



Contents lists available at ScienceDirect

Injury

journal homepage: www.elsevier.com/locate/injury



The nature and burden of occupational injury among first responder occupations: A retrospective cohort study in Australian workers

Shannon E. Gray*, Alex Collie

Insurance Work and Health Group, Faculty of Medicine Nursing and Health Sciences, Monash University, Melbourne, Australia

ARTICLE INFO

Keywords:

Injury
Compensation
Emergency services
Occupational health
Policy
Ambulance

ABSTRACT

Introduction: Workers in first responder (FR) occupations are at heightened risk for workplace injury given their exposure to physical/psychological hazards. This study sought to (1) characterise the occupational risk of injury; (2) determine factors associated with injury; and (3) characterise the burden of injury-related disability in police, ambulance officers, fire/emergency workers, compared with other occupations.

Methods: A retrospective cohort of 2,439,624 claims occurring between July 2003 and June 2012 was extracted from the Australian National Dataset for Compensation-Based Statistics. Cases aged 16–75 years working 1–100 pre-injury hours per week were included. Regression models estimated risk of making a workers' compensation (WC) claim by age, gender, occupation and injury type. Injury burden was calculated using count and time loss, and statistically compared between groups.

Results: The risk of making a WC claim among FR occupations was more than 3 times higher than other occupations. Risk of claiming was highest among female FRs and those aged 35–44 years. Ambulance officers had the greatest risk of upper-body MSK injuries and fire and emergency workers the greatest risk of lower-body MSK injuries. The risk of mental health conditions was elevated for all FR occupations but highest among police officers. The total burden of injury (expressed as working weeks lost per 1000 workers) differed significantly between groups and was highest amongst police.

Discussion and conclusions: First responders record significantly higher rates of occupational injury claims than other occupations. Using a national population based dataset, this study demonstrates that not only are first responders exposed to significantly higher rates of occupational injury than all other occupations combined, but they experience differential injury patterns depending on their occupation. This suggests that among FR occupations injury prevention efforts should reflect these differences and be targeted to occupation-specific patterns of injury.

© 2017 Elsevier Ltd. All rights reserved.

Introduction

Workers in first responder (FR) occupations, including police officers, fire fighters, emergency service workers, and ambulance officers and paramedics, are often the first workers attending an emergency situation. These occupations respond to medical emergencies, fires, hazardous incidents, alarms, critical incidents, and vehicle accidents. They provide assistance during natural disasters, resolve disputes, investigate crime, and coordinate and assist in search and rescue missions, among others. First responders also help communities prepare for or prevent emergency situations, particularly emergency service workers, and are involved in recovery following adverse incidents.

Workers in these occupations are exposed to a range of physical and psychological hazards that are unique to their roles, and these include heavy lifting, vehicle accidents, physical altercations, direct interaction with drug or alcohol-affected people, and exposure to extreme temperatures, communicable diseases, chemicals, biological factors, trauma and violence [1–3]. These workers are expected to attend emergencies in unfamiliar locations and often do not have a full understanding of the environment, the situation in which they are about to enter or the people with which they must engage. This unpredictability could mean that they are at increased risk of injury. In addition to physical injury hazards, FRs may be exposed to direct or indirect stressors in the workplace. These include witnessing trauma or the suffering of others [4], potentially contributing to mental health consequences. Additionally, FRs regularly work shifts, which can sometimes result in working lengthy and erratic hours, with some studies finding a link between fatigue and increased injury risk [5–7].

* Corresponding author at: 553 St Kilda Rd, Melbourne 3004, Australia.
E-mail address: shannon.gray@monash.edu (S.E. Gray).

Previous research has acknowledged that FRs are at an increased risk for work-related injury and fatality [8,9]. Australian workers compensation claims data demonstrates that ambulance officers had an average rate of 94.6 serious injuries per 1000 workers (those resulting in more than one week time loss), more than seven times the national average [10]. Risk of fatality was six times higher than the national average. Another Australian study compared workers' compensation claims of ambulance officers with other healthcare professionals between 2003 and 2012 in Victoria [11]. This found that there was an upward trend in claim rates and their risk of claiming was significantly higher than other occupations at 102.2 claims per 1000 full-time equivalent (FTE) workers. This study also found that ambulance officers had a significantly higher risk of musculoskeletal (MSK) injuries and mental health conditions (MHC) than other healthcare professionals.

Studies from the United States (US) have also found high injury rates among emergency workers that were consistently above the national average. Maguire and Smith [12] used a nationwide dataset to determine ambulance workers reported 453.8 injuries per 10,000 workers. Other studies that have used administrative data from local ambulance organisations found injury rates varied from 4.5 to 81.2 injuries per 100 FTE workers (average 15.6) [13], and 27.6 to 50.2 per 100 FTE workers, averaging 34.6 [14]. These rates were higher than a self-report study that observed an injury rate of 8.1 injuries per 100 workers [14]. Injury rates among firefighters were also high at 8.9 to 34.3 injuries per 100 FTE workers (average 18.6) [1]. Suyama et al. stated that ambulance workers had higher injury rates than police and fire fighters [15], however another study found among first responders requiring treatment in an emergency department, police and firefighters had higher injury rates (8.5 and 7.4 injuries per 100 FTE workers, respectively) than ambulance workers [3]. The risk of occupational-related fatality is also elevated for first responders, yet it has been found to be similar between emergency personnel [16].

Injury to FRs also impacts their colleagues, employers and the community. High injury rates among emergency workers may be associated with a high employee turnover rate, increased staff absence, or a shortened career span [1]. Aside from the obvious negative impacts to FRs, all of these factors could lead to a reduction in the quality of emergency response provided to the community, which could therefore adversely impact those relying on their assistance [9]. In contrast to the numerous reports of injury rates, there is very little information regarding the duration of time lost to injury and illness among FRs. Estimates of work disability duration are an important indicator of injury burden and can help to characterise the true impact of work-related conditions.

The objectives of this study are to (1) characterise the occupational risk of injury among first responders across whole of Australia compared to other occupations; (2) determine factors associated with injury in FRs, in particular aspects of their personal characteristics and type of condition; and (3) characterise the burden of disability arising from injury in FRs compared to other occupations.

Methods

Setting

The vast majority of Australia's labour force (approximately 11.9 million in early 2016) are covered by compulsory workers' compensation (WC) insurance regulated by state, territory and Commonwealth government authorities, which provides coverage should a work-related injury or illness occur [17]. There are nine major workers' compensation schemes in Australia, typically

organised geographically by state or territory, with one major national scheme that covers Commonwealth government employees, government employees of the Australian Capital Territory and more than 30 large national companies.

Work-related conditions that are eligible for compensation include acute conditions such as fractures due to a fall, diseases resulting from exposure to biological or chemical agents, and gradual onset or chronic conditions such as back pain. Additionally, jurisdictions can accept 'psychological injury' claims where work or its conditions were a major contributor to a mental health condition.

Injured workers can receive benefits in the form of income replacement, medical expenses or rehabilitation services for their period off work, where reasonable and necessary. Additionally, those who have sustained a permanent impairment or disability may also be eligible to receive lump sum payments.

There are some major and important differences between Australian WC schemes concerning employer excess periods, the duration and rate of income replacement, and the insurance-regulation function relationship, and these have been outlined elsewhere [18].

Data

The COMPARE (COMPensation Policy And Return-to-work Effectiveness study) dataset, a version of the National Dataset for Compensation-Based Statistics that has been compiled by SafeWork Australia to include WC claims from all nine Australian schemes, was used for analysis and has previously been described [18,19].

Cases were restricted to the nine-year period from July 2003 to June 2012 (financial years 2004–2012) to allow a minimum 2-year follow-up. Only claimants aged 16–75 years with normal weekly working hours prior to injury between one and 100h were included. Duplicate cases were removed, as were those with missing occupation information. The dataset does not include injury claims from the Western Australia Police Force, as police officers in Western Australia are not covered under that state's workers' compensation legislation. All cases from South Australia were removed for the 2009 and 2010 years as data quality assurance identified inconsistencies in occupational classification during these years. This resulted in a loss of 52,421 claims or 2.1% of all cases in the dataset. The final number of cases available for analysis was 2,439,624.

Cases were then separated based on their 4-digit Australian and New Zealand Standard Classification of Occupation [20] codes into 'Ambulance Officers & Paramedics' (code 4111), 'Fire & Emergency Workers' (4412), 'Police' (4413) and 'All other occupations' (remaining codes).

The type of condition coding, which is a modified version of the Type of Occurrence Classification System (TOOCS) version 3, was generated by the research team to account for both differences in coding between jurisdictions and coding changes within jurisdictions over time [21] (see Table 1).

Musculoskeletal conditions were further categorised based on affected body region into upper (including the back), lower and other or multiple body regions for some analyses. The denominator data of the number of covered (insured) workers was provided by Safe Work Australia aggregated by financial year, occupation, gender and age group to calculate the incidence of claims, and has been used previously [19].

Analysis

The distribution of WC claims across occupation groups were characterised using descriptive statistics over the nine-year period.

Download English Version:

<https://daneshyari.com/en/article/8719011>

Download Persian Version:

<https://daneshyari.com/article/8719011>

[Daneshyari.com](https://daneshyari.com)