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A RETROSPECTIVE ANALYSIS OF WORKPLACE INCIDENTS DATA AMONG ENVIRONMENTAL HEALTH OFFICERS (EHOS) COLLECTED FROM 73 LOCAL GOVERNMENTS

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ABSTRACT

Objective: This study investigated the occurrence of work-related incidents and illnesses among Environmental Health Officers (EHOs) in Australia. The objectives were to determine frequency and severity of workplace incidents among EHOs, to understand the mechanism of incidents, and to compare data with other health professionals and the national trend.

Method: A questionnaire was sent to Australian Local Governments (LGs), to collect data on specific incidents related to their EHO workforce.

Results: The most common mechanisms of workplace incidents were vehicle accidents (28%), followed by mental stress (16%) and slips, trips and falls (15.3%). There was a positive relationship between the number of full-time EHOs employed by LGs and the occurrence of workplace incidents, (One-way Anova, p=0.04).

Conclusion: The trend of workplace incidents among EHOs are akin to that of the general Australian workforce. The information obtained from this study provides a catalyst for further research into EHOs workplace health.

Keywords: *Workplace incidents, Environmental Health Officer, Local Government, Occupational Health and Safety*

1. Introduction

As frontline public health professionals, Environmental Health Officers (EHOs) are subject to various workplace exposures and hazards associated with operating in challenging and stressful working environments (Dine et al., 2021). They are entrusted with vital and sometimes precarious roles, to protect the community against a myriad of environmental health and safety risks (Al-Obaidi & Fletcher, 2014; Kuhn et al., 2021; Morse et al., 2020; Rodrigues et al., 2021; Stewart, 2000). While there are general statistics available on workplace injuries and illnesses for healthcare professionals and other occupations in Australia (Safe Work Australia), there are no statistics that specifically to the Environmental Health (EH) profession, despite an extensive search of the literature. The role of EHOs has been the key to historical (Brimblecombe, 2003; Hamlin & Sheard, 1998; Parkinson, 2013) and contemporary (Burke et al., 2002; Musoke et al., 2016) improvements in public health, but it is often misunderstood and devalued, even amongst other public health agencies and other health professionals (Kotchian, 1997; Smith et al., 2021; Whiley et al., 2019).

This study investigates the occurrence of work-related incidents and exposure risks among EHOs in Australia. The objectives were to determine the prevalence and magnitude of workplace

injuries among EHOs; to understand the mechanism of incidents; and to compare and contrast the data collected with the Australian national workplace injury data. While EHOs are public health professionals in their own right; their non-infirmary workplace setting, and versatile public health function, sets them apart from other health professionals and public health agencies. Another aspect of this study was to explore whether this distinctive work arrangement of EHOs' subjects them to workplace exposures not documented among other health professionals. Information obtained from this study will be useful in the development of Occupational Health and Safety (OHS) policies and preventative programs aimed at the management of OHS issues specifically addressing the needs of the environmental health profession.

In the United Kingdom (UK) and many Commonwealth countries, including Australia, (Dhesi & Stewart, 2015), as well as in the United States of America (USA) (Greenberg, 2020), Local Governments (LGs) are the primary employers of EHOs, who are legislated to implement numerous functions under various Public Health Acts and Regulations (Smith et al., 2021).

Local Government is one of the most versatile industries in Australia, employing workers from different specialized backgrounds including: engineers, vehicle mechanics, parks workers, heavy vehicle operators, community workers, town planners, building surveyors, administrative officers, librarians, ranger officers etc. Environmental Health is a key area of LGs services that enable every local authority to fulfill its statutory obligations under relevant public health legislation and standards.

There are 537 LG agencies in Australia, of which approximately 65% are regional or rural councils (ALGA - Australian Local Government Association, 2021). The functions of EHOs in LG agencies varies slightly depending on whether the LG authority is situated in a metropolitan, regional, or rural area. The metropolitan Council's EHOs focus mainly on monitoring or mitigating those factors in the environment that can potentially impact on human health. Whereas regional and rural EHOs have a versatile role that includes managing land use and the built environment, as most of these smaller regional Councils do not employ town planners and building surveyors.

As an employer, LGs in Australia have a legal responsibility under relevant work health and safety legislation, to keep records relating to injuries and accidents in the workplace (Safe Work Australia, 2015). This is often called a 'Register of Injuries/Accidents'. These records include illness and injury notifications, and worker's compensation claim information. Anyone injured at work, including permanent employees, agency workers, contractors and/or visitors must be recorded. This study involved sourcing and evaluating existing data from the Register of Injuries/Accidents' from LGs to determine the occurrence and trends of workplace incidents related to EHOs.

The Safe Work Australia (SWA) databases do not record workplace injury and illness data specific to EHOs or the EH profession, which was required for this study. Safe Work Australia is the government statutory body responsible for developing national policy relating to Workplace Health and Safety (WHS) and worker's compensation claims and collects data and reports on the prevalence of workers' compensation claims as part its function.

Safe Work Australia collects and codes information about workers' compensation claims using the Australian and New Zealand Standard Classification of Occupations (ANZSCO) (Australian Bureau of Statistics & Statistics New Zealand, 2006). Information about injuries and diseases of claimants is coded using the Type of Occurrence Classification System (TOOCS) (ASCC - Australian Safety and Compensation Council, 2008). There is no specific code for EHO under the ANZSCO system. The EHO profession is grouped in with Occupational Health and Safety Adviser (OHSA) under the category 'Occupational and Environmental Health Professionals' code (2513) (Australian Bureau of Statistics & Statistics New Zealand, 2006).

The workers' compensation claims data available for 'occupational and environmental health professionals' indicates that body stressing (28.3%), followed by falls, trips and slips (25%), and mental stress (11.7%) are the main mechanisms of injury among this code (Safe Work Australia, 2021b). This trend is consistent with the risk perceptions of EHOs in the study conducted in Western Australia; whereby exposure to workplace stress, slips, trips and falls, and biomechanical demands were identified as significant workplace risks for EHOs (Dine et al., 2021).

However, it is not prudent at this stage to make any conclusive correlation, as there is no way of knowing what percentage of these claims are from EHOs. Interestingly, body stressing and falls, trips and slips of a person, have been the main mechanisms of workplace incidents, and the causes of serious workers' compensation claims in Australia over the last 8 years; an increase in mental stress has also been observed in the last two recent national workers' compensation statistics reports (Safe Work Australia).

Despite its limitations (Azaroff et al., 2002), workers' compensation claims data are broadly used as a source of surveillance information for occupational injuries and incidents in Australia (O'Neill et al., 2013). These data are often used to characterize the burden of work-related injuries and illnesses among workers in specific industry and professional groups (Xiang et al., 2020). Workers' compensation claims data has been used to identify causes of injuries that can then be targeted by appropriate prevention programs (Wiatrowski, 2013).

Anecdotal evidence suggests that EHOs generally do not report workplace incidents and seldom lodge a workers' compensation claim. They tend to view occupational risks as part of their job as they are often "first responders" tasked to investigate environmental health issues. This phenomenon is not well understood within the EH profession. For example, despite a relatively high prevalence of violence indicated in the study among EHOs in Western Australia, the level of reporting was relatively low (Dine et al., 2021). Environmental Health Officers are traditionally hidden public health champions, tackling environmental risks while remaining out of the spotlight.

This unpretentious mentality has denied EHOs their rightful place amongst other mainstream public health professionals. Within LGs, the profession is narrowly seen as a legislative burden imposed on Council (Smith et al., 2021), and the work of EHOs are somewhat indiscernible and overlooked (Whiley et al., 2018). A broader understanding of the EH profession by both the public and other entities of council is lacking (Gerding et al., 2019), and has arguably deprived the profession access to resources for workforce development (Gerding et al., 2020). While there have been recent efforts to explore and deal with the challenges faced by EHOs; with the focus to advance and strengthen the profession (Brooks et al., 2019; Gerding et al., 2020; McCormick, 2020; Smith et al., 2021; Walker et al., 2014), there is no reference to the potential workplace exposures and the health and safety of EHOs.

This study addresses a long overdue gap in OHS research. Environmental Health Officers as frontline public health professionals find themselves directly involved in the management and remediation of serious public health issues whereby there is limited regulation and direction in relation to safe work systems and practices. This study places the oldest public health profession in the limelight and provides an opportunity to celebrate and recognise the historical and contemporary work of environmental health practitioners in the advancement and protection of public health.

2. Materials and Method

For this study, a tailored questionnaire was sent to all listed LG organisations in Australia, to collect specific workplace incidents data related to EHOs' from their respective workplace injury/incident registers. A mail list of all listed LG organisations was obtained from the Australian Local Government Association. The survey instrument was developed based on the Type of Occurrence Classification System (TOOCS) (ASCC - Australian Safety and Compensation Council, 2008).

Data collected included the LG type, age and gender of person injured, date of incident, mechanism of incident, and number of EHOs employed. The study collected data for the period 2016 to 2020. This five-year period was determined based on feedback from the survey pre-testing process. A common concern was that the survey would be too onerous to request data over a larger time frame as each individual LG record workplace incident data differently, and not all have a straightforward electronic record system in place. The survey was distributed to all the 537 listed LGs in Australia and potential participants were given 4 weeks to complete the survey.

The research was granted ethics approval by Edith Cowan University Human Research Ethics Committee - REMS NO: 2020-01757-DINE. Descriptive statistics were performed on the data extracted from completed questionnaires. Statistical significance was determined by One-way Anova.

3. Results

Seventy-three (13.6%) of the LGs participated in the survey. This included 21 (28.8%) metropolitan, 23 (31.5%) regional and 29 (39.7%) rural LGs. Greater responses were received from within the state of Western Australia (34.2%), follow by Victoria (19.2%) and South Australia (13.7%).

Collectively, the 73 LGs who participated in the study employed 243 EHOs, 108 (44.4%) males and 135 (55.6%) females at the time of the survey. The metropolitan LG type employed more EHOs 110 (45.3%), compared to regional 89 (36.6%) and rural 44 (18.1%). There were more female EHOs' employed in metropolitan and regional LG's, whereas rural LG's employed more male than female EHOs'. The average number of EHOs employed by a LG was 3.33. The average for male EHOs employed by a LG was 1.48 and female 1.85.

A total of 169 workplace incidents were reported across the 73 LGs from 2016 to 2020. For confidentiality reason, the authors were not able to determine whether there was multiple reporting of incidents by one individual over the 5-year period. The occurrence of incidents was slightly higher in females 90 (53.3%) than in males 79 (46.7%). The average occurrence of workplace incidents were (1.08) for males and (1.23) in females, however the difference was not statistically significant (One-way Anova, p=0.68). The occurrence of workplace incidents was higher for the year 2019 (28%) and 2020 (25%) respectively.

The average number of workplace incidents by LG type were metropolitan (2.76), regional (3.22), and rural (1.28). The difference between occurrence of workplace incidents and LG types was not statistically significant (One-way Anova, p=0.08).

Not all LGs recorded the age of the person reporting an incident. Of the 169 workplace incidents registered across the 73 LGs, only 128 reported the age of the person involved. The occurrence of workplace incidents in this dataset appeared to be higher in age group '30 to 39', '40 to 49' and 50 to 59. Due to this limitation of the dataset, it was not possible to perform further statistical analysis of the age of EHOs and the occurrence of workplace incidents.

There was a positive relationship between the number of full-time EHOs employed by the LG and the occurrence of workplace incidents, (One-way Anova, p=0.04). There was a noted inconsistency for the data on mechanism of workplace incidents. Some LGs recorded the "mechanism" of incident and some the "nature" of injury. Of the 169 report incidents across the 73 LGs, only 150 (89%) of the reported incidents recorded the mechanism of the incidents. Vehicle incidents were the most common 42 (28%) followed by mental stress 24 (16%) and slips, trips and falls 23 (15.3%). Mental stress was most likely to occur among metropolitan EHOs, whereas vehicles incident and falls, trip and slips were more frequent in Rural and Regional EHOs. There were eight (8) successful workers compensation claims, of which one was a serious claim. However, it was not possible to establish whether these cases were directly related to the 168 registered workplace incidents. All report compensation claims were among female EHOs.

4. Discussion

The findings from this study indicate that workplace health and safety is an important issue in the EH profession. The mechanisms of workplace incidents among EHOs are akin to that of the Australian workforce in general. The most common types of workplace incidents were vehicle accidents (28%), followed by mental stress (16%) and slips, trips and falls (15.3%). Similar workplace incident prevention strategies and occupational health and safety management efforts used in other sectors, can be considered for the EH profession. Despite the limitations with the dataset obtained for this study, meticulous analysis provides important insight of key OHS issues amongst EHOs. These issues are discussed in detailed below.

Age and gender

The occurrence of reported workplace incidents appeared to be higher among female EHOs, however, the difference was not statistically significant (One-way Anova, p=0.68). Men and women are impacted differently by workplace exposures (Quinn & Smith, 2018); even in the same occupation (Eng et al., 2011). In a study conducted amongst EHOs in Western Australia, it was identified that female EHOs' were more likely to report

workplace incidents compared to their male counterparts (Dine et al., 2021). In some countries, e.g., Italy, work related incidents appeared to be higher among males, in part due to men's greater labour market participation (Eurofound, 2002). This may be due to the gender balance in the EH profession in Australia which currently not documented.

Gender difference of specific workplace exposure have also been documented; for example, workplace violence (Acquadro Maran et al., 2019), and workplace stress (Gyllensten & Palmer, 2005) are more likely to be reported by female workers. In Australia, the frequency rate of serious claims per millions hours works, were 6.2 men and 4.9 women (2016-17), 6.0 men and 4.8 women (2017-18) and 6.2 men and 5.1 women (2018-19) (Safe Work Australia, 2018, 2020, 2021.). Further study is required to understand how different workplace exposures may vary between genders.

The occurrence of workplace incidents appears to be higher in age group category '30 to 39' and '40 to 49' and '50 to 59' for both male and female EHOs. Due to the limitation of the dataset, it was not possible to calculate the relationship between age and occurrence of workplace incidents. Generally, the national trend in Australia, indicates a higher incidence rate of workplace injuries and illnesses among older workers.

In the workers' compensation statistics report for 2018-19, the 55 to 59 age group had the highest incidence rate (13.1 serious claims per 1000 employees), followed by workers aged 60 to 64 years and workers aged 50 to 54 years (with 12.7 and 12.3 serious claims per 1000 employees respectively), similar trends were observed in 2016-17 and 2017-18 (Safe Work Australia, 2018, 2020, 2021).

Further data collection among EHOs is necessary to establish whether age is a risk factor for workplace related incidents. Whilst the prevalence of workplace incidents appeared lower among younger EHOs in this dataset, there are still potential gains in targeting them in OHS programs to further improve safety outcomes.

Local government type and number of full-time EHOs

The average number of workplace incidents by LG type were metropolitan (2.76), regional (3.22), and rural (1.28). However, the difference between occurrence of workplace incidents and LG types was not statistically significant (One-way Anova, $p=0.08$). Due to the variations in work functions for EHOs across the different LG types, further study is required to outline potential workplace exposures that might be specific to a particular LG type.

There was a positive relationship between the number of full-time EHOs employed by a LG and the occurrence of workplace incidents (One-way Anova, $p=0.04$). This was expected, but studies have shown that higher or lower numbers of full-time employees or the size of organization does not always correlate to the occurrence of workplace incidents in an organisation. In a study characterising the burden of work-related injuries in South Australia, larger businesses accounted for more than 51.9% of injury claims (Xiang et al., 2020). Other studies have found that risk of injury is higher among small businesses (Fabiano et al., 2004; Hasle & Limborg, 2006). Some researchers have argued that risk of workplace injury between smaller and larger companies are complex and require more investigation (Dong et al., 2011; Sørensen et al., 2007).

The higher number of reported workplace incidents among EHOs in larger LGs (metropolitan LGs, and some regional LGs), might be related to the fact that the well-established LGs are more likely to have advanced OHS systems, employ more workers and have an increased awareness of their OHS responsibilities. Consequently, larger LG's are more likely to have effective systems and support in place to report and investigate workplace incidents. Most small LGs would not have a qualified OHS person on staff with this role often delegated to somebody in Human Resources as an added task, and with no discipline specific training. Collection of further data is required to understand the occurrence of workplace incidents among EHOs across the different LG size and type.

Mechanisms of Injury

Vehicle incidents accounted for 27.3% of workplace incidents amongst EHOs in the dataset obtained from LGs, for this study. Assessment of potential underlying factors for vehicle incidents amongst EHOs was beyond the scope of this study. However, the dataset indicated a higher prevalence amongst EHOs working in regional

and metropolitan LGs. Driving is a significant aspect of the EHOs' role, related to the 'multiple site-base' nature of their work. EHOs working in metropolitan councils, must navigate busy road conditions while their regional and rural counterparts must drive longer and further, sometime off the main road, to get to work sites.

Vehicle incidents is an important cause of work-related fatality in Australia, New Zealand and the US (Driscoll et al., 2005). In Australia, 43% of worker fatalities in 2019, were due to vehicle collisions (Safe Work Australia, 2020). The cause of vehicle accidents has been broadly associated with factors such as driver skill level (McGwin & Brown, 1999), risk taking behavior (Bener et al., 1995; Smith, 2016) drivers experience (Groeger, 2006; Regev et al., 2018), speeding (Aarts & van Schagen, 2006; Pikūnas et al., 2004) and substance abuse (Papalimperi et al., 2019). However, a recent study suggests the potential underreporting of factors in existing accident records, contributing to vehicle accidents (Rolison et al., 2018). A study conducted in Australia has shown that the contributing factors for vehicle accidents in work zones, based on work health and safety data, are different to that of the official police-reported dataset (Blackman et al., 2020).

To properly identify the underlying factors and develop a model that could potentially predict and consequently prevent vehicle incidents amongst EHOs, there is a need for more comprehensive study using approaches such as data-mining techniques (Rivas et al., 2011; Sanmiquel et al., 2018). Better reporting and recording of workplace vehicle incidents including a factual narrative description of each incident and sequence of events is necessary to understand this issue amongst EHOs. It is important to mention that road vehicle accident is administered as an incident category of its own within LGs, normally by the governance department of a LG. This is due to the vehicle insurance policy that comes into play in the event of vehicle accident to take care of any property or bodily injury cost that may arise. This may explain the high occurrence of vehicle incidents reported.

Mental stress accounts for 15.6% of workplace incidents, the second highest after vehicle incidents. The occurrence appeared to be prominent amongst EHOs working in metropolitan LGs. Workplace stress has been reported to be an important workplace risk among EHOs in Western Australia (Dine et al., 2021). Workplace stress in public organizations has been linked with poor management practices that include lack of support, lack of appreciation and unrealistic demands (Bhui et al., 2016). Work-related mental health have become a major concern in Australian workplaces, mental stress amount for 6% of all serious workers' compensation claims in 2017-18 and 8% in 2018-19 (Safe Work Australia, 2020, 2021).

The work of EHOs is not well understood and supported by LGs. Smith, Whiley and Ross argued that environmental health services in Australia is not part of a LGs' broader strategic framework (Smith et al., 2021). The status of environmental health services amongst other public health agencies is misconstrued to be purely regulatory rather than pivotal to public health (Kotchian, 1997). Even in the broader public context, the work and achievements of EHOs are not celebrated (Whiley et al., 2019).

Anecdotal evidence suggests that there are growing concerns of low morale and a lack of content amongst EHOs, especially officers that have been in the profession longer. In a recent study conducted in Ethiopia to assess the quality of environmental health services, only 19.5% of participants responded as having good satisfaction in their role (Damtew et al., 2021). Difficulty in recruitment and retention of EHOs (EHA - Environmental Health Australia, 2012), is putting additional work demands on the existing aging EH workforce; which anecdotal evidence suggests is stressed and discontented. Research has shown that there is an association between work-related stress and staff turnover (de Croon et al., 2004; Kachi et al., 2020). Pertinent research is necessary to explore the underlying difficulties in the recruitment and retention of EHOs and to investigate the issue of job satisfaction and job demand. In addition, research is required to explore in depth the triggers that contribute to occupational stress amongst EHOs.

Slips, trips and falls was the third most common reported workplace incidents amongst EHOs from the dataset obtained for this study, with a higher prevalence amongst EHOs working in regional LGs. This finding is consistent with the finding that 56% of EHOs in Western Australia indicated that 'slips, trips and falls' were a significant workplace risk (Dine et al., 2021).

Each year in Australia, slips, trips and falls result in thousands of injuries and is one of the most common mechanism of injury resulting in serious workers' compensation claims; 23% in 2016-17, 23% in 2017-18 and 23% in 2018-19 (Safe Work Australia, 2018, 2020, 2021.). Anecdotal evidence suggest that slips, trips and falls are common amongst EHOs due to the constant change of working environments where EHOs have to perform their tasks around other peoples' activities, in the presence of obstacles and trip hazards and contaminated flooring (e.g., oil, grease, dust etc.). The high prevalence of slips, trips and falls amongst EHOs is particularly concerning as EHOs' often operate alone in remote environments. Effective safe work systems including access to remote forms of communication must be made available to EHOs working alone in rural and regional LGs.

Biological factors were identified as an important workplace hazard amongst EHOs. It was beyond the scope of this survey to identify the different types of biological hazards related to workplace incidents. Infectious disease and infectious disease agents remain an important workplace risk for EHOs. There is for example, recent concern about EHOs' work and the risk of contracting COVID-19 (Kuhn et al., 2021).

As frontline public health professionals during this unparalleled COVID-19 crisis, EHOs are being urged not only to maintain normal environmental health services but to also assist in the control of the pandemic (Mahase, 2020; Morse et al., 2020). While there are suggestions that COVID-19 has significantly improved the natural environment due to less economic activities (El Zowalaty et al., 2020; Khan et al., 2021; Rupani et al., 2020), there are significant environmental health challenges associated with the pandemic, including issues such as an increase of medical waste, and the disposal of disinfectants, mask, and gloves (Rume & Islam, 2020), that requires careful management. This might become a risky but priority area for EHOs as the pandemic slows down.

Chemicals and chemical products were reported as agents for 7.8% of registered workplace incidents. EHOs' workplace exposure to chemicals and chemical products are not clear. While EHOs work involves direct contact with potential environmental pollutants, e.g., asbestos, EHOs' risk exposure to these contaminants has not been documented. Further study is required to properly identify and document the specific workplace risk exposure to chemicals and chemical based products relevant to the EH profession.

A total of 14 % of workplace incidents falls into the category of occupational violence and aggression. It was beyond the scope of this study to investigate the categories of violence mainly associated with EHOs. However, evidence suggests that EHOs are more vulnerable to customer/client violence, as are most other frontline workers (Hinson & Shapiro, 2003). Further study is required to categorise the types of occupational violence impacting EHOs. This will allow for better understanding of the trend and prevalence of violence and thus improve control and management strategies (Hinson & Shapiro, 2003).

There is evidence to show a positive correlation between workplace violence and turnover intention and job burnout (Duan et al., 2019). It has also been reported that workplace violence can impact workers' quality of life (Nowrouzi-Kia, 2017). Workplace violence is a significant workplace risk amongst EHOs working in LGs Western Australia (Dine et al., 2021). Effective programs designed to assist EHOs in dealing with irate customers and to avoid exposing themselves to abusive and aggressive behaviours should be compulsory and ongoing. Officers impacted by violent or abusive behaviour must have access to professional counselling and compensation.

Data comparison

Table 1 presents a comparison of mechanisms of incident/injury data obtained from LGs with recent statistics adapted from SWA. The common mechanisms of workplace incidents among EHOs appeared to be akin to the most common mechanisms of injury or disease for serious workers' compensation claims in Australia. The three datasets in Table 1, indicated that; body stressing, slips, trips and falls of a person and mental stress are significant workplace risks for EHOs as it is for Australian workers at a national level.

In the 2018-19 Australian workers' compensation statistics report, the most common mechanism of injury or disease that resulted in a serious claim was body stressing (36%), followed by slips, trips and falls of a person (23%), being hit by moving objects (16%) and mental stress (8.3%).

This national trend for all occupations is comparable to the trend among occupation category "Occupational and environmental health professionals" and the trend observed with the data for EHOs' collected from LGs, as seen in Table 1. The trend of workplace incidents for EHOs is also consistent with the a perception study conducted among EHOs working in Western Australia, which shows that EHOs perceived themselves as being at risk of exposure to workplace stress, violence at work, sharps injury and falls, trips and slips (Dine et al., 2021). While further data need to be collected among EHOs to establish if the common occupational risks in the EH profession is akin to that of other occupations in Australia; the information obtained from this study provide an opportunity to develop and implement risk management strategy around the main mechanisms of workplace incidents among EHOs.

The information emerging from this study indicates that EHOs are not immune to workplace hazards, and as with other sectors, there are common occupational risks that are particular to the EH profession and there are those that are comparable to that of other occupations. The data collected in this study, indicates that out of 169 workplace incidents recorded, 8 (4.7%) were severe enough to result in successful workers compensation claims of which one was a serious claim.

Based on the findings from this study, it is suggested that EHA as the peak professional body representing EHO's in Australia, takes a significant role in advocating safe work practices and systems for EHOs. In Australia, not all workplace accidents need to be reported to the occupational health and safety authority. Because of this, there is a potential for numerous minor injuries and near misses not to be properly reported, recorded and investigated (Probst et al., 2019). Although some LGs record minor injuries and near misses, the value of reporting and the usage of such data for prompt safety management initiatives is unclear (Haas et al., 2020).

Limitations

The workplace incidents data collected from only 13.6% of LGs (73 of the 537) may not accurately reflect the broad issues of OHS amongst all EHOs. This is because not all LGs have electronic recording system for workplace incidents; some LGs may have found it too onerous to make the data available. There were variations in how different LG record and report workplace incidents, which made it impractical to compare some variables. For example, some LGs does not record the age of the person reporting an incident; some LGs record the mechanism of incident, and some only record the nature of injury. Also, as is the case with most sources of workplace incidents data, there may be an element of underreporting. This study did not investigate the underlying causes of workplace incidents.

5. Conclusion

Despite the limitations of this study, the finding indicates that occupational health and safety is a significant issue in the EH profession. The common mechanisms of workplace incidents among EHOs were body stressing, slips, trips and falls of a person, mental stress and workplace violence. This is akin to mechanisms of incident/injury among workers in the Australian workforce in general. The finding supports the workplace risk perceptions expressed by EHOs in a study conducted in Western Australia. Similar workplace incident prevention strategies and occupational health and safety management efforts used in other sectors, can be considered for the EH profession. The study also exposed the limitations with the way workplace incident data is collected and recorded across different Local Government organisations in Australia. The information obtained from this study provides a catalyst for further research into EHOs workplace health.

Conflicts of Interest

The author declares no conflict of interest.

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Table 1: Tabulation for comparison - serious claims for category "Occupational and environmental health professionals" by mechanism of injury or disease 2014-15 to 2018-19p, serious claims by mechanism of injury or disease, 2018-19p, and workplace incidents data for EHOs from 73 Local Governments

Mechanisms of injury or disease	[a] Number and percentage of serious claims for category "Occupational and environmental health professionals" by mechanism of injury or disease 2014-15 to 2018-19p	[b] Number and percentage of serious claims by mechanism of injury or disease, 2018-19p	Registered workplace incidents data for EHOs from 73 Local Governments (LGs) 2016 to 2020
	n (%)	n (%)	n (%)
Body stressing	255 (28.3)	41,395 (36.2)	16 (10.7)
Falls, trips and slips of a person	225 (25.0)	26,000 (22.7)	23 (15.3)
Being hit by moving objects	85 (9.4)	18,355 (16.0)	1 (0.7)
Mental stress	105 (11.6)	9,510 (8.3)	24 (16.0)
Hitting objects with a part of the body	40 (4.4)	7,675 (6.7)	8 (5.3)
Other mechanisms of incident	0 (0)	5,600 (4.9)	0 (0)
Vehicle collisions	75 (8.3)	2,660 (2.3)	42 (28.0)
Heat, electricity, and other environmental factors	10 (1.1)	1,580 (1.4)	3 (2.0)
Chemicals and other substances	20 (2.2)	1,045 (0.9)	6 (4.0)
Biological factors	n.p	455 (0.4)	12 (8.0)
Sound and pressure	85 (9.4)	160 (0.1)	0 (0)
Violence and aggression	0 (0)	0 (0)	14 (9.3)
Appliances, equipment	0 (0)	0 (0)	1 (0.7)
Total	**900**	**114,435**	**150**

Data for 2018-19 is preliminary (denoted by suffix 'p') and will be subject to upwards revision when new data is available. [a](adapted from (Safe Work Australia, 2021b); [b] (adapted from (Safe Work Australia, 2021a); Data has been suppressed (n.p) where there has been fewer than five claims.