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Work-related injury and disease in Australian road transport workers: A retrospective population based cohort study

Ting Xia[a,*], Ross Iles[a], Sharon Newnam[b], Dan I. Lubman[c,d], Alex Collie[a]

[a] Insurance Work and Health Group, School of Public Health and Preventative Medicine, Monash University, Australia
[b] Monash University Accident Research Centre, Australia
[c] Eastern Health Clinical School, Monash University, Australia
[d] Turning Point, Eastern Health, Monash University, Australia

1. Introduction

The transport and logistics industry is vital to the economy of many countries, with transport workers representing a substantial proportion of the workforce in those countries where the population are greatly dispersed (e.g., U.S., Canada and Australia). However, a recent comprehensive review of the health and wellness of transport workers identified that they are subject to a unique set of conditions in their working environment (e.g., sedentary work, poor diet, long working hours and shift work, isolation, fatigue, sleep deprivation) that increase the risk for multiple morbidities (i.e., hypertension, cardiovascular disorders, obesity and diabetes) (Crizzle et al., 2017). Poor health status is associated with increased crash risk and may contribute to a lower quality of life both during working life and after retirement, resulting in a greater number of worker compensation claims and health care costs (Crizzle et al., 2017; Safe Work Australia., 2009). As such, understanding the health and wellbeing of people employed in the transport industry is critical to ensuring the most effective and efficient allocation of resources to prevention and rehabilitation efforts.

In Australia, the rate of work-related fatalities in the road freight transport industry is about ten times higher than the average for all industries, and the rate of non-fatal serious workers' compensation claims (resulting in five or more days lost time) is twice that of other industries (Australian Bureau of Statistics, 2014). Consistent with this data, the current Australian work health and safety strategy released by Safe Work Australian identifies road transport as one of seven priority industry segments (Safe Work Australia., 2012). While the Australian government has been continuously committed to improving road safety for transport workers, a large proportion of work-related injuries to transport workers are non-vehicle related such as sprains and strains, falls, and gradual onset conditions such as back or neck pain. SafeWork Australia reports that there are around 5100 serious injury claims in the road transport industry per annum, and non-vehicle incidents injuries account for 92% of all non-fatal serious workers' compensation claims (Safe Work Australia., 2012). Given the industry has been growing substantially (Commonwealth of Australia, 2014), promoting workplace health and safety and managing hazards commonly encountered in the transport and logistics industry are essential.

Despite a significant international focus on the health and wellbeing of transport workers (Krueger, 2012), to date, there has been limited Australian research in this area. While international studies, are informative, there are unique aspects of the Australian transport industry and society that mean that these findings are unlikely to be directly transferrable. For example, Australian regulatory and commercial models, geography, healthcare systems, workers' compensation systems and social structure differ to both North America and Europe, thereby impacting on recommendations in resource allocation. In addition, recent Australian studies of transport workers have focused almost exclusively on truck drivers' safety outcomes, such as crashes, near misses, fatalities and traumatic injury (Friswell and Williamson, 2013; Meuleners et al., 2015; Stevenson et al., 2013). However, there has been limited

* Correspondence to: Insurance Work and Health Group, School of Public Health and Preventative Medicine, Monash University, 553 St Kilda Rd, Melbourne 3004, VIC, Australia.
E-mail address: ting.xia@monash.edu (T. Xia).

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research exploring the nature of work-related injury and disease outside of traumatic causes for truck drivers, or indeed other drivers in the transport industry. The impacts of work-related injury and illness on time off work in transport workers are also rarely reported.

In order to address current gaps in the literature, this study aimed (1) to describe the nature, extent and impact of work-related injury and disease in Australian transport and logistics workers across different occupation groups, and (2) to compare the incidence of work-related injury and disease, as well as the duration of time lost, in transport workers compared to other Australian workers.

2. Method

2.1. The Australian compensation context

In Australia, it is a compulsory for employers to pay workers' compensation premiums to cover their workers in the event of a work related injury or illness. Every Australian state and territory, and the Commonwealth (federal) government, administers a compensation scheme, and all of the schemes are based on similar premises. Although the types of medical conditions covered and the nature and level of benefits vary slightly between jurisdictions, all of the Australian schemes provide income benefits during the period of time off work (often capped at a maximum weekly amount and/or time limited); payments for medical and related expenses; and lump sum payments for permanent impairment or death (Safe Work Australia, 2012). Self-employed workers are not required to pay workers' compensation premiums or claim benefits, and thus are under-represented in national data. This contextual information is important to consider in the interpretation of the results and generalization to truck drivers in other countries under different compensation scheme structures.

2.2. Study population and measurement

Australia has a labour force of over 200,000 truck drivers and approximately 650,000 workers employed in the transport and logistical industry which account for 5% of the national labour force (Australian Bureau of Statistics, 2013a). The National Dataset for Compensation-based Statistics (NDS) (Safe Work Australia, 2004) is compiled from workers' compensation claims data from ten of the major state, territory and Commonwealth workers' compensation systems. In this study, seven major Australian compensation systems representing more than 90% of the labour force are included, including the states of New South Wales, Victoria, Queensland, Western Australia, South Australia and Tasmania, as well as the Northern Territory.

Data analysis was restricted to accepted claims (i.e., those accepted for payment) lodged by working age adults ($\geq$15 years) with a date of lodgment between 2004 and 2015 financial years (i.e., 1/07/2003 to 30/06/2015). We used national standard occupation coding systems (Australian Bureau of Statistics, 2013a) in the NDS to identify five groups of road drivers including truck drivers, delivery drivers, bus drivers, automobile drivers (chauffeur and taxi driver) and rail drivers (train and tram drivers). In recognition that drivers may be employed across industries other than the transport and logistical industry (e.g., truck drivers in the construction industry), driver groups were not restricted to the transport industry (Apelbaum Consulting Group Pty Ltd, 2008). A random sample of 10% workers' compensation claims from all other occupations over the same time period was created as a comparison.

To calculate the incidence of injury and disease, data on the number of workers covered by workers' compensation in Australia was derived from Labour Force data from the Australian Bureau of Statistics (ABS) and Safe Work Australia. To account for coding differences between the workers' compensation systems, types of work-related injury and disease were categorised using a modified version of the Type of occurrence classification system (TOOCS) version 3 (Gray and Collie, 2017). We focused on the following six major categories: fractures, musculoskeletal injury (MSK), neurological injury, psychological injury, other traumatic injury, and other diseases.

2.3. Analysis strategy

A descriptive analysis was performed to summarize the counts (N) and proportion of accepted claims by occupation, type and mechanism of injury and disease across occupation groups. Inferential analyses were conducted to statistically determine differences in the counts, rates and duration of time lost between occupation groups. Claim rates were calculated using the labour force estimates as the denominator, and expressed as the number of claims per 1000 covered workers. It should be noted that this does not fully account for exposure as workers may work a range of hours, and working hours may vary by occupation and other factors. However, nationally consistent data on working hours was not available for this study.

Given the count nature of the data, a Poisson distribution was assumed. Negative binomial regression was used to estimate the ratio of the incidence rate (IRRs) and 95% confidence intervals (95% CI) in driver groups to all other workers as the comparison group. IRRs were calculated using all accepted claim data over the study period, and adjusted for year of injury and age. Another regression model adjusted for age and year of injury was conducted to investigate the differences in the IRR of a particular type and mechanism of injury and across occupation groups.

For claims resulting in time loss (at least one hour of paid income compensation), the duration of time lost was calculated by dividing the total number of compensated hours by the average weekly number of hours worked prior to claim, using a previously described method (Collie et al., 2016). Time loss calculations were limited to data up to the end of the 2012 financial year to allow for a minimum follow-up period of 3 years for all claims. The time loss calculation limited the maximum duration of cumulative time loss to 260 weeks. Quantile regression was used to explore the difference of median duration of time loss due to work-related injury and

Table 1
Type and mechanism of injury and disease by occupation group, 2004–2015.

	Truck drivers %	Bus drivers %	Delivery drivers %	Automobile drivers %	Rail drivers %	All other workers %
Types of injury and disease						
Fractures	9.0	4.36	8.3	9.7	2.0	5.8
MSK injury	59.5	61.34	65.2	54.0	40.6	54.2
Neurological injury	3.3	2.57	1.8	3.0	5.7	3.4
Psychological injury	1.3	8.49	1.0	3.1	31.0	3.1
Other traumatic injury	23.6	19.20	20.2	26.8	17.6	30.2
Other diseases	2.9	2.08	3.2	2.7	1.5	2.8
Other claims	0.4	1.96	0.4	0.7	1.7	0.6
Mechanism of injury and disease						
Body Stressing	36.0	22.9	28.7	43.0	36.4	36.1
Being hit or hitting objectives	29.0	13.9	26.7	19.0	17.8	22.8
Falls, Trips and Slips of a Person	18.6	17.7	16.7	23.1	19.2	25.9
Vehicle Incidents and Other	7.4	18.6	22.9	12.7	16.3	10.3
Mental Stress	2.4	17.2	2.2	0.6	6.1	0.7
Physical,chemical,biological and environmental factors	6.7	9.6	2.8	1.6	4.3	4.1

illness across occupation groups. All analyses was conducted using Stata IC/14 (StataCorp, 2015).

3. Results

A total of 509,571 accepted workers' compensation claims were included in analyses. Among transport workers, truck drivers contributed the most claims (120,742), followed by delivery drivers (21,479). Rail drivers and automobile drivers (e.g. chauffeurs and taxi drivers) made fewer claims compared with other transport workers (12,280 and 5485 respectively). There were 330,708 claims from the 10% random sample of all other workers.

The type and mechanisms of injury are described in Table 1 for both transport workers and all other workers. It shows that MSK conditions are the most common condition in all occupation groups in this study. Delivery drivers and bus drivers had the highest proportion of MSK claims (66% and 53% respectively). Truck drivers and automobile drivers had a slightly higher proportion of fracture claims than the other occupational groups (9.0% and 9.5% vs. 5.8%). Rail drivers had a noticeably larger proportion of psychological injury claims (30%) than other occupational groups, followed by bus drivers (8.5%). Claims for other traumatic injury comprised about 30% of all claims in other workers, which was more common than driver groups. Claims due to other disease shared a small proportion of all compensation claims. Hernia was found to be the most common disease in this category for all occupation groups.

When examining mechanism by occupation group (Table 1), the proportion of claims due to body stressing was higher in delivery drivers (43.0%), while claims due to being hit or hitting objects were more common in all other workers (29.0%). For truck drivers, body stressing was the most common mechanism of injury (36.1%), while falls, trips and slips was the second most common mechanism (25.9%). Claims due to mental stress accounted for 20% of all claims for rail drivers, which was higher than other occupational groups.

The rate of accepted worker's compensation claims per 1000 workers per year in each of the occupation groups and the IRRs are shown in Fig. 1. This analysis was statistically adjusted for age and year of injury, and compares the occupation groups to the group of

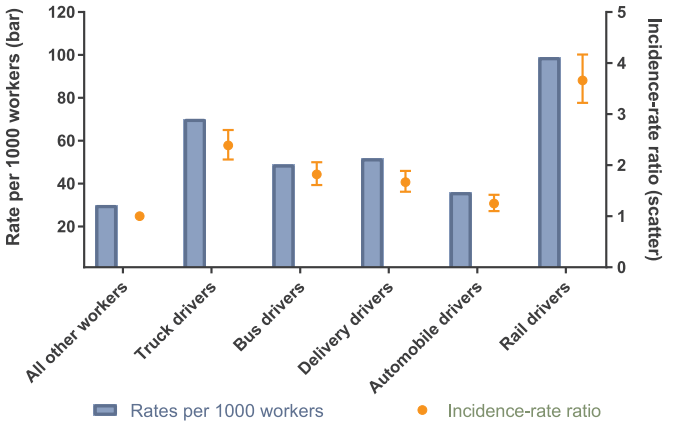

Fig. 1. Incident rates and adjusted IRRs for risk of workers' compensation claims by occupational groups, 2004–2015.

Table 2
IRRs for risk of workers' compensation claims by type of injury and occupational groups (adjusted for age and year of injury).

	Number of claims	Rate per 1000 workers	IRR[a]	95%CI
Fractures				
All other workers	19,048	1.73	1	
Truck drivers	10,849	6.31	3.45	3.27–3.65
Bus drivers	823	2.13	1.11	1.02–1.22
Delivery drivers	1783	4.30	2.47	2.30–2.64
Automobile drivers	534	3.51	1.95	1.77–2.15
Rail drivers	242	1.95	1.04	0.91–1.20
Musculoskeletal				
All other workers	178,928	16.27	1	
Truck drivers	71,811	41.79	2.65	2.41–2.92
Bus drivers	11588	30.05	2.04	1.84–2.56
Delivery drivers	13,988	33.76	2.06	1.87–2.27
Automobile drivers	2,955	19.42	1.28	1.15–1.42
Rail drivers	4,983	40.18	2.43	2.18–2.70
Neurological				
All other workers	11,145	1.01	1	
Truck drivers	3,951	2.30	1.88	1.68–2.10
Bus drivers	485	1.26	0.68	0.58–0.79
Delivery drivers	389	0.94	0.86	0.74–0.99
Automobile drivers	163	1.07	0.72	0.59–0.87
Rail drivers	694	5.60	3.75	3.26–4.31
Mental health conditions				
All other workers	10,310	0.94	1	
Truck drivers	1,543	0.90	0.88	0.76–1.01
Bus drivers	1604	4.16	4.81	4.15–5.48
Delivery drivers	205	0.49	0.55	0.45–0.66
Automobile drivers	170	1.12	1.20	0.98–1.47
Rail drivers	3,804	30.67	34.5	29.9–39.8
Other traumatic				
All other workers	99,656	9.06	1	
Truck drivers	28,478	16.57	1.98	1.79–2.19
Bus drivers	3626	9.40	1.23	1.10–1.38
Delivery drivers	4,322	10.43	1.22	1.10–1.36
Automobile drivers	1,467	9.64	1.18	1.06–1.33
Rail drivers	2,155	17.38	2.13	1.89–2.40
Other diseases				
All other workers	9,235	0.84	1	
Truck drivers	3,481	2.03	2.07	1.94–2.20
Bus drivers	393	1.02	0.86	0.77–0.96
Delivery drivers	676	1.63	1.87	1.71–2.05
Automobile drivers	150	0.99	0.98	0.83–1.16
Rail drivers	186	1.50	1.43	1.22–1.67

[a] IRR, incidence rate ratio

all other workers. The findings show that all of groups of drivers are at greater risk of work-related injury and disease than the comparator group of all other workers. Rail drivers recorded a rate of 99 claims for every 1000 workers per year, with an IRR of 3.66 (95% CI: 3.21 to 4.17) compared to all other workers. Truck drivers also recorded an elevated rate, at 70.3 claims per 1000 workers per year, with an IRR of 2.39 (95%CI: 2.12 to 2.70). Bus and delivery drivers recorded lower rates than rail and truck drivers, but this was still significantly higher than all other workers (IRR = 1.82, 95% CI: 1.60 to 2.06 for bus drivers and IRR = 1.67, 95% CI: 1.48 to 1.88 for delivery drivers).

The IRR of each type of injury for each occupational group is shown in Table 2. Truck drivers had the highest relative risk of fracture, with an IRR at 3.45 (95%CI: 3.27 to 3.65) compared to all other workers. This group was also at highest relative risk of MSK, with a 165% increased risk ratio relative to all other workers (IRR: 2.65, 95%CI: 2.41 to 2.92). For neurological condition claims, the IRR for transport workers compared to all other workers were increased by 275% in rail drivers, and by 88% in truck drivers.

Rail drivers were nearly 35 times at greater risk of making a workers' compensation claim for psychological injury than other workers (IRR: 34.5, 95%CI: 29.90 to 39.80). Bus drivers also had a significantly elevated risk of psychological injury (IRR: 4.81, 95%CI: 4.15 to 5.48), while truck drivers were not observed to be at higher risk (IRR: 0.88, 95%CI: 0.76 to 1.01). Furthermore, rail drivers and truck drivers also had increased risk of making other traumatic condition claims, with 113% and 98% increased IRR compared to all other workers.

Table 3 further demonstrates the IRR by mechanism of injury for each occupational group. Compared with other workers, all drivers had a significantly higher IRR of compensation injury claims, with the exception of automobile drivers. Truck drivers had the highest risk of making claims due to 'being hit or hitting objects (IRR: 2.03, 95%CI: 1.85 to 2.22), followed by rail drivers (IRR: 1.71, 95% CI: 1.53 to 1.92). In addition, truck drivers had 3.04 times the risk of making 'fall, trips and slips of a person' compared to all

Table 3
IRRs for risk of workers' compensation claims by mechanism of injury and occupational groups (adjusted for age and year of injury).

	Number of claims	Rate per 1000 workers	IRR	95%CI
Body Stressing				
All other workers	117423	10.67	1	
Truck drivers	43535	25.33	2.46	2.26–2.68
Bus drivers	6821	17.69	1.76	1.61–1.93
Delivery drivers	9213	22.24	2.09	1.92–2.28
Automobile drivers	1559	10.25	0.99	0.90–1.10
Rail drivers	2721	21.94	1.91	1.73–2.11
Being hit or hitting objectives				
All other workers	94555	8.60	1	
Truck drivers	27508	16.01	2.03	1.85–2.22
Bus drivers	3338	8.66	1.21	1.09–1.34
Delivery drivers	4062	9.80	1.21	1.10–1.33
Automobile drivers	1452	9.54	1.25	1.12–1.39
Rail drivers	1653	13.33	1.71	1.53–1.92
Falls, Trips and Slips of a Person				
All other workers	60599	5.51	1	
Truck drivers	31257	18.19	3.04	2.81–3.29
Bus drivers	3602	9.34	1.47	1.34–1.60
Delivery drivers	4943	11.93	2.03	1.87–2.21
Automobile drivers	908	5.97	0.99	0.90–1.11
Rail drivers	2101	16.94	2.76	2.51–3.04
Vehicle Incidents and Other				
All other workers	24305	2.21	1	
Truck drivers	12437	7.24	3.44	3.12–3.78
Bus drivers	3059	7.93	4.06	3.66–4.51
Delivery drivers	2724	6.58	3.10	2.80–3.43
Automobile drivers	1246	8.19	4.13	3.70–4.62
Rail drivers	2211	17.83	8.68	7.78–9.68
Mental Stress				
All other workers	7752	0.70	1	
Truck drivers	846	0.49	0.68	0.57–0.81
Bus drivers	1145	2.97	4.80	4.03–5.71
Delivery drivers	135	0.33	0.56	0.44–0.72
Automobile drivers	120	0.79	1.35	1.05–1.73
Rail drivers	2041	16.46	25.3	21.22–30.06
Physical, chemical, biological and environmental factors				
All other workers	21863	1.99	1	
Truck drivers	4914	2.86	1.29	1.13–1.47
Bus drivers	798	2.07	0.84	0.72–0.99
Delivery drivers	340	0.82	0.42	0.34–0.48
Automobile drivers	154	1.01	0.47	0.38–0.58
Rail drivers	1144	9.22	4.27	3.67–4.98

[#]IRR, incidence rate ratio

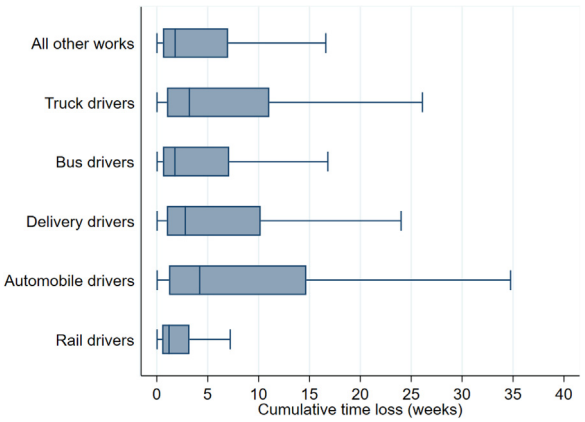

Fig. 2. Median duration of compensated time in weeks by occupation group, 2004–2013.

other workers. Not surprisingly, all drivers had significant elevated risk of vehicle incidents-related claims. Rail drivers and bus drivers had 25.30 (95%CI: 21.22 to 30.06) and 4.80 (95%CI: 4.03 to 5.71) times the risk of making claims due to mental stress than all other workers.

The median duration of compensated time lost (in working weeks) for all accepted claims in the occupation groups is shown in Fig. 2. It shows the wide variation in duration of time loss between occupational categories. The results also showed a skewed distribution with median durations between 1 and 5 weeks of compensated time lost, but significant proportions of claims having much longer durations, as indicated by the 75% confidence intervals exceeding 10 weeks for truck, delivery and automobile drivers. The table also demonstrates the results of quantile regression analysis for median duration of compensated time lost. Compared with all other workers (1.96 weeks, IQR: 0.60 to 8.07), automobile drivers and truck drivers had a significantly longer median duration of time loss at 4.8 weeks (IQR: 1.29 to19.00, β: 2.84, 95%CI: 2.65 to 3.07) and 3.4 weeks (IQR: 1.00 to 12.4, β: 1.44, 95%CI: 1.39 to 1.49), respectively. Rail drivers had the shortest median time loss (1.2 weeks, IQR: 0.53 to 3.28, β: -0.76, 95%CI: -0.88 to -0.63) and this was statistically significantly shorter than other occupations.

4. Discussion

This study is unique in that it is the first in Australia to examine a range of different work-related injury and illnesses in transport sector workers across different occupation groups. We used detailed national compensation work-related injury and disease records to identify substantial differences in the volume, incidence, nature, mechanism and duration of claims for transport worker groups across Australia over a 12-year time frame. Overall, the data demonstrate that transport workers are at increased risk of work-related injury and disease compared with workers in other occupations. Rail and truck drivers were identified as the two groups at greatest risk of work injury claims. Rail drivers were the smallest driving occupation category, but had the highest rate of workers' compensation claims.

Musculoskeletal conditions were identified as the most common type of condition across all driver occupation categories, followed by other traumatic injury. These findings are consistent with international research (Apostolopoulos et al., 2013; Smith and Williams, 2014). Professional drivers may face some unique occupational conditions that put them at higher risk of musculoskeletal injury than other male-dominated occupations. For example, excessive pushing and pulling, climbing on/off a vehicle, opening and closing doors or levers on a vehicle are key work processes that have been associated with musculoskeletal injury (Rauser et al., 2008). Musculoskeletal problems amongst truck drivers and other male professional drivers has also been attributed to seat position and daily vibration exposure (Bovenzi, 2010; Robb and Mansfield, 2007). This study also identified that truck drivers had higher risk of fracture and other traumatic injuries than other drivers and all other workers. Although this finding suggests that these types of injuries could be explained through a disproportionate involvement in crashes (BITRE, 2016), the analysis of injury mechanism revealed that the risk of vehicle incident-related injury among truck drivers was no higher than other drivers. Therefore there may be other factors contributing to those injuries. A U.S. study reported that truck driver falls due to entering and exiting the trailer cab and freight-moving injuries has been ranked among the top injuries for both short-haul and long-haul trucking (Chandler et al., 2017). Consistent with this, we found that 'falls, trips and slips' were the second most common mechanism of injury in truck drivers.

We also demonstrated that there were different patterns of work-related injury and disease among different driving cohorts. For example, in contrast to truck drivers in which musculoskeletal conditions were most common, rail drivers were at significantly elevated risk of psychological injury claims. This is consistent with other recent Australian research showing that road and rail drivers had a higher risk of suicide than workers in other male occupations (Milner et al., 2015). Similarly, a Peru study reported that rates of alcohol abuse, major depressive episodes, anxiety symptoms and 'burnout' was higher among public transportation drivers than the general population (Ruiz-Grosso et al., 2014). Previous research has also associated emotional demands, turnover and lack of job security with a higher risk of work-related mental health conditions (Thorsteinsson et al., 2014). Studies in Norway, Canada and Australia have reported that public transport workers face a much higher risk of workplace violence due to low levels of guardianship, overcrowding, proximity to passengers, cash handling and service delays (Glasø et al., 2011; Lincoln and Gregory, 2015; Zhou et al., 2018). These factors may partially explain the current finding of increased risk of mental health claims in rail and bus drivers, however other factors are also likely to be at play, including exposure to traumatic incidents on the job. For example, the Acute Psychological Trauma (APT) study suggests that one quarter of work-related diagnoses of post-traumatic stress disorder among transit workers can be attributed to subway-related suicides or attempted suicide (Bender et al., 2016). This study also suggested that workplace interventions, including systematic screening and individualized education program, could improve awareness of psychological symptoms after exposure to a traumatic incident and increased treatment seeking rates for public transport workers (Bender et al., 2016).

Unlike rail drivers, truck drivers were not observed to be at elevated risk of psychological injury than other occupations. Mental health problems were also absent from the study on work related injuries in Washington State's Trucking Industry (Smith and Williams, 2014). This is contrary to evidence that truck drivers also face a variety of occupational stressors such as constant time pressures, social isolation, disrespectful treatment from others, driving hazards and violence or fear of violence (Shattell et al., 2012, 2010). Our findings may be attributable to the unique characteristics of this occupation resulting in under-reporting of work-related psychological injury. For example males and those living in regional or rural areas are less likely to report mental illness (Affleck et al., 2018; Griffiths et al., 2009). There is also a reported stigma associated with claiming workers' compensation benefits for mental ill health (Collie et al., 2011) which may disproportionately affect truck drivers. In addition, a variety of exclusionary provisions exist in Australian workers' compensation schemes which may impose serious disadvantages on people with mental injuries, including requirement to demonstrate that employment is the primary contributing factor to a psychological injury (not necessarily required for

physical injury claims in all Australian jurisdictions), limiting compensation to people who suffer a 'secondary mental injury', and forcing claimants to choose between claiming compensation for physical or mental injuries. In a similar fashion, mental health problems attributable to working conditions are not covered in all jurisdictions in the United States (Lippel and Lötters, 2013). These factors may lead to an under-representation of mental health claims in the data. Considering previous reports of the high risk of suicide in truck drivers (Milner et al., 2015), psychological well-being promotion for truckers should be an important area of concern.

This study found that the national-level median duration of time loss due to work-related injury and illness was longer in automobile drivers and truck drivers compared to other occupations. In fact, truck drivers lost nearly twice the amount of time from work after injury compared with all other workers, while automobile drivers lost approximately 2.5 times the amount of time. Potential explanations for the poorer return to work outcomes in truck drivers and automobile drives include higher severity of the injury, higher physical work demands or restricted access to healthcare and occupational rehabilitation services (Cancelliere et al., 2016). Interestingly, although rail drivers had the highest rate of psychological injury, their median duration of time loss was significantly shorter than other occupations in this study. This finding may be indicative of less severity of the injury for this occupation.

4.1. Strengths and limitations

The database used in this study involves population coverage of compensable work-related injury and disease at a national level. Use of a standardized coding system allows comparisons within and across occupational and industry categories. The data also offer detailed information on the nature and mechanism of the injury, which also allows comparisons with findings from worker' compensation systems in other countries. However, the data does have a number of limitations. By providing detailed analyses of injuries by transport sector, occupation and injury type, some of the results presented are from relatively small groups (e.g., 170 psychological injury claims in automobile drivers), so caution should be taken when interpreting findings. The major limitation of the NDS is that it does not include cases of injury and disease that are not work-related. Work-related chronic conditions may also be under-reported in the compensation system since a causal link between diseases and occupational exposure is difficult to establish. Similarly, some workers with work-related conditions may choose not to make workers' compensation claims, or may not be eligible. In addition, according to the ABS, nearly 14% of transport workers are categorised as independent contractors (Australian Bureau of Statistics, 2013b). These limitations mean that efforts to analyse alternative data sources, and to collect health data from cohorts of transport workers will provide valuable additions to existing knowledge and enable a more detailed understanding of the health and wellbeing of workers in the transport and logistics industry.

5. Conclusion

This study provides an initial overview of work-related injury and illness in Australian transport sector workers at a population level. Our findings indicate that truck drivers and other drivers are at increased risk of MSK injury rooted in the transportation environment, whilst public transport drivers are more likely to experience occupational mental stress. Currently, there is substantial focus on fatigue management interventions in truck drivers to reduce crash risk (National Transport Commission, 2007a, 2007b) such as regulation on the maximum work and minimum rest requirements for basic fatigue management. Our findings suggest that interventions aimed at preventing musculoskeletal disorders should be prioritized when devising occupational risk reduction strategy for transport workers, and that these could include, for example, review and revision of policies and procedures for manual handling, re-design of entry and exit from trailer cabs and maintaining seat comfort. Mental health promotion and treatment for public transport drivers is also an important area of concern. In brief, this study extends existing literature on health and wellness in the transport industry by exploring health outcomes. This could be a nice lead in to identifying the link between safety, health and wellbeing and the development of an integrated model.

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