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

Applebaum KM, Asfaw A, O'Leary PK, Fox MP, Tripodis Y, Busey A, et al. Occupational injury and suicide in Washington state, adjusting for pre-injury depression. *American Journal of Industrial Medicine*. 2024; [epub ahead of print].

<https://doi.org/10.1002/ajim.23682>

Abstract: Introduction: Occupational injuries have been associated with increased suicide mortality, but prior studies have not accounted for pre-injury depression. Methods: We linked injuries that occurred from 1994 to 2000 in the Washington State workers' compensation system with Social Security Administration data on earnings and mortality through 2018. We estimated the subdistribution hazard ratio (sHR) and 95% confidence interval using competing risks regression of suicide deaths with lost time compared with medical-only injuries separately for men and women, adjusting for age, pre-injury annual earnings, and industry. We further adjusted for pre-injury diagnosis of major depressive disorder by using a quantitative bias analysis (QBA), with the prevalence of this disorder in workers derived from an external health insurance claims data set. Results: Elevated suicide mortality was observed following lost-time injuries compared with medical-only injuries for men (sHR = 1.49, 95% CI [1.14, 1.93]) and women (sHR = 1.30, 95% CI [1.00, 1.69]), adjusting for age, pre-injury earnings, and industry. Adjusted for pre-injury depression using a QBA, elevated suicide risk in men remained statistically significant (median sHR = 1.33, simulation interval [1.18, 1.47]) but not for women. Discussion: Workplace injury requiring time off work appeared to remain influential in increasing suicide risk among men, even after controlling for pre-injury depression. The relationship between mental health before and after occupational injury is complex and studies should better integrate mental health pre-injury. Conclusions: Though many questions remain on the complex relationship between work, depression, injuries, and suicide, employers

should work to prevent injuries and consider implementing mental health programs, which could be helpful in reducing suicide risk.

Bianchi R, Schonfeld IS, Sowden JF, Cavalcante DC, Queiros C, Hebel VM, et al. Measurement invariance of the occupational depression inventory: a study of 12,589 participants across 14 countries. *Work and Stress*. 2024; 38(4):420-436.

<https://doi.org/10.1080/02678373.2024.2364594> [open access]

Abstract: The Occupational Depression Inventory (ODI) reflects a novel approach to job-related distress anchored in depression research. To date, the extent to which the ODI exhibits measurement invariance across countries, languages, and demographics is unclear. Measurement invariance refers to whether a measure has the same structure, or meaning, across groups of interest. Measurement invariance is thus crucial for between-group comparisons and study replicability. This study estimated the measurement invariance of the ODI across 14 countries – Australia, Brazil, France, Germany, Italy, New Zealand, Norway, Poland, Portugal, South Africa, Spain, Sweden, Switzerland, and the USA – and 10 languages as well as across sexes and age groups (pooled N = 12,589). We found evidence for complete measurement invariance (configural, weak, strong, and strict) across countries, languages, sexes, and age groups. Looking into the invariance of structural parameters, we found latent variance-covariance invariance to hold across countries, languages, and sexes and to be equivocal across age groups. Expectedly, the levels of occupational depression, as indexed by latent means, varied within the four categories. Our results indicate that the ODI behaves similarly across countries, languages, sexes, and age groups. Our findings support the use of the ODI with respondents having different cultural backgrounds and individual characteristics.

Cheng Y, Cheng WJ, Lin RT, Wang YT, and Ko JR. Associations between labor control through digital platforms and workers' mental wellbeing: a survey of location-based platform workers in Taiwan. *Safety and Health at Work*. 2024; 15(4):419-426.

<https://doi.org/10.1016/j.shaw.2024.08.003>

Abstract: Background: Platform work offers flexibility and autonomy to workers, but there are concerns about the impacts of excessive labor control exercised by digital platforms using algorithmic management. This study assessed the level of labor control exerted by digital platforms and explored its associations with psychosocial work conditions and workers' mental well-being. Methods: A total of 487 location-based platform workers in Taiwan, encompassing ride-hailing, delivery, and house chore services, participated in this questionnaire survey. A 5-item scale was created to assess platform-mediated labor control. Psychosocial work conditions, including demands, job control, work rewards, and mental well-being, including burnout and self-rated mental health status, were assessed using validated instruments. Cronbach's α and principal component analysis were employed to assess the validity of the labor control scale. Logistic regression analysis and path analysis were conducted to investigate the relationship between labor control and workers' mental health. Results: Exploratory factor analyses confirmed the structural validity and the internal consistency of the scale. Logistic regression models revealed that higher levels of labor control were associated with an increased risk of burnout and poorer mental health. Path analyses further indicated that higher labor control through digital platforms raised mental health risks by increasing job demands. Conclusion:

Algorithmic management is associated with increased stress among platform workers as they try to meet the platform's performance metrics.

Colorafi K, Sumner S, Rangel T, Powell L, Vaitla K, Leavitt R, et al. Caregiving during COVID and beyond: the experience of workplace stress and chaplain care among healthcare workers. *Qualitative Health Research*. 2025; 35(1):102-117.

<https://doi.org/10.1177/10497323241263748>

Abstract: Healthcare workers (HCWs) experience occupational stressors that negatively impact emotional well-being and exacerbate turnover intentions. In the wake of the COVID-19 pandemic, the resultant acute care turnover rates have reached an all-time high. In addition, occupational stressors lead to psychological stress, including moral distress, defined as the dissonance between perceiving what the right course of action is and encountering an obstacle to acting accordingly. This qualitative descriptive study explored the perceptions of patient-facing HCWs in acute care hospital settings regarding the workplace stressors they encountered and the role of hospital-based chaplains in addressing emotional well-being and stress with 33 interviews. Findings suggest that HCW frequently experience work-related moral distress and seek relief by interacting with hospital chaplains. Chaplain care, common in American healthcare facilities for the spiritual care of patients, is an easily accessible resource to HCWs. Facilitating chaplain-HCW interactions may be an effective strategy for responding to moral distress and improving healthcare workers' well-being

Edgerly A, Gillespie GL, Bhattacharya A, and Hittle BM. Ohio farmworkers and heat-related illness prevention: a focused ethnography. *Journal of Occupational & Environmental Medicine*. 2024; 66(12):1015-1021.

<https://doi.org/10.1097/JOM.0000000000003230>

Abstract: OBJECTIVE: The aim of the study is to understand farmworkers' knowledge of heat-related illness prevention and behavioral and cultural factors related to heat-related illness (HRI) prevention. METHODS: The theory of planned behavior and an ethnographic study design were used. Data collection consisted of observations and interviews. Recorded interviews were conducted with participants and transcribed verbatim. Transcribed interviews were analyzed using thematic analysis. RESULTS: Overall, 14 interviews were conducted, and four themes emerged: acquisition and interpretation, perception, interoception, and action. Other findings included an insufficiency of formal training and the absence of knowledge of a protocol for acclimatization. CONCLUSIONS: Better education and training are needed in this occupation, especially regarding acclimatization. Occupational health professionals must lead efforts to develop HRI plans and measures to ensure acclimatization protocols are adopted in the workforce

Hazelzet E, Bosma H, De Rijk A, and Houkes I. Giving voice to employees in low-skilled jobs works: effect and process evaluation of a participatory sustainable employability intervention. *Work*. 2024; 79(4):1851-1866.

<https://doi.org/10.3233/WOR-230507>

Abstract: Background: To improve the sustainable employability (SE) of employees in low-skilled jobs, there is an urgent need to implement more effective approaches for this group. Objective: This evaluation study aimed to get insight into the effect and implementation process of an organisational intervention called 'Healthy HR' (HHR), which promoted the job control and SE of employees in low-skilled jobs in two Dutch organisations. Methods: An effect evaluation with a pretest-posttest design

and a mixed-methods process evaluation were conducted. Quantitative data were collected at baseline (N = 120) and at 12 months' follow-up (N = 71). Paired t-tests and dose-response analyses were performed (N = 50). Mixed-methods process data were collected on the implementation process using questionnaires, individual interviews with employees and employer representatives (N = 26), focus groups (N = 4) and logbooks. Results: A positive effect was found for job control at 12 months' follow-up. An effect on the distal outcome SE was not significant. The dose-response analysis showed that a higher dose of HHR resulted in better job control. This positive effect was supported by the qualitative process analysis. HHR had a positive impact on the awareness level about health and healthy workplaces among all stakeholders. Conclusions: This study showed a promising participatory approach to improve job control for employees in low-skilled jobs by actively involving them in a genuine dialogue and giving them an active voice. Effects on SE might require a longer follow-up

Hudon A, Miciak M, Slade T, Lovo S, Whittaker JL, Cote D, et al. What are the perceptions and lived experiences of Canadian injured workers about the provision of physiotherapy services using telerehabilitation? *Journal of Occupational Rehabilitation*. 2024; [epub ahead of print]

<https://doi.org/10.1007/s10926-024-10261-4>

Abstract: PURPOSE: Despite evidence of efficacy, the effectiveness of telerehabilitation in real-world clinical settings is still largely unknown. Telerehabilitation requires a substantial transformation of the organization and delivery of traditional services. Considering that a virtual setting can create unique challenges for providing physiotherapy services and given the physical and potential hands-on nature of evidence-based assessments and interventions, it is important to investigate what injured workers think of receiving physiotherapy care via telerehabilitation and to examine if rehabilitation needs are adequately met. METHODS: A qualitative interpretive description study was conducted to explore the perspectives and experiences of 17 injured workers receiving physiotherapy via telerehabilitation. Data were collected through semi-structured interviews with participants from three provinces in Western Canada and analysed using thematic analysis. Qualitative rigour criteria of epistemological integrity, analytic logic, interpretive authority, and representative credibility were considered throughout this study. RESULTS: Implementation of telerehabilitation during the COVID-19 pandemic resulted in mixed perceptions from injured workers. Some viewed telerehabilitation as a resourceful option for providing services during the pandemic lockdown, resulting in maintained communications while overcoming barriers to services (e.g., rural/remote workers, transportation barriers, etc.). However, many thought telerehabilitation was inferior to in-person therapy for assessment and when 'hands-on' interaction was needed. Many believed a hybrid option may be ideal now that pandemic restrictions are lifted, with telerehabilitation supplementing in-person physiotherapy when needed. CONCLUSIONS: Telerehabilitation was viewed as a resourceful option during the pandemic and in certain clinical situations (e.g., rural/remote). Workers should be able to make informed choices about service delivery format

Kausto J, Airaksinen J, Oksanen T, Vahtera J, Kivimaki M, and Ervasti J. COVID-19-induced changes in the workplace, psychosocial work environment and employee well-being: a longitudinal study. *Occupational Medicine*. 2024; 74(8):571-580.

<https://doi.org/10.1093/occmed/kqae079> [open access]

Abstract: BACKGROUND: In many workplaces, the coronavirus disease 2019 pandemic changed work arrangements, but there is scarce longitudinal evidence on whether psychosocial work environment

and employee well-being were affected. AIMS: To examine the psychosocial work environment and employee well-being before, during and after the pandemic in relation to pandemic-induced changes (working from home, change to other tasks and team reorganization). METHODS: Survey data from a cohort of 20 944 public sector employees in Finland were collected before (2016-2018), during (2020) and after the pandemic (2022). Multilevel linear and logistic regression was used to examine group differences between the before-during and during-after periods of the pandemic. RESULTS: Working from home was associated with a small but favourable change in worktime control, organizational justice and social capital (scale 1-5) during the pandemic and after the pandemic (marginal mean difference ranging from 0.02 to 0.09 with 95% confidence intervals [CIs] from 0.01 to 0.10). There was a post-pandemic increase in work time control, even among participants with a transfer into other tasks (0.11, 95% CI 0.07, 0.14) or team reorganization (0.06, 95% CI 0.02, 0.10). The decline in self-rated work ability (scale 0-10) before and during the pandemic was greater in those transferred into other tasks (-0.10, 95% CI -0.13, -0.06) than in those not (-0.05, 95% CI -0.06, -0.04). CONCLUSIONS: Working from home during the pandemic was accompanied by small favourable changes in the psychosocial work environment during the pandemic, whereas transition to different tasks was associated with a decline in self-rated work ability

Lynn Salzar T, Aguilar KN, Smith ML, Pickens A, Han G, Anderson G, et al. Stand-capable workstations reduce occupational sedentary time among administrative workers. *IJSE Transactions on Occupational Ergonomics and Human Factors*. 2024; 12(3):162-174.

<https://doi.org/10.1080/24725838.2024.2362720>

Abstract: OCCUPATIONAL APPLICATIONS In this study, we found that workers who use stand-biased desks stood more and sat less during their workday compared to workers who use traditional desks. Stand-biased users also experienced significantly less lower back discomfort compared to both traditional and sit-stand workstation users. Based on these findings, we recommend that the use of stand-biased workstations be considered when designing or renovating work office workspaces. The health risks of sedentary behavior are inherent in most office work, but these risks can be alleviated with intentional equipment choices. Using stand-biased desks can encourage workers to move more throughout the workday without their productivity or comfort being disturbed

McWha-Hermann I, Blustein DL, Seubert L, Wilde J, Allan BA, Searle RH, et al. Tackling precarious work through work and organizational psychology: it's work but not as we know it. *European Journal of Work and Organizational Psychology*. 2024; [epub ahead of print].

<https://doi.org/10.1080/1359432X.2024.2433489>

Park MY and Lee J. Psychological well-being interactively affected by long working hours and caregiving activities. *Safety and Health at Work*. 2024; 15(4):458-463.

<https://doi.org/10.1016/j.shaw.2024.10.006>

Abstract: Background: Long working hours and caregiving responsibilities are prevalent in many societies. These demands can lead to stress and adverse mental health outcomes. This study examines the associations of long working hours and family caregiving on psychological well-being and their interactions among South Korean wage workers. Methods: Using data from the Korean Working Conditions Survey, this cross-sectional study involved 33,063 participants. Long working hours were categorized as 40 and 52 hours a week, and caregiving was assessed through self-reports of non-work-related caregiving activities. The World Health Organization Well-Being Index was used

to measure psychological well-being, with Poisson regression models analyzing the associations and interactions between working hours, caregiving activities, and psychological well-being. Results: The prevalence of low psychological well-being was significantly higher among individuals with both long working hours and caregiving responsibilities than among those with either or neither stressor (adjusted prevalence ratio = 1.81; 95% confidence interval: 1.42-2.31, multiplicative scale = 1.32; 95% confidence interval: 1.00-1.73). Conclusion: This study highlights the significant mental health implications of combining long working hours with caregiving responsibilities in the Republic of Korea. The synergistic interaction between these factors suggests that interventions and policies aimed at reducing work-related stress and supporting caregivers could have substantial benefits for mental health.

Restar AJ, Lett E, Menezes NP, Molino AR, Poteat TC, Dean LT, et al. Getting precise about gender and sex measurement: a primer for epidemiologists. *American Journal of Epidemiology*. 2024; 193(12):1861-1867.

<https://doi.org/10.1093/aje/kwae144> [open access]

Abstract: Accurately measuring gender and sex is crucial in public health and epidemiology. Iteratively reexamining how variables-including gender and sex-are conceptualized and operationalized is necessary to achieve impactful research. Reexamining gender and sex advances epidemiology toward its goals of health promotion and disease elimination. While we cannot reduce the complexities of sex and gender to simply an issue of measurement, striving to capture these concepts and experiences accurately must be an ongoing dialogue and practice-to the benefit of the field and population health. We assert that epidemiology must counteract misconceptions and accurately measure gender and sex in epidemiology. We aim to summarize existing critiques and guiding principles in measuring gender and sex that can be applied in practice

Roman-Gallego JA, Perez-Delgado ML, Conde MA, and Vinuela ML. Machine vision-based recognition of safety signs in work environments. *Frontiers in Public Health*. 2024; 12:1431757.

<https://doi.org/10.3389/fpubh.2024.1431757> [open access]

Abstract: The field of image recognition is extensively researched, with applications addressing numerous challenges posed by the scientific community. Notably among these challenges are those related to individual safety. This article presents a system designed for the application of image recognition in the realm of Occupational Risk Prevention-a concern of paramount importance due to the imperative of preventing workplace accidents as falls, collisions, or other types of accidents for the benefit of both workers and enterprises. In this study, convolutional neural networks are employed due to their exceptional efficacy in image recognition. Leveraging this technology, the focus is on the recognition of safety signs used in Occupational Risk Prevention. The primary objective is to enable the recognition of these signs regardless of their orientation or potential degradation, phenomena commonly observed due to regular exposure to environmental elements or deliberate defacement. The results of this research substantiate the feasibility of integrating this technology into devices capable of promptly alerting individuals to potential risks. However, to improve classification capabilities, especially for highly degraded or complex images, a larger and more diverse data set might be needed, including real-world images that introduce greater entropy and variability. Implementing such a system would provide workers and companies with a proactive measure against workplace accidents, thereby enhancing overall safety in occupational environments

Sherratt F, Harch D, and Perez A. Making zero work for construction safety in a post-zero world. *Journal of Safety Research*. 2024; 91:193-200.

<https://doi.org/10.1016/j.jsr.2024.08.016> [open access]

Abstract: Introduction: The use of zero within construction safety continues, despite a lack of supporting empirical evidence of success. Whether used as a target, a vision, or a journey, zero has its supporters and its critics, and remains popular among construction companies across the world.

Method: A critical discussion sets out a number of theoretical considerations of zero, supplemented by statistical analysis of the U.S. SIF incident data for the period 2018–2022, evaluating companies that use zero and those that do not. This work mirrors that previously undertaken in the UK. **Results:** Cross referencing SIF incidents and firms using zero within their safety management revealed that overall, firms using zero had fewer incidents than firms that were not. However, when the data were examined statistically, no difference in the Serious Injuries and Fatalities (SIF) outcomes between the zero and non-zero companies was determined. The data therefore are equivocal: it does not prove that zero does not work, but nor does it evidence that it does. **Conclusions:** Zero remains problematic for occupational safety management. The empirical data from the United States do not evidence any clear success from the use of zero in practice, as was also the case in the equivalent UK dataset.

Various debates remain around the use of zero, yet there are potential alternatives already emerging within safety management that may mean it naturally fades from the safety lexicon in the future.

Practical Applications: This work adds to the theoretical debates around zero, providing food for thought for safety practitioners around the use of zero in the field. It also presents empirical correlational data that demonstrates a lack of evidence for the beneficial use of zero within occupational safety.

Singier A, Fadel M, Gilbert F, Temime L, Zins M, and Descatha A. Development and validation of a French job-exposure matrix for healthcare workers: JEM Soignances. *Scandinavian Journal of Work, Environment & Health*. 2024; 50(8):653-664.

<https://doi.org/10.5271/sjweh.4194> [open access]

Abstract: Objectives This study aimed to develop and evaluate a job-exposure matrix (JEM) specific to healthcare workers, JEM Soignances, based on self-reported data. **Methods** The JEM was constructed using data from healthcare workers within the CONSTANCES cohort (N=12 489). Job titles and sectors of activity (eg, hospital activities) defined occupational groups. We assessed 24 exposures covering organizational, psychosocial, physical, chemical and biological factors. Several methods (group-based frequency, CART, random forest, extreme gradient boosting machine) were applied using a 70% training sample. Performance was evaluated on the remaining 30% using area under the ROC curve (AUC) and Cohen's Kappa (κ). Two alternative JEM were proposed using only job titles or adding healthcare establishment size and type (public/private) to define occupational groups. **Results** All methods offered similar discriminatory power (AUC). We selected the group-based frequency method as it was the most understandable and easiest to implement. Of the 24 included exposures, 15 demonstrated satisfactory performance, with nine showing good discriminatory power and fair-to-moderate agreement, such as physical effort at work (AUC=0.861, κ =0.556), ionizing radiation exposure (AUC=0.865, κ =0.457), carrying heavy loads (AUC=0.840, κ =0.402), shift work (AUC=0.807, κ =0.383), and formaldehyde exposure (AUC=0.847, κ =0.289). The remaining nine exposures mainly showed poor-to-moderate discriminatory power and poor agreement. Compared to JEM Soignances, the job title-only JEM performed poorly, while the one incorporating healthcare establishment size

and type showed similar results. Conclusions JEM Soignances provides good internal performance and validity. Future research will assess its external validity by comparing it with existing JEM and examining its predictive validity regarding known associations between exposures and health outcomes (eg, long working hours and strokes).

Soh E, Tsai JH, Boutain DM, and Pike K. An intersectional analysis of the health status, work conditions, and nonwork conditions of the U.S. working-classed across class, sex, race, and nativity identities. *American Journal of Industrial Medicine*. 2024; 67(11):1020-1038.

<https://doi.org/10.1002/ajim.23663>

Abstract: Background: Classism, sexism, racism, and nativism intersect to create inequitable conditions and health outcomes based on workers' social identities. This study describes the health status, work conditions, and nonwork conditions of the United States (U.S.) working-classed at the intersections of class, sex, racial, and nativity identities. Methods: Descriptive statistics (e.g., frequencies, percentages) were calculated from the 2015 National Health Interview Survey data for the total working classed sample (N = 11,884) and 16 intersectional groupings. General and psychosocial health status, work factors, and access to resources outside of work were examined. Results: Intersectional analysis revealed divisions in work and nonwork conditions despite the majority of each grouping reporting very good/excellent health. The majority of the female Latine born-outside-U.S. grouping (60%) reported not having paid sick leave. The majority of the male Latine born-outside-U.S. grouping reported having neither paid sick leave (62%) nor health insurance (55%). The majority of the female Latine (53%), male Latine (60%), and male Black (55%) born-outside-U.S. groupings reported workplaces as less safe. The majority of the female Latine born-outside-U.S. grouping (53%) was the only grouping to report being moderately/very worried about being able to afford housing costs. Conclusion: The health status and precarity of work and nonwork conditions of the U.S. working classed may be shaped by intersecting systems of power across class, sex, racial, and nativity identities. Intersectional analysis increases our purview to see who is most affected, how, and where, which can inform future opportunities to mitigate worker health inequities.

Veenstra M, Lie Selle M, Johannessen A, Gulsvik A, and Stavem K. Occupational class inequalities in all-cause and cardiovascular mortality in Norwegian men and women: a population-based approach with 45 years follow-up. *Public Health*. 2024; 236:230-238.

<https://doi.org/10.1016/j.puhe.2024.07.033> [open access]

Abstract: Objectives: This study assessed associations of three theoretically different occupational class schemes with all-cause and cardiovascular mortality in Norwegian men and women. Study design: Pooled survey and register data from four Norwegian cohort studies. Methods: We pooled survey data from four general population cohorts (N = 97,469) linked to national mortality registries with follow-up over 45 years. Survival was modelled using accelerated failure time models stratified by sex for three class schemes: The European Socio-Economic Classification (ESeC), The Oslo Register Data Class scheme (ORDC) and The International Socio-Economic Index (ISEI). Main analyses were adjusted for age, birth cohort, and study. Secondary analyses included smoking behaviour as a mediator. Results: During median 27.6 years of observation, 37,488 participants had died (13,243 from cardiovascular disease). Hazard ratios for male all-cause mortality were lowest in the highest occupational class categories ORDC 2: 0.68 (0.65-0.72), ESeC 1: 0.76 (0.73-0.79) and ISEI 5th quintile: 0.80 (0.77-0.82) compared to working class reference categories. Female mortality risks were lowest

for Cultural Lower Middle class ORDC 7: 0.84 (0.72-0.98), Small Employers and Self-employed ESeC4: 0.70 (0.50-0.97) and ISEI 5th quintile: 0.79 (0.70-0.90). Patterns for cardiovascular mortality were similar to all-cause mortality. Including smoking behaviour as a mediator attenuated associations, but overall mortality patterns according to occupational class remained unchanged. Conclusion: The results underline that mortality inequalities do not simply consist of higher risks in the most disadvantaged groups. The association of occupational class with mortality is found across different categories of occupational class schemes, illustrating their continued relevance for studying social determinants of health

Wah W, Berecki-Gisolf J, Glass DC, Hoy RF, Sim MR, Collie A, et al. Impact of extreme bushfire seasons on rates of occupational injury and disease compensation claims in first responders. International Archives of Occupational & Environmental Health. 2024; 97(10):1037-1049. <https://doi.org/10.1007/s00420-024-02103-w>

Abstract: PURPOSE: This study aimed to use workers' compensation (WC) data to explore the impact of the extreme bushfires on injury/disease claim rates amongst first responders (FR) compared with other occupations and off-seasons. METHODS: Data on WC claims for FR (ambulance officers, paramedics, firefighters, police) and other occupations were obtained from WorkSafe Victoria 2005-2022. Negative binomial regression models adjusting for age, gender and number of employed people were used to estimate incident rate ratios of all injury/disease, mental, musculoskeletal and respiratory claims among FR in summer and extreme bushfires compared to off-season/summer and other occupations. RESULTS: There were 120,022 claims in 2005-2022; 54% were musculoskeletal injuries. Claims rates were significantly higher for all injuries/diseases, mental, musculoskeletal and respiratory conditions in FR than other occupations across off-season, summers and extreme bushfires. FR were 1.5-3.9 times more likely to claim for mental health conditions during extreme bushfires than off-season compared with other occupations. Firefighters were at increased risk of all injury/disease and mental and musculoskeletal injury claims during summer and extreme bushfires than off-seasons. Ambulance officers and paramedics had the highest claim rates, particularly in off-seasons, with a higher risk of all injury/disease and mental claims in extreme bushfires than in summers. Respiratory and mental claims were increased amongst police and other occupations during extreme bushfires. CONCLUSION: Extreme bushfire events were associated with increased mental claims rates in all FR, with the highest in firefighters. Strategies to better prevent and manage injury/disease risk in FR are urgently required, particularly for mental health conditions

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