research alert

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ABOUT 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.

Bautista-Bernal I, Quintana-Garcia C, and Marchante-Lara M. Safety culture, safety performance and financial performance. A longitudinal study. Safety Science. 2024; 172:106409. https://doi.org/10.1016/j.ssci.2023.106409 **[open access]**

Abstract: Safety Culture and managing employee relationships in a safe and socially responsible climate might help avoid risks at the workplace and reputational damage for companies. Drawing on the social approach and Occupational Health and Safety Management, this paper aims to gain further knowledge regarding the impact of safety culture through safety performance on financial performance in organisations. We test a set of hypotheses in a panel data of European companies from different activity sectors from 2005 to 2019. Our findings provide strong support for the premise that companies with policies aimed at improving employee health and safety, employee training, or having safety management systems positively influence safety performance, which in turn has a positive impact on financial performance. The development of safety culture in the company is necessary to meet the needs of employees, and thus improve safety performance. This study has implications for both theory and practice and offers some relevant implications for regulators and policy makers.

Busch IM, Rimondini M, Scott SD, Moretti F, Cecchin D, Wu AW, et al. Workplace violence in radiology: results of a systematic review. Occupational Medicine. 2023; 73(9):541-546. https://doi.org/10.1093/occmed/kqad123

Abstract: Background: Workplace violence (WPV) is a growing issue in health care with far-reaching consequences for health workers' physical and psychological well-being. While some medical specialities like emergency medicine have always been considered at higher risk for WPV, several studies have also reported its occurrence in radiology. Aims: This systematic review aimed to

comprehensively synthesize the types of WPV in radiology, its psychological impact, and the underlying risk and protective factors. Methods: We searched five electronic databases (PubMed, Web of Science Core Collection, Scopus, PsycINFO and CINAHL) and additional literature, including grey literature, and established weekly search alerts. Two reviewers independently conducted all methodological steps, involving a third reviewer in case of disagreement. Results: Of the 12 205 retrieved records, 103 full-text articles were evaluated, and 15 studies were included. Across studies, verbal aggression, sexual harassment (mostly against women) and physical violence were experienced by up to 100%, 85% and 46% of health workers, respectively. Perpetrators were patients and patients' caregivers, followed by co-workers. Victims suffered from various psychological symptoms, such as anxiety (22%-54%), fear (6%-39%), depression (32%) and repeated disturbing memories (21%). Risk factors included female gender, understaffing, worker inexperience, poor communication and lengthy waiting times. Social support and security personnel presence were among the identified protective factors. Conclusions: Health workers are at high risk of experiencing WPV in the radiological setting, with a strong psychological impact. Radiological departments should create a safe healthcare environment that actively manages the identified risk factors and offers psychological support to affected workers.

Fannin A, Hooley C, Reeves CJ, Marcal K, Treglown R, and Woerner R. Occupational burnout and public stigma associated with employee mental well-being: a multi-industry, cross-sectional study during COVID-19. Work. 2024; 77(1):49-59.
https://doi.org/10.3233/WOR-220507
Abstract: BACKGROUND: While mental illness (e.g., depression, anxiety) has been examined frequently in the workplace, the COVID-19 pandemic has only increased the attention towards mental illness. Mental well-being views mental health as a continuum from ill health to thriving. Few studies have examined factors associated with mental well-being in the workplace. Public stigma for mental illness, the general population's negative attitude towards mental illness, and occupational burnout are examined. OBJECTIVE: The purpose of this study was to examine the relationship between burnout and public stigma on mental well-being in a sample of employees across industries in the United States. METHODS: Employees surveyed from 16 companies from various industries were assessed. Room Here, a non-profit organization whose goal is to improve employee mental fitness, gathered data from these companies located in the western mountain region of the U.S. Data were collected during the pandemic. Across this portfolio of companies, 259 employees were included in the sample. Survey assesses respondents' mental well-being, stigma towards mental illness, and occupational burnout. Ordinary least squares (OLS) regression was used in this cross-sectional study on secondary data. RESULTS: Results suggested occupational burnout was associated with a decrease in mental well-being, while public stigma was associated with an improvement in mental well-being. CONCLUSION: This study sought to examine the relationship between mental well-being, burnout, and public stigma. Employee burnout and public stigma were related to mental well-being. Implications for burnout and stigma reduction programs are discussed as well as future research

Garshick E, Redlich CA, Korpak A, Timmons AK, Smith NL, Nakayama K, et al. Chronic respiratory symptoms following deployment-related occupational and environmental exposures among US veterans. Occupational & Environmental Medicine. 2024; 81(2):59-65.
https://doi.org/10.1136/oemed-2023-109146
Abstract: Objectives: Characterise inhalational exposures during deployment to Afghanistan and Southwest Asia and associations with postdeployment respiratory symptoms. Methods: Participants (n=1960) in this cross-sectional study of US Veterans (Veterans Affairs Cooperative Study 'Service and Health Among Deployed Veterans') completed an interviewer-administered questionnaire regarding 32 deployment exposures, grouped a priori into six categories: burn pit smoke; other combustion sources; engine exhaust; mechanical and desert dusts; toxicants; and military job-related vapours gas, dusts or fumes (VGDF). Responses were scored ordinally (0, 1, 2) according to exposure frequency. Factor analysis supported item reduction and category consolidation yielding 28 exposure items in 5 categories. Generalised linear models with a logit link tested associations with symptoms (by respiratory health questionnaire) adjusting for other covariates. OR were scaled per 20-point score increment (normalised maximum=100). Results: The cohort mean age was 40.7 years with a median deployment duration of 11.7 months. Heavy exposures to multiple inhalational exposures were commonly reported, including burn pit smoke (72.7%) and VGDF (72.0%). The prevalence of dyspnoea, chronic bronchitis and wheeze in the past 12 months was 7.3%, 8.2% and 15.6%, respectively. Burn pit smoke exposure was associated with dyspnoea (OR 1.22; 95% CI 1.06 to 1.47) and chronic bronchitis (OR 1.22; 95% CI 1.13 to 1.44). Exposure to VGDF was associated with dyspnoea (OR 1.29; 95% CI 1.14 to 1.58) and wheeze (OR 1.18; 95% CI 1.02 to 1.35). Conclusion: Exposures to burn pit smoke and military occupational VGDF during deployment were associated with an increased odds of chronic respiratory symptoms among US Veterans.

Honeycutt T, Luhr M, Harrison E, and Sevak P. Pre-employment transition and vocational rehabilitation services: experiences in response to Vermont's work-based learning program. Journal of Vocational Rehabilitation. 2024; 60(1):39-52.
https://doi.org/10.3233/JVR-230055

Kearney J, Muir C, Salmon P, and Smith K. Rethinking paramedic occupational injury surveillance: systems approach to better understanding paramedic work-related injury. Safety Science. 2024; 172:106419.
https://doi.org/10.1016/j.ssci.2024.106419 **[open access]**
Abstract: Paramedic work occurs in complex, dynamic, uncontrolled, and unpredictable work environments which increase their risk of occupational injury. The complex and multi-factorial nature of paramedic occupational injury requires a holistic systems-based approach to identify and understand contributory factors of paramedic occupational injury. Systems thinking methods are useful for understanding and responding to complex issues, however these have never been applied to the surveillance of paramedic injuries. Through a narrative review of the paramedic occupational injury literature, this paper aims to establish the currently known contributors of paramedic injury, examine the extent to which a systems thinking approach has been applied in this context, and outline how these could be integrated into current paramedic injury surveillance systems. A search of Ovid Medline between the years 2004–2021. In total, 120 literature works were used to develop the systems maps and models presented in this paper. These included: a social-ecological model; an

ActorMap; an AcciMap; and a PreventiMap. The findings illustrate the complexity and diversity of the factors contributing to the occurrence of paramedic injury at work. However, systems thinking-based approaches like those presented in this paper are not a substitute for the traditional epidemiological approach to injury surveillance, rather these approaches should be incorporated together to improve risk and protective factor identification, facilitating the development and implementation of targeted interventions.

Lee BY. Neither employee nor contractor: a case study of employment relations between riders and platform-based food-delivery firms in Taiwan. Work, Employment and Society. 2024; 38(1):122-139.
https://doi.org/10.1177/09500170221103147

Mekonnen TH, Di Donato M, Collie A, and Russell G. Time to service and its relationship with outcomes in workers with compensated musculoskeletal conditions: a scoping review. Journal of Occupational Rehabilitation. 2024; [epub ahead of print].
https://doi.org/10.1007/s10926-023-10160-0
Abstract: PURPOSE: A comprehensive review of the literature on the time between the onset of symptoms and the first episode of care and its effects on important worker outcomes in compensated musculoskeletal conditions is currently lacking. This scoping review aimed to summarize the factors associated with time to service and describe outcomes in workers with workers' compensation accepted claims for musculoskeletal conditions. METHODS: We used the JBI guidelines for scoping reviews and reported following the PRISMA-ScR protocol. We included peer-reviewed articles published in English that measured the timing of health service initiation. We conducted searches in six databases, including Medline (Ovid), Embase (Ovid), PsycINFO, Cinahl Plus (EBSCOhost), Scopus, and the Web of Science. Peer-reviewed articles published up to November 01, 2022 were included. The evidence was summarized using a narrative synthesis. RESULTS: Out of the 3502 studies identified, 31 were included. Eight studies reported the factors associated with time to service. Male workers, availability of return to work programmes, physically demanding occupations, and greater injury severity were associated with a shorter time to service, whereas female workers, a high number of employees in the workplace, and having legal representation were associated with a longer time to service. The relationship between time service and worker outcomes was observed in 25 studies, with early access to physical therapy and biopsychosocial interventions indicating favourable outcomes. Conversely, early opioids, and MRI in the absence of severe underlying conditions were associated with a longer duration of disability, higher claim costs, and increased healthcare utilization. CONCLUSION: Existing evidence suggests that the time to service for individuals with compensated musculoskeletal conditions was found to be associated with several characteristics. The relationship between time to service and worker outcomes was consistently indicated in the majority of the studies. This review highlights the need to consider patient-centred treatments and develop strategies to decrease early services with negative effects and increase access to early services with better outcomes

Oguz Erkal ED, Hallowell MR, Ghriss A, and Bhandari S. Predicting serious injury and fatality exposure using machine learning in construction projects. Journal of Construction Engineering and Management. 2024; 150(3):04023169.
https://doi.org/10.1061/JCEMD4.COENG-13741 **[open access]**
Abstract: Safety academics and practitioners in construction typically use safety prediction models

that employ information associated with past incidents to predict the likelihood of future injury or fatality on site. However, most prevailing models utilize only information related to failure (i.e., incident), so they cannot distinguish effectively between success and failure without well-informed comparison. Furthermore, recordable incidents on construction sites are extremely rare, which results in data that are too sparse to make predictions with high statistical power. This paper empirically reviews different approaches to safety to increase the understanding of conditions associated with safety success and failure. Empirical data about business-, project-, and crew-related factors were collected to predict serious injury and fatality (SIF) exposure conditions. A variety of modeling techniques were tested in a machine learning pipeline to identify the most accurate and stable predictive models. Results showed that the multilayer perceptron (MLP) approach best distinguished SIF exposure conditions from safety success conditions using nonlinear decision boundaries. The most influential factors in the models included the crew experience working together, supervisor experience with the crew, total number of workers under the supervisor's purview, and the maturity of leadership development programs for frontline supervisors. This study showed that data sets with both success and failure information yield more reliable and meaningful predictions than data sets with failure alone. Such an approach to safety data collection, analysis, and prediction could be used by future researchers to generate new insights into the causes of serious incidents and the relationships among causal factors.

Overton CE, Abbey R, Baird T, Christie R, Daniel O, Day J, et al. Identifying employee, workplace and population characteristics associated with COVID-19 outbreaks in the workplace: a population-based study. Occupational & Environmental Medicine. 2024; 81(2):92-100.
https://doi.org/10.1136/oemed-2023-109032 [open access]
Abstract: OBJECTIVES: To identify risk factors that contribute to outbreaks of COVID-19 in the workplace and quantify their effect on outbreak risk. METHODS: We identified outbreaks of COVID-19 cases in the workplace and investigated the characteristics of the individuals, the workplaces, the areas they work and the mode of commute to work, through data linkages based on Middle Layer Super Output Areas in England between 20 June 2021 and 20 February 2022. We estimated population-level associations between potential risk factors and workplace outbreaks, adjusting for plausible confounders identified using a directed acyclic graph. RESULTS: For most industries, increased physical proximity in the workplace was associated with increased risk of COVID-19 outbreaks, while increased vaccination was associated with reduced risk. Employee demographic risk factors varied across industry, but for the majority of industries, a higher proportion of black/African/Caribbean ethnicities and living in deprived areas, was associated with increased outbreak risk. A higher proportion of employees in the 60-64 age group was associated with reduced outbreak risk. There were significant associations between gender, work commute modes and staff contract type with outbreak risk, but these were highly variable across industries. CONCLUSIONS: This study has used novel national data linkages to identify potential risk factors of workplace COVID-19 outbreaks, including possible protective effects of vaccination and increased physical distance at work. The same methodological approach can be applied to wider occupational and environmental health research

Syamlal G, Kurth LM, Blackley DJ, Dodd KE, and Mazurek JM. Sex differences in COVID-19 deaths, by industry and occupation, 2021. American Journal of Preventive Medicine. 2024; 66(2):226-234. https://doi.org/10.1016/j.amepre.2023.09.024

Abstract: INTRODUCTION: The COVID-19 pandemic has disproportionately impacted workers in certain industries and occupations. The infection risk for SARS-CoV-2 and future respiratory viruses in the workplace is a significant concern for workers, employers, and policymakers. This study describes the differences in COVID-19 mortality by sex and industry/occupation among working-age U.S. residents in 49 states and New York City. METHODS: The 2021 National Vital Statistics System public use multiple-cause-of-death data for U.S. decedents aged 15-64 years (working age) with information on usual industry and occupation were analyzed in 2022. Age-standardized COVID-19 death rates for selected demographic characteristics and adjusted proportional mortality ratios were estimated by sex and usual industry and occupation. RESULTS: In 2021, 133,596 (14.3%) U.S. decedents aged 15-64 years had COVID-19 listed as the underlying cause of death; the highest COVID-19 death rate was among persons aged 55-64 years (172.4 of 100,000 population) and males (65.5 of 100,000 population). Among males and females, American Indian or Alaskan Native and Black or African American, respectively, had the highest death rates. Hispanic males had higher age-adjusted death rates than Hispanic females. Working-age male decedents in the public administration (proportional mortality ratio=1.39) and management of companies and enterprises industries (proportional mortality ratio=1.39) and community and social services occupations (proportional mortality ratio=1.68) and female decedents in the utilities industry (proportional mortality ratio=1.20) and protective services occupation (proportional mortality ratio=1.18) had the highest proportional mortality ratios. CONCLUSIONS: COVID-19 death rates and proportional mortality ratios varied by sex, industry, and occupation groups. These findings underscore the importance of workplace public health interventions, which could protect workers and their communities

Turati F, Rossi M, Spinazze A, Pira E, Cavallo DM, Patel L, et al. Occupational asbestos exposure and ovarian cancer: updated systematic review. Occupational Medicine. 2023; 73(9):532-540. https://doi.org/10.1093/occmed/kqad122

Abstract: Background: The association between asbestos exposure and ovarian cancer has been questioned given the possible misdiagnosis of peritoneal mesothelioma as ovarian cancer. Aims: To update a systematic review on ovarian cancer risk in women occupationally exposed to asbestos, exploring the association with the time since first exposure and the duration of exposure. Methods: We searched PubMed from 2008 onwards, screened previous systematic reviews, combined standardized mortality ratios (SMR) using random effect models and quantified heterogeneity using the I2 statistic. To assess tumour misclassification, we compared the distribution of observed excess ovarian cancers (OEOC) to that expected (EEOC) from the distribution of peritoneal cancers in strata of latency and exposure duration. Results: Eighteen publications (20 populations), including a pooled analysis of 21 cohorts, were included. The pooled SMR was 1.79 (95% confidence interval 1.38-2.31), with moderate heterogeneity between studies (I2 = 42%), based on 144 ovarian cancer deaths/cases. The risk was increased for women with indirect indicators of higher exposure, longer duration and latency, and lower for chrysotile than for crocidolite exposure. The effect of duration and latency could not be completely disentangled, since no multivariate analysis was available for time-related variables. The dissimilarity index between OEOC and EEOC for the time since first exposure was small suggesting a similar pattern of risk. Conclusions: While some misclassification between ovarian and

peritoneal cancers cannot be excluded, the observed excess risk of ovarian cancer should be added to the overall disease burden of asbestos.

Viswanathan K, Johnson MS, and Toffel MW. Do safety management system standards indicate safer operations? Evidence from the OHSAS 18001 occupational health and safety standard. Safety Science. 2024; 171:106383.
https://doi.org/10.1016/j.ssci.2023.106383

Weaver B, Kirk-Brown A, Goodwin D, and Oxley J. Perceptions of psychosocial safety behaviour (PSB): qualitative insights on workplace psychosocial safety perceptions & actions within a policing context. Safety Science. 2024; 172:106401.
https://doi.org/10.1016/j.ssci.2023.106401

Yrjo TT, Keren N, Cena L, Simpson SA, and Stone RT. Enhancing risk assessment skills in hazardous environments: priming with a serious game approach. Safety Science. 2024; 172:106402.
https://doi.org/10.1016/j.ssci.2023.106402

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