

IWH Research Alert
October 30, 2020

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Research Alert is a service provided to you by the Institute for Work & Health (IWH) to help you keep abreast of recent literature in the areas of occupational health and safety, epidemiology, public health and others within the IWH mandate. Please note that these articles have not been reviewed by Institute scientists to assess the quality of the studies. *Research Alerts* should not be considered an endorsement of the findings. Readers are cautioned not to act on the results of single studies, but rather to seek bodies of evidence. It should also be noted that the Institute for Work & Health cannot provide full-text of articles listed in *Research Alerts* to individuals outside of the organization, as this violates copyright legislation.

Van den Brande W, Baillien E, Vander Elst T, De Witte H, and Godderis L. Coping styles and coping resources in the work stressors: workplace bullying relationship: a two-wave study. *Work and Stress*. 2020; 34(4):323-341.

<https://doi.org/10.1080/02678373.2019.1666433>

Cha ES, Zablotska LB, Bang YJ, and Lee WJ. Occupational radiation exposure and morbidity of circulatory disease among diagnostic medical radiation workers in South Korea. *Occupational and Environmental Medicine*. 2020; 77(11):752-760.

<https://doi.org/10.1136/oemed-2019-106326>

Abstract: OBJECTIVES: We investigated the association between low-dose external occupational radiation exposure and circulatory disease morbidity among diagnostic medical radiation workers. METHODS: A cohort of 11 500 diagnostic medical radiation workers was linked with the National Dosimetry Registry data and the National Health Insurance Service data. Relative risks (RRs) were calculated to explore the association between occupational factors and circulatory disease morbidity, and excess relative risks per 100



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milligray (ERR/100 mGy) were estimated to quantify the radiation dose-response relationship. RESULTS: Overall, there were 2270 cases of circulatory diseases during 93 696 person-years of observation (average follow-up=8.1 years). RRs for hypertension were significantly increased for individuals who started working before 2000 compared with those who started in 2005 and later. ERR/100 mGy for all circulatory diseases was 0.14 (95% CI -0.57 to 0.99). Radiation risks of cerebrovascular diseases and ischaemic heart disease were non-significantly increased with estimates of individual cumulative doses to the heart (ERR/100 mGy=3.10 (-0.75 to 11.59) and 1.22 (-0.71 to 4.73), respectively). However, ERR estimates were generally more strongly positive for female versus male workers and for younger workers versus more than 50-year-old workers. CONCLUSIONS: This study provides little evidence in support of a positive association between occupational radiation exposure and the overall risk of circulatory disease over a short follow-up period among medical radiation workers in South Korea. However, significantly increased RR with earlier year first worked, elevated ERR in female workers and young workers should be further followed up

Gaillard A, Sultan-Taieb H, Sylvain C, and Durand MJ. Economic evaluations of mental health interventions: a systematic review of interventions with work-focused components. Safety Science. 2020; 132:104982.

<https://doi.org/10.1016/j.ssci.2020.104982>

Jesus TS, Landry MD, and Jacobs K. A 'new normal' following COVID-19 and the economic crisis: using systems thinking to identify challenges and opportunities in disability, telework, and rehabilitation. Work. 2020; 67(1):37-46.

<https://doi.org/10.3233/WOR-203250>

Abstract: BACKGROUND: The novel coronavirus (COVID-19) that emerged in late 2019, and later become a global pandemic, has unleashed an almost unprecedented global public health and economic crisis. OBJECTIVE: In this perspective, we examine the effects of COVID-19 and identify a likely 'new normal' in terms of challenges and opportunities within the fields of disability, telework, and rehabilitation. METHODS: We use a systems thinking lens



informed by recent empirical evidence and peer-reviewed qualitative accounts regarding the pandemic to identify emerging challenges, and pinpoint opportunities related to health and changing employment infrastructure of people with disabilities and rehabilitation professionals. RESULTS: From our interpretation, the key leverage points or opportunities include: (1) developing disability-inclusive public health responses and emergency preparedness; (2) enabling employment and telework opportunities for people with disabilities; (3) addressing the new requirements in rehabilitation service provision, including participating as essential team members in the care of people with infectious diseases such as COVID-19; (4) embracing the added emphasis on, and capacity for, telehealth; and (5) developing greater resilience, distance learning, and employability among the rehabilitation workforce. CONCLUSIONS: The COVID-19 pandemic has become increasingly challenging to the lives of people with disabilities and rehabilitation professionals; however, key challenges can be minimized and opportunities can be capitalized upon in order to 'build back better' after COVID-19

Karlsson EA, Seing I, Sandqvist J, and Stahl C. Communication characteristics between clients and stakeholders within the Swedish sickness insurance system: a document analysis of granted and withdrawn sickness benefit claims. Disability and Rehabilitation. 2020; 42(23):3316-3326.

<https://doi.org/10.1080/09638288.2019.1592247>

Abstract: Purpose: The purpose of this study was to investigate how communication within the Swedish sickness insurance system differs between cases of sick leave and how this may affect clients' cases. Materials and methods: This was a document study using 30 client files from the Swedish Social Insurance Agency (SIA). The clients included had been on a work ability evaluation during their sick leave spell and were aged 32-64 years. The material was analyzed using qualitative document analysis. Results: The results show different approaches to communication, characterized by emotional argumentation, matter-of-fact driven argumentation and information exchange, which have diverse success in affecting official decisions. Arguments characterized by emotions such as frustration or desperation are to a larger extent neglected by the authorities compared to those characterized by a matter-of-fact driven approach



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and referring to regulations and medical certificates. Conclusion: There are differences regarding how clients and stakeholders communicate the clients' needs and pre-requisites, and how this affects official decisions. Further research must be carried out in order to establish social insurance literacy, initially for individuals on sick leave within the sickness insurance system, and whether there are differences between diverse groups that could lead to injustices. Implications for rehabilitation Within a social insurance context, professionals need to provide clients with adequate and individually adapted information in order for procedures to be perceived as comprehensible and manageable by the clients. The support from stakeholders such as the treating physician and/or employer can affect clients' sick-leave process. Clients' treating medical professionals can contribute to ensuring that clients rights are met by communicating the clients' needs to other stakeholders in a formal way

Kaur M, Goyal P, and Goyal M. Individual, interpersonal and economic challenges of underemployment in the wake of COVID-19. Work. 2020; 67(1):21-28.

<https://doi.org/10.3233/WOR-203249>

Abstract: BACKGROUND: COVID-19 has caused economic slowdown all across the globe. It results in job loss on the one hand and less wages, increased working hours, overqualified employees and part time jobs on the other hand. Low demand of labour and a huge availability of work force will put many in a disadvantageous position, where they will have to compromise with the circumstances by being underemployed. Cabinet decisions, by some Indian states like Uttar Pradesh, to suspend the labour laws related to minimum wage, bonus, working hours and other employee benefits will put workers in a highly disadvantageous position of being underemployed. This may lead to many socio-economic, psychological and health-related implications. OBJECTIVE: The aim of this paper is to provide a comprehensive review on the concept of underemployment, its types and consequences. METHODOLOGY: A critical and constructive analysis of the literature was performed. RESULTS: The findings reveal that if employment does not provide workers with proper opportunities to use their education, time, skills and expertise, it can create stressful situations in workers' lives.



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CONCLUSION: The problem needs both a diagnosis and robust treatment in order to have better outcomes at the individual, organisational and national levels

Lilley R, Maclennan B, Davie G, McNoe BM, Horsburgh S, and Driscoll TR. Decade of variable progress: trends in fatal injury in workers in New Zealand from a national observational study. Occupational and Environmental Medicine. 2020; [epub ahead of print].

<https://doi.org/10.1136/oemed-2020-106812>

Abstract: INTRODUCTION: Analyses of secular trends in work-related fatal injury in New Zealand have previously only considered the total working population, potentially hiding trends for important subgroups of workers. This paper examines trends in work-related fatalities in worker subgroups between 2005 and 2014 to indicate where workplace safety action should be prioritised. METHODS: A dataset of fatally injured workers was created; all persons aged 15-84 years, fatally injured in the period 2005-2014, were identified from mortality records, linked to coronial records which were then reviewed for work relatedness. Poisson regression modelling was used to estimate annual percentage change in rates by age, sex, ethnicity, employment status, industry and occupation. RESULTS: Overall, worker fatalities decreased by 2.4% (95% CI 0.0% to 4.6%) annually; an average reduction of 18 deaths per year from baseline (2005). Significant declines in annual rates were observed for younger workers (15-29 and 30-49 years), indigenous Maori, those in the public administration and service sector, and those in community and personal service occupations. Increases in annual rates occurred for workers in agriculture and forestry and fisheries sectors and for labourers. Rates of worker deaths in work-traffic settings declined faster than in workplace settings. DISCUSSION: Although overall age-standardised rates of work-related fatal injury have been declining, these trends were variable. Sources of injury risk in identifiable subgroups with increases in annual rates need to be urgently addressed. This study demonstrates the need for regular, detailed examination of the secular trends to identify those subgroups of workers requiring further workplace safety attention



Morris ZA. Examining the relevance of employment integration policies on disability benefit receipt: a multilevel analysis of older working age adults in 16 countries. Disability and Rehabilitation. 2020; 42(23):3339-3347.

<https://doi.org/10.1080/09638288.2019.1593521>

Abstract: Purpose: Nearly all advanced economic countries have adopted employment integration policies to improve the labor market outcomes of workers with disabilities and to reduce enrollment on disability benefits. To date, research has yet to investigate whether the adoption of integration policies is associated with a reduced likelihood of an older working age adult receiving disability benefits. **Materials and methods:** This study, drawing on data of older working-age adults from the Survey of Health Ageing and Retirement in Europe, the English Longitudinal Study of Ageing, and the Health and Retirement Study, applies multilevel logistic regression to investigate the relationship between country-level integration policies and the likelihood of disability benefit receipt in 16 OECD countries. **Results:** No clear association was identified between the adoption of major integration policies (comprehensiveness of vocational rehabilitation systems, employer obligation policies, work-incentive rules, benefit suspension options, and early intervention efforts) and an individual's likelihood of receiving disability benefits. The minimum level of disability required to receive benefits was, however, identified as a significant country-level factor. **Conclusions:** The findings of this study may prove useful for policy makers who must weigh the costs and benefits of expanding integration measures targeted at those nearing the state pension age. **Implications for Rehabilitation** Many countries have adopted integration policies to improve employment outcomes of adults with work-disabilities. No clear association is identified between the adoption of integration policies and a reduced likelihood of receiving disability benefits among older adults in 16 countries. The strictness of the definition of disability used to determine eligibility is identified as a significant country-level predictor. Policy makers should carefully weigh the costs and benefits of expanding integration measures targeted at those nearing the state pension age

Nazari G, MacDermid JC, Sinden K, D'Amico R, Brazil A, Carleton N, et al. Prevalence of exposure to critical incidents in firefighters across Canada. Work. 2020; 67(1):215-222.



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<https://doi.org/10.3233/WOR-203267>

Abstract: **BACKGROUND:** Firefighters partake in and are exposed to a range of potentially traumatic events throughout their careers and the impact of such critical events could last a life time. Therefore, capturing such lifetime exposures is necessary for supporting firefighter health. **OBJECTIVE:** To estimate the prevalence of critical incidents in firefighters across Canada and determine whether the number of critical events varied based on age, gender, years of service; and to integrate our prevalence estimates using meta-analysis with previous studies to provide a pooled estimate. **METHODS:** We recruited 464 firefighters. Firefighters were asked to complete a self-report Critical Incident Inventory (CII) survey that included questions on exposure to critical events throughout their firefighting careers. Individual CII items were summarized as percentages, number of exposures, the total number and percentages of exposures to each of the six CII sub-scales. We also performed a multivariate enter regression analysis with the CII total score as dependant variable, and age, gender, years of service as independent variables, to estimate if the number of critical incidents among firefighters varied based on age, gender and years of service. **RESULTS:** Among the 390 full-time firefighters, 376 (96.4%) indicated exposure to some type of critical incident. More specifically, 351 (90%) reported a "respond to incident involving one or two deaths", and 314 (81%) reported a "respond to incident involving multiple serious injuries". Age, gender and years of service accounted for only 37.4% of the variance in the number of critical incidents among firefighters. In addition, our pooled estimate results of previous similar studies indicated an overall prevalence estimate of critical incident exposures was 93.40% (4 studies, 1725 of 1877 firefighters, 95% CI: 82.26 -99.30). **CONCLUSIONS:** Nearly all (96.4%) firefighters were exposed to some form of critical event over the span of their entire firefighting careers. Age, gender and years of service accounted for one-third of the variance in the number of critical incident exposures among firefighters

Nazari G, MacDermid JC, Sinden K, and D'Amico R. Prevalence of musculoskeletal symptoms among Canadian firefighters. Work. 2020; 67(1):185-191.

<https://doi.org/10.3233/WOR-203264>



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Abstract: **BACKGROUND:** Musculoskeletal symptoms (MSSs) remain the most frequently reported type of injuries sustained during fire-ground operations in firefighters. However, there is a paucity of reports concerning the prevalence estimates of MSSs among female firefighters and different fire services across Canada. **OBJECTIVES:** To assess the point prevalence of self-reported MSSs, stratified by age and sex in a cohort of active duty firefighters from across Canada, and to determine whether age, sex or length of service can be used to predict the likelihood of the number of MSSs sustained. **METHODS:** We recruited 390 firefighters (272 males, 118 females). To identify the prevalence of self-reported rates of MSSs, firefighters were asked to complete a standardized 11-item questionnaire that asked, "Please indicate whether you have experienced pain in any body region within the last week", with response options that included "Yes", "No", and "Head", "Neck", "Shoulder", "Arm/Elbow/Hand", "Back", "Stomach/Abdomen", "Upper Thigh", "Knee", "Lower Leg", "Foot", "Other, please specify". **RESULTS:** Among the 390 full-time firefighters, 212 (54%) indicated to have experienced some type of MSSs within the last week. The most prevalent region-specific MSSs included, 123 (32%) in the back region, 92 (24%) in the shoulder region, 74 (19%) in the neck region and 70 (18%) in the knee region. In addition, women indicated a 1.6 times greater likelihood of sustaining ≥ 2 MSSs when controlling for individual differences in age and years of service. **CONCLUSIONS:** The point prevalence of MSSs in a cohort of full-time firefighters was 54% (55% males; 53% females). Women experienced a 1.4-1.6 times greater likelihood of sustaining MSSs when controlling for individual differences in age and years of service

Qian J, Zhang W, Qu Y, Wang B, and Chen M. The enactment of knowledge sharing: the roles of psychological availability and team psychological safety climate. *Frontiers in Psychology*. 2020; 11:551366.

<https://doi.org/10.3389/fpsyg.2020.551366> [open access]

Abstract: Scholars have made great efforts to investigate the antecedents of knowledge sharing. In the current study, we applied the proactive motivation model (Parker et al., 2010) to propose a theoretical model to advance this research line and examined the relationship between coaching and knowledge sharing. A total of 197



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subordinates embedded in 32 teams from a logistics company completed the survey questionnaire. Our results show that leaders' coaching behavior is positively related to employees' knowledge sharing behavior through increased psychological availability. Furthermore, our results show that the team psychological safety climate can strengthen the effect of psychological availability on employees' knowledge sharing behavior, as well as the indirect effect of leaders' coaching behavior on employees' knowledge sharing via psychological availability (i.e., a moderated mediation effect)

von Schroeder HP, Xue CR, Yak A, and Gandhi R. Factors associated with unsuccessful return-to-work following work-related upper extremity injury. Occupational Medicine. 2020; 70(6):434-438.

<https://doi.org/10.1093/occmed/kqaa106>

Abstract: BACKGROUND: Returning to work following occupational injury is a key outcome for both workers' compensation boards and injured workers. Predictive factors for returning remain unclear. AIMS: To describe factors associated with unsuccessful return-to-work (RTW) in a hand injury population to identify target areas through which occupational rehabilitation programmes can help injured workers achieve successful RTW outcomes. METHODS: Demographic data, functional, pain and psychosocial scores were recorded for injured workers discharged between April 2011 and September 2015 from a multidisciplinary upper extremity treatment programme. The primary outcome of RTW status was assessed at programme discharge. Bivariate analyses and multivariable logistic regression were used to identify factors associated with being unable to RTW. RESULTS: Of 872 participants who met the inclusion criteria, 65% were male and the mean age was 46 (standard deviation [SD] 11) years. In unadjusted bivariate analyses, the group with an unsuccessful RTW outcome had higher mean baseline pain, catastrophizing and QuickDASH scores; a higher baseline prevalence of depression, and reported a high level of pain more frequently than those who were working at discharge. In the adjusted logistic regression model, not working at baseline, higher QuickDASH score and presence of depression at baseline were independently associated with unsuccessful work status outcome. CONCLUSIONS: Negative baseline work status, greater self-reported functional



disability and presence of depression were associated with greater odds of unsuccessful RTW following a workplace upper extremity injury. Integrating mental healthcare provision with occupational rehabilitation is a potential programmatic approach to improve RTW

Syed S, Ashwick R, Schlosser M, Jones R, Rowe S, and Billings J. Global prevalence and risk factors for mental health problems in police personnel: a systematic review and meta-analysis. Occupational and Environmental Medicine. 2020; 77(11):737-747. <https://doi.org/10.1136/oemed-2020-106498>

Abstract: Police face an increased risk of developing mental health problems, yet reliable estimates of their psychological difficulties remain unknown. This systematic review and meta-analysis estimate the pooled prevalence and risk factors for mental health problems among police personnel worldwide. Three independent reviewers searched 16 databases and screened 11 506 articles published between January 1980 and October 2019. Eligible studies involved at least 100 active police professionals and used validated instruments to ascertain specific mental health problems. Estimates were pooled using random-effects meta-analyses. In total, 60 cross-sectional and seven longitudinal studies, involving 272 463 police personnel from 24 countries met criteria for inclusion. The overall pooled point prevalence was 14.6% for depression (95% CI 10.9% to 18.6%), 14.2% for post-traumatic stress disorder (PTSD; 95% CI 10.3% to 18.7%), 9.6% for a generalised anxiety disorder (95% CI 6.7% to 12.9%), 8.5% for suicidal ideation (95% CI 6.1% to 11.2%), 5.0% for alcohol dependence (95% CI 3.5% to 6.7%) and 25.7% for hazardous drinking (95% CI 19.6% to 32.4%). The strongest risk factor for depression and suicidal ideation was higher occupational stress, and the strongest risk factors for PTSD were higher occupational stress and avoidant coping strategies. Higher levels of peer-support were associated with significantly lower PTSD symptoms. Our findings suggest that the prevalence of mental health problems among police exceeds twice that previously reported in mixed samples of first responders, and is associated with poor social support, occupational stress and maladaptive coping strategies. Without effective intervention, psychological difficulties will remain a substantial health concern among police.



Venugopal V, Roberts AC, Kwok KW, Christopoulos GI, and Soh CK. Employee experiences in underground workplaces: a qualitative investigation. Ergonomics. 2020; 63(11):1337-1349.

<https://doi.org/10.1080/00140139.2020.1780306>

Abstract: Underground workplaces (UWS) are increasingly being recognised as a sustainable solution to concerns regarding lack of space facing megacities. UWS can multiply available space by reducing urban sprawl thereby improving quality of life in cities. However, developing workplaces that respond to the needs and preferences of occupants will be a crucial factor in determining the success of this concept. We examine the experiences of existing full-time employees of a large underground facility in North America and analyse how these are related to company policies and other organisational factors. From in-depth interviews of 73 participants, three predominant themes emerged from the analyses: environmental effects (e.g. lack of sunlight), design (e.g. the unique working environment), and organisational factors and social dynamics (e.g. policies regarding breaks). We discuss these themes in relation with interventions that may improve employee comfort and retention and suggest that many factors are within organisational control. Practitioner Summary: Underground workplaces are a sustainable solution to lack of urban space. However, developing effective workplaces is crucial to their success. We examine the experiences of existing employees of an underground facility in North America. We suggest that most negative attitudes towards underground spaces can be mitigated through simple organisational interventions. Abbreviations: UWS: underground workplaces; IRB: institutional review board

Wise JM, Heaton K, and Shattell M. Mindfulness, sleep, and post-traumatic stress in long-haul truck drivers. Work. 2020; 67(1):103-111.

<https://doi.org/10.3233/WOR-203256>

Abstract: BACKGROUND: The high stress culture and demands associated with long-haul truck driving place truckers at risk for mental health and sleep disorders, and thereby, increased risk for accidents, injuries, and fatality. Hours-of-service regulations have proven insufficient as a stand-alone intervention to protect the welfare of long-haul truckers, impacting those working in the industry and



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those sharing our nation's roads. Interventions to increase mindfulness have been used across occupational and personal domains to improve sleep quality, mental health, awareness of the environment, and reaction time. **OBJECTIVE:** The purpose of this study was to examine the relationships between sleep, mental health, health care utilization, and mindfulness in long-haul truck drivers in the United States. **METHODS:** Participants (N=40) were recruited to complete a web-based survey. Descriptive statistics, bivariate analysis, and regression analysis were used to examine variables of interest. **RESULTS:** Post-traumatic Stress Disorder (PTSD) symptomology and daytime sleepiness predicted mental health care utilization in the past year. Mindfulness was inversely correlated with PTSD symptomology, however in the full regression model, mindfulness failed to predict mental health care utilization. **CONCLUSIONS:** Occupational health professionals should utilize mindfulness screenings as an adjunctive component to traditional mental health screenings and refer drivers for advanced care as appropriate

