behaviour outcomes. Ten studies (reported in 11 papers) were eligible for inclusion. Six studies compared an intervention to usual practice, one compared a full intervention to a minimal intervention, one compared two exercise programmes and two compared two interventions to usual practice. Four studies evaluated structured physical activity interventions. Five studies evaluated physical activity and diet-focused behaviour change programmes, and one study included a mindfulness programme. When assessing risk of bias, three studies had low risk ratings for >8/13 items, leaving seven studies with high-risk ratings for 5/13 items. Eight of the 10 studies reported improvements in at least 1 outcome from baseline to final follow-up in the intervention group over a comparison group. The majority of lifestyle behaviour interventions



targeted physical activity and/or diet. Findings from included studies suggest that programmes for firefighters initiated in the workplace can improve some health outcomes

Papakostopoulos V and Nathanael D. The complex interrelationship of work-related factors underlying risky driving behavior of food delivery riders in Athens, Greece. Safety and Health at Work. 2021; 12(2):147-153.

<https://doi.org/10.1016/j.shaw.2020.10.006> [open access]

Abstract: Background In this study, the association of work and demographic characteristics with different traffic offenses committed by food delivery riders in Greece was examined. Previous research has identified various factors related to risky driving however, there is a need for exploring the complex interrelationship of work-related factors underlying risky driving behavior. Materials and Methods A 2-items questionnaire was used exploring delivery riders demographic characteristics, terms of employment, issues of concern during work and type of traffic offenses committed. In total, questionnaires were analyzed using logistic regression in order to identify characteristics independently associated with serious traffic offenses, namely, red-light running and helmet non-use. Results The analysis showed that: (i) typical health and safety measures had no effect on serious traffic offenses, (ii) young age was related to both offenses however (iii) different sets of work conditions were associated with reports of red-light running (i.e. low work experience, use of personal vehicle for work, and payment by hour) and helmet non-use respectively (i.e. intense work pace, high tip income per day and low concern about vehicle condition). Conclusion The above findings provide evidence that serious traffic offenses are manifestations of underlying conflict experienced by the riders between safety and various performance criteria. Each one of the two offenses is related to different rider profiles aiming to satisfy different goals, namely, those mainly trying to maximize profit non-helmet users and those, mostly inexperienced ones, trying to cope with work pressure red light runners. Potential regulatory measures to alleviate risky practices are discussed

Petitta L, Probst TM, Ghezzi V, and Barbaranelli C. Emotional contagion as a trigger for moral disengagement: their effects on



workplace injuries. Safety Science. 2021; 140:105317.
<https://doi.org/10.1016/j.ssci.2021.105317>

Shepherd-Banigan M, Pogoda TK, McKenna K, Sperber N, and Van Houtven CH. Experiences of VA vocational and education training and assistance services: facilitators and barriers reported by veterans with disabilities. Psychiatric Rehabilitation Journal. 2021; 44(2):148-156.

<https://doi.org/10.1037/prj0000437>

Abstract: OBJECTIVE: To understand the experiences of veterans with disabilities and caregiving needs who use Department of Veterans Affairs (VA) vocational and education services, including Supported Employment, the Post-9/11 GI Bill, and Vocational Rehabilitation and Employment. METHOD: We conducted 26 joint semistructured interviews with post-9/11 veterans who had used at least one of three vocational and education services, and their family members who were enrolled in a VA Caregiver Support Program. RESULTS: VA vocational and education services helped veterans with disabilities transition from the military into civilian life by providing skills and incremental exposure to engaging in everyday life tasks. Veteran motivation, caregiver support, and engaged staff at VA and academic institutions were key drivers of veteran success. Veterans who experienced challenges cited the following barriers: health problems, concerns about benefits loss if they became employed, and VA and academic programs that did not accommodate the needs of nontraditional veteran learners. CONCLUSIONS AND IMPLICATIONS FOR PRACTICE: There is a need to bolster VA vocational and educational services for veterans with disabilities in several domains, including modifying the roles of frontline staff and increasing communication between vocational counselors and health care teams to better accommodate the veteran's health-related limitations. Providing a vocational rehabilitation navigator to help veterans identify opportunities within VA and work/educational settings that are a good match for the veteran's goals and abilities could also be beneficial across vocational and educational services. (PsyInfo Database Record (c) 2021 APA, all rights reserved)

Svidron LM. Entrepreneurship as an employment option for people with disabilities: adding information to your job



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development toolkit. *Journal of Vocational Rehabilitation*. 2021; 54(3):285-288.

<https://doi.org/10.3233/JVR-211138>

Yang L, Branscum A, Bovbjerg V, Cude C, Weston C, and Kincl L. Assessing disabling and non-disabling injuries and illnesses using accepted workers compensation claims data to prioritize industries of high risk for Oregon young workers. *Journal of Safety Research*. 2021; 77:241-254.

<https://doi.org/10.1016/j.jsr.2021.03.007> [open access]

Abstract: Introduction: Young workers are especially vulnerable to occupational injuries and illnesses. There is a continued need to investigate injury burden among young workers across demographics and industry to inform targeted interventions. Workers compensation (WC) claims are important for quantifying work-related injuries and illnesses, however published studies have focused on disabling claims. This study extended previous research on Oregon young workers by including the most recent WC claims data to identify patterns of injury and high risk industries. Methods: We obtained all accepted disabling claims (N = 13,360) and a significant portion of non-disabling claims (N = 24,660) on workers aged 24 years and under from 2013 to 2018. Claim count, rate and cost were calculated by year, age, gender, industry, and injury type. A prevention index (PI) method was used to rank industries in order to inform prevention efforts. Results: Average annual disabling and non-disabling claim rates were 111.6 and 401.3 per 10,000 young workers. Workers aged 19-21 (disabling: 119.0 per 10,000 and non-disabling: 429.3) and 22-24 years (115.7 and 396.4) and male workers (145.3 and 509.0) had higher claim rates than workers aged 14-18 (80.6 and 297.0) and female workers (79.8 and 282.9). The most frequent injury types were "struck by/against" (35.6%) and "work-related musculoskeletal disorders (WMSDs)" (19.5%). High risk industries included agriculture, construction, and manufacturing for both genders combined. For female young workers, the highest risk industry was healthcare. Conclusions: This study demonstrated the added value of non-disabling WC claims data. Using both disabling and non-disabling data and PI method, agriculture, construction, manufacturing and healthcare industries were identified as priority workplaces to prevent common and costly injuries among Oregon



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young workers. Practical Applications: While the industries identified are considered hazardous for all workers, findings in this study can guide targeted research and prevention efforts specific to young workers.

Yoon S, McClean ST, Chawla N, Kim JK, Koopman J, Rosen CC, et al. Working through an "infodemic": the impact of COVID-19 news consumption on employee uncertainty and work behaviors. Journal of Applied Psychology. 2021; 106(4):501-517. <https://doi.org/10.1037/apl0000913>

Abstract: Uncertainty is a defining feature of the COVID-19 pandemic. However, because uncertainty is an aversive state, uncertainty reduction theory (URT) holds that employees try to manage it by obtaining information. To date, most evidence for the effectiveness of obtaining information to reduce uncertainty stems from research conducted in relatively stable contexts wherein employees can acquire consistent information. Yet, research on crises and news consumption provides reasons to believe that the potential for information to mitigate uncertainty as specified by URT may break down during crises such as the COVID-19 pandemic. Integrating URT with research on crises and news consumption, we predict that consuming news information during crises-which tends to be distressing, constantly evolving, and inconsistent-will be positively related to uncertainty. This in turn may have negative implications for employee goal progress and creativity; two work outcomes that take on substantial significance in times of uncertainty and the pandemic. We further predict that death anxiety will moderate this relationship, such that the link between employees' news consumption and uncertainty is stronger for those with lower levels of death anxiety, compared to those with higher levels. We test our theorizing via an experience-sampling study with 180 full-time employees, with results providing support for our conceptual model. Our study reveals important theoretical and practical implications regarding information consumption during crises such as the COVID-19 pandemic. (Psycho Database Record (c) 2021 APA, all rights reserved)

Zeng X, DeBono NL, Harris AM, Arrandale VH, and Demers PA. Neurodegenerative diseases among miners in Ontario, Canada, using a linked cohort. Occupational and Environmental



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Medicine. 2020; 78:385-392.

<https://doi.org/10.1136/oemed-2020-106958>

Abstract: Objectives: We examined employment in mining occupations and industries and its association with neurological disease incidence in a linkage cohort from Ontario, Canada. Outcomes included Alzheimer's disease (alone and with other dementias), Parkinson's disease, parkinsonism, motor neuron disease and amyotrophic lateral sclerosis (ALS). Methods: The Occupational Disease Surveillance System cohort was created by linking workers' compensation data and healthcare usage records. This analysis included over 1.1 million male workers, followed between 1999 and 2016. Neurological diseases were ascertained using physician billing and hospital discharge records. Adjusted Poisson regression models were used to estimate incidence rate ratios (RR) comparing mining to non-mining workers overall and by ore (industry) and occupation group. Results: Suggested elevations in incidence rates were observed for ALS among workers of metal mines (RR 2.21, 95% CI 1.04 to 4.69) and for motor neuron disease among those employed in mining occupations within metal mining industries (RR 1.96, 95% CI 1.01 to 3.79), though these were based on relatively few cases. In miscellaneous metal mines, workers who held mining occupations had an elevated rate of Alzheimer's disease (RR 1.27, 95% CI 0.92 to 1.77). Parkinson's disease rate was elevated among workers with rock and soil drilling occupations (RR 1.60, 95% CI 1.04 to 2.45). Conclusions: Mining hazards may be associated with elevated rates of neurodegenerative diseases among workers in mining occupations and industries. More work is needed to better understand mining exposures and their associations with neurodegenerative diseases.

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