

S M A R T

Design for Care



***Psychological injury in the  
New South Wales Healthcare  
and Social Assistance  
industry: A retrospective  
cohort study***

August 2022

# Preface

## Authors

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Design for Care is a collaborative research project led by Curtin University's Centre for Transformative Work Design in collaboration with University of Sydney, Monash University and a range of industry partner organisations, with funding support from icare NSW.

The research aims to understand and improve workplace mental health and well-being in Australia's Healthcare and Social Assistance (H&SA) industry by developing evidence-based work design interventions to prevent psychological injury, which include but not limited to burnout and sustained work stress.

At the heart of Design for Care is the prevention of psychological injury through good work design.

For more information, visit [transformativeworkdesign.com/smart-design-for-care](https://transformativeworkdesign.com/smart-design-for-care)



## Design for Care



Design for Care is funded by **icare**



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**Key  
messages**

# Key messages



Workers' compensation claims for psychological injury are nearly twice as common among Healthcare and Social Assistance (HSA) industry workers in New South Wales (NSW) than workers in other industries.



Psychological injury claims have grown rapidly in the HSA industry in NSW over the past nine years, most notably since 2015/16. The strongest growth was among Nurses and midwives (150.6% growth), Ambulance officers (138.5%) and Social workers (104.1%).



Workers with psychological injury claims have prolonged periods of work disability, with more than 50% of claims exceeding 13 weeks duration of time off work.



Although representing a small proportion of all injury claims, psychological injuries account for a large proportion of work disability. For instance, psychological injuries account for 44.4% of all working time lost in Administrators and managers, 38.8% of all time lost in Ambulance officers and 33.7% of all time lost in Social workers in the HSA industry.



In total, NSW workers in the HSA industry lost more than 170,000 working weeks to psychological injury alone over the 9-year study period, equivalent to approximately 3,540 full time equivalent lost working years.



Stress and anxiety are the most common type of psychological injuries, accounting for approximately two-thirds of cases. Post-traumatic stress disorder is the most common in Ambulance officers.



Harassment, bullying and work pressure are the most common cause of psychological injury among HSA workers, collectively accounting for nearly two thirds of claims.



There are some clear social, demographic and occupational risk factors for psychological injury claims in HSA workers, including older age, higher levels of socioeconomic disadvantage, and working full-time.



Some occupations in the HSA industry are of particular concern due to the high prevalence or high burden of disability arising from psychological injury, including Nurses and midwives, Social workers and Ambulance officers.



Study findings demonstrate a pressing need to focus on prevention and early intervention in the HSA industry, in order to minimise the frequency of psychological injury and the associated disability.



# Background and purpose



## Background and purpose

The Healthcare and Social Assistance (HSA) industry is Australia's largest industry and employs over half a million people in the state of New South Wales (NSW) (1,2).

The sector is also the fastest growing industry due to an ageing and growing population, as well as increased demand for childcare, residential and community-based care (2). The HSA industry covers a wide range of occupations such as medical and allied health professionals, aged care workers, disability care providers, cleaners, facilities and maintenance staff, paramedics, social workers, administrators and managers, and childcare workers in a variety of settings (e.g. hospitals, private clinics, nursing homes, and community care centres) (2). Many jobs in the HSA industry are both physically and mentally demanding, particularly those 'front-line' jobs involving interactions with people requiring care (3–8). Nationally, the HSA industry has been identified as a substantial source of work-related injury and illness, accounting for 18% of all serious workers' compensation claims (i.e., those off work for 5 days or longer) (4).

The psychological health needs of HSA workers have become a major public health concern in recent years. Consequently, the need to examine the relationship between working in the HSA industry and psychological injury has been growing (9–13). Prior studies report a range of mental health problems among workers in the industry, including symptoms of depression and anxiety, substance abuse and burnout (9–13). A diverse array of risk factors for psychological injury among HSA workers have been identified, including organisational factors such as inadequate patient care coordination and poor management practices, occupational factors such as high job demands and low job control, as well as personal factors such as pre-injury health and social support (15–22). In addition, workers in the HSA industry may be vulnerable to trauma or stress-related disorders during large-scale disease outbreaks such as COVID-19 (23–27).

These prior studies have some substantial limitations, including that they do not often differentiate between workers in diverse occupations and settings (e.g. nursing staff and paramedics), focus only on selected conditions (e.g., burnout), or focus on specific periods of time such as during the COVID-19 pandemic. There are also many gaps in knowledge. For example, despite the fact that residential care services are critical components of Australia's health and social care system, serving some of the most vulnerable populations, psychological injuries among workers in these settings are rarely studied. As a result, gaining a full understanding of the distribution and characteristics of psychological injury among workers in the HSA industry has been difficult. By examining the frequency, incidence, patterns and outcomes of psychological injury among distinct occupational groups in the HSA industry compared to workers in other industries, this study will contribute new knowledge that can support efforts to prevent injuries from occurring and minimise their consequences when they do occur.





## ***Project objectives***



## Project objectives

1

To compare the frequency, incidence, nature and duration of workers' compensation claims for psychological injury in two groups (1) HSA industry workers; and (2) All other workers; and identify risk factors for claims.

2

To compare the frequency, incidence, nature and duration of workers' compensation claims for psychological injury in specific occupational groups of HSA industry workers; and identify risk factors for claims.





## Research methods

# Research methods

## 3.1. Study design

Retrospective cohort study using work injury claims data from the NSW workers' compensation system.

## 3.2. Study setting

New South Wales is Australia's most populous state, with over 8.1 million residents (28). Insurance and Care NSW (icare) is a public financial corporation that was established by the NSW Government under the State Insurance and Care Governance Act 2015 (29). It is the largest public-sector insurer in Australia, which provides workers' compensation insurance and care plans to more than 329,000 public and private sector employers in NSW, as well as their 3.2 million employees.

## 3.3. Study cohort

The study population included workers in the HSA industry with workers' compensation claims that occurred between the financial years 2012/13 and 2020/21. A 20% random sample of claims from workers in all other industries were included in the study as a comparison group. The Australian and New Zealand Standard Industrial Classification (ANZSIC; Australian Bureau of Statistics, 2013) was used to identify claims arising from workers in the HSA industry.

## 3.4. Claims data

We received claim and service level data for included workers' compensation claims from the nominal insurer (covering private sector employers) and the Treasury Managed Fund (government employers) for the financial years 2010/11 to 2020/21 on December 23, 2021. The data contained information about the worker (e.g., age, sex, occupation), their workers' compensation claim (e.g., date of claim lodgement and acceptance, recurrent claim indicator), the injury or illness that resulted in the claim (e.g., injury/illness type, date of injury, mechanism of injury), job and employment information (e.g., employer size, pre-injury working hours), payments and services received (e.g., date of service, type of payment/service) and return to work (e.g., date of return to work, type of return to work). Use of data for research purposes was governed by information sharing agreements between icare NSW and the research team. Personal identifiers were removed from the data provided to the research team and replaced with anonymous claim identifiers. Ethical approval for the research project was obtained from the Monash University Human Research Ethics Committee (certificate number MUHREC - 30581).



## 3.5. Inclusion and exclusion criteria

Cases were eligible for inclusion if the worker was 18 years of age or older at the time of injury. Cases with missing age and sex values and with ambiguous (i.e., not able to be categorised) sex categories were excluded from our analysis. Claims with no time loss payments were also excluded from analyses focused on duration of time loss. Claims were restricted to the nine-year period from 01 July 2012 to 30 June 2021 for our first outcome (psychological injury) and from 01 July 2012 to 30 June 2019 for analysis of duration of time loss due to psychological injury to allow a minimum 2-year follow-up period in which to estimate time loss. Data was analysed by Australian financial year (1 July to 30 June), which was assigned based on the date the insurer received the claim. We excluded claims prior to 30 June 2011 because they were coded using an earlier version of the TOOCS coding scheme (i.e., TOOCS v2.1) which used a simpler and less meaningful characterisation of psychological injury claims. Inspection of the data and comparison with publicly reported claims volume suggested that a large number of claims were missing from the supplied dataset for the period July 1, 2011 to June 30, 2012. We chose to exclude claims from this time period to ensure our analysis, including estimates of change over time, were more reliable and conservative.

## 3.6. Outcomes

### Psychological injury

The primary study outcome was the occurrence of a psychological injury as identified in claims data. The nature and mechanism of psychological injury was classified using a modification of the Type of Occurrence Classification System (TOOCS) V.3.1 (30). As per prior studies (31), psychological injury codes were collapsed into four higher level categories:

- i. *Stress/anxiety*. This includes the codes 'anxiety/stress disorder' and 'reaction to stressors';
- ii. *Depressive disorders*. This includes the codes 'depression' and 'anxiety/depression';
- iii. *Post-traumatic stress*. This includes the codes 'post-traumatic stress disorder' and 'short term shock from exposure to disturbing events'; and
- iv. *Other and unspecified*. This includes the codes 'other mental diseases, not elsewhere classified' and 'mental diseases unspecified'. This fourth category includes a range of conditions including eating disorders, schizophrenia, and conduct, neurotic and psychotic disorders (Table 1).

**Table 1: Modified coding for psychological injuries**

| Psychological injuries | Original TOOCS code  | Definition as per TOOCS document   |
|------------------------|--|--|
| Post-traumatic stress  | Post-traumatic Stress Disorder                             | Delayed or protracted response to a stressful event or situation of an exceptionally threatening or catastrophic nature              |
|                        | Short term shock from exposure to disturbing circumstances | Includes mild shock (short term) with no other injury, hyperventilation  |
| Stress/Anxiety         | Anxiety/stress disorder                                    |  |
|                        | Reaction to stressors-other, multiple or not specified     | Includes adjustment disorder   |
| Depressive Disorders   | Depression   |  |
|                        | Anxiety/depression combined                                | Where anxiety and depression are included in the diagnosis   |
| Other and unspecified  | Other mental diseases, not elsewhere classified            | Includes anorexia and bulimia (eating disorders), conduct disorder, other neurotic disorders, psychotic conditions and Schizophrenia |
|                        | Mental diseases, unspecified                               | Insufficient information to code elsewhere   |

### Disability duration

The secondary study outcome was disability duration, or the amount of time for which income support benefits were paid to a worker following a compensation claim. Duration of time loss after injury was calculated by dividing the number of days off work after injury by 7 days to produce the number of compensated calendar weeks. The dataset comprised a maximum of nine years of follow-up because cases were extracted from the calendar years 2012 to 2021. The disability duration was right censored at a maximum of 104 weeks and claims accepted after June 30 2019 were excluded to allow a consistent maximum of two years follow-up time for all claims.

### 3.7. Independent factors

**Sociodemographic characteristics:** The injured workers' demographic information (age, sex, socioeconomic factors), claim and service level details were extracted from the dataset. Age refers to the worker's age at the time of injury onset and, with the exception of the first age range (18-25 years), was divided into 10-year bands. Age values of 66 and above that were not previously classified into icare age categories were reclassified as icare's oldest age category, 65+. Full-time workers were considered to be those who worked 35 or more hours per week prior to injury, with all others classified as part-time workers. Employer size was determined by the number of employees currently employed at each organisation and was divided into three categories: small (<20 employees), medium (20-199 employees), and large (>199 employees). Residential postcodes were mapped to the Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD), which summarises information about the economic and social conditions (employment status, household income, and occupation) of people living in a specific area (32). Deciles of levels of disadvantage were collapsed into quintiles for analysis ranging from 1 (most disadvantaged) to 5 (least disadvantaged) (33,34).



**Occupation:** Occupational groups in HSA industry were identified using their 4-digit Australian and New Zealand Standard Classification of Occupations (ANZSCO) (35). The ANZSCO is a skill-based classification system that defines high-level groups according to their attributes (35). Extending a prior analysis of data from healthcare workers in the Victorian workers' compensation system (6), we identified eight occupational groups: Nurses and midwives, Aged and disabled carers, Ambulance officers and Paramedics, Social workers (including social and welfare professionals and other community and personal service workers), Other healthcare workers, Administrators and managers, and Other occupations (including Technicians, Trade-workers & Labourers). Table 2 shows the occupational categories and the ANZSCO codes of each occupation.



**Table 2:** Occupational category and ANZSCO codes of occupational groups

| No. | Occupation group                  | ANZSCO group (ANZSCO codes)   |
|-----|-----------------------------------|---|
| 1   | Nurses and midwives               | Registered nurses (2544)<br>Nursing support and personal care worker (4233)<br>Enrolled and mothercraft nurses (4114)<br>Midwives (2541)<br>Nurse managers (2543)<br>Nurse educators and researchers (2542)   |
| 2   | Aged and disabled carers          | Aged and disabled carers (4231)   |
| 3   | Ambulance officers and paramedics | Ambulance officers and paramedics (4111)  |
| 4   | Other healthcare workers          | Health professional (25)*<br>Health and Welfare Support Workers (41)*<br>excluding:<br>Registered nurses (2544)<br>Nursing support and personal care worker (4233)<br>Aged and disabled carers (4231)<br>Enrolled and mothercraft nurses (4114)<br>Ambulance officers and paramedics (4111)<br>Midwives (2541)<br>Nurse managers (2543)<br>Nurse educators and researchers (2542) |
| 5   | Social workers                    | Social Workers (2725)<br>Counsellors (2721)<br>Psychologists (2723)<br>Child care service Workers<br>• Child carers (421)*<br>• Education aides (422)*<br>Special care workers (4234)<br>Protective service workers (44)*<br>Social and welfare professionals (272)*<br>Welfare Support Workers (4117)  |
| 6   | Administrators and managers       | Manager (1)*<br>Professionals (2)*<br>Clerical and administrative workers (5)*<br><b>excluding:</b><br>Health Professional (25)*<br>Psychologists (2723)<br>Social professionals (2724)<br>Counsellors (2721)<br>Welfare, recreation and community arts workers (2726)<br>Social Workers (2725)   |
| 7   | Other occupations                 | Labourers (8)*<br>Technicians, Trade workers & Labourers (3)*<br>Machinery operators and drivers (7)*   |

\*For codes with only 1, 2 or 3 digits, we considered all four-digit level codes beginning with those digits.

**Industry / Setting:** Industry was classified according to the Australian and New Zealand Standard Industrial Classification (ANZSIC) system codes (36). Settings within the HSA industry were grouped into five major categories based on ANZSIC coding, namely Hospitals, Medical and other health services, Ambulance services, Residential care services and Social assistance services. Table 3 shows the ANZSIC codes for chosen industry settings.

**Table 3:** Industry/setting category and ANZSIC codes of each industry settings

| No. | Industry/setting                             | ANZSIC group (ANZSIC codes)  |
|-----|--|--|
| 1   | Hospitals                                    | Hospitals (Except Psychiatric Hospitals) (8401)<br>Psychiatric Hospitals (8402)  |
| 2   | Medical and other allied healthcare services | General Practice Medical Services (8511)<br>Specialist Medical Services (8512)<br>Pathology and Diagnostic Imaging Services (8520)<br>Dental Services (8531)<br>Optometry and Optical Dispensing (8532)<br>Physiotherapy Services (8533)<br>Chiropractic and Osteopathic Services (8534)<br>Other Allied Health Services (8539)<br>Other Health Care Services (8599) |
| 3   | Ambulance services                           | Ambulance Services (8591)  |
| 4   | Residential care services                    | Aged Care Residential Services (8601)<br>Other Residential Care Services (8609)  |
| 5   | Social assistance services                   | Child Care Services (8710)<br>Other Social Assistance Services (8790)  |



### 3.8 Data analysis

Data analysis proceeded in two stages. First, we compared workers in the HSA industry to workers in all other industries. Second, we compared specific occupational groups within the HSA industry to one another. For each stage the same analytic methods were applied.

Descriptive statistics were used to characterise the study sample, distributions of psychological injuries and the disability duration. Continuous variables (scale scores) were reported as median (interquartile range [IQR]) due to the non-normal distributions, while discrete variables were reported as percentages. We compared industry and occupational groups on demographic and claim level variables by using the chi-squared test for categorical variables. The Wilcoxon rank-sum test was used to compare the variable differences of continuous variables between two groups as the variables were not normally distributed (37).

The frequency, proportion (psychological injury claims as a percentage of all claims) and median disability duration for psychological injury claims were calculated by industry and occupation. Labour force data provided by SafeWork Australia (from 2012 to 2017) was used as denominators to calculate rates of psychological injury claims per 1,000 covered workers for each year of the study period by occupation. As we only had denominator data for 2012 to 2017 from SafeWork Australia, we extrapolated 2012 to 2017 denominator data to estimate the labour force for 2018 to 2021. We also calculated the total number of weeks of time loss due to psychological injuries in the study period, and also expressed this as a percentage of the total week lost due to any injury.

Logistic regression was performed to identify significant risk factors associated with psychological injuries (38,39). In order to determine the association between each factor and psychological injury claims, univariable analyses were performed first and all factors with p values less than 0.05 ( $p < 0.05$ ) were retained in the final model purposefully (38). Adjusted odds ratios (ORs) and 95% confidence intervals (CIs) were reported, representing the odds of a worker having a workers' compensation claim for psychological injury relative to workers in the reference category. ORs greater than 1 represent higher odds of a psychological injury claim and ORs less than 1 represent lower odds. All analyses were performed using Stata Version 17 (StataCorp, College Station, TX) and a p-value  $< 0.05$  was considered statistically significant.



# Results

# Results

## Stage 1 (HSA vs Other Industries)

The first analysis compared workers in the HSA industry to workers in other industries. In total, there were 129,089 claims in the HSA industry and 150,359 claims from other industries. After applying exclusion criteria, 114,197 claims from the HSA industry and 116,062 claims from other industries were included in analyses.

### Sample characteristics

A comparison of worker characteristics and injury claims in the HSA industry and other industries is presented in Table 4, which shows a number of significant differences. In the HSA industry, 76.4% of claimants were females and 52.7% were older than 45 years, whereas 72.5% of workers in other industries were males and 61.5% of claimants were younger than 45 years old. Injured workers in the HSA industry were significantly more likely to work part-time, to work for large employers, to make claims for psychological injury, and less likely to have disability durations exceeding 12 weeks, than workers in other industries.



**Table 4:** Characteristics of injured workers and all injury claims

| Characteristics  | Healthcare and social assistance industry (n=114,197) | Other industry workers (n=116,062) | p-value |
|--|---|------------------------------------|---------|
| <b>Sex of worker</b>   |   |                                    | <0.001  |
| Female   | 87,273 (76.4%)  | 31,905 (27.5%)                     |         |
| Male   | 26,924 (23.6%)  | 84,157 (72.5%)                     |         |
| <b>Age group in years</b>  |   |                                    | <0.001  |
| 18-25  | 10,892 (9.5%)   | 20,445 (17.6%)                     |         |
| 26-35  | 19,452 (17.0%)  | 26,496 (22.8%)                     |         |
| 36-45  | 23,284 (20.4%)  | 24,469 (21.1%)                     |         |
| 46-55  | 33,732 (29.5%)  | 25,489 (22.0%)                     |         |
| 56-65  | 23,950 (21.0%)  | 16,623 (14.3%)                     |         |
| 66+  | 2,883 (2.5%)  | 2,538 (2.2%)                       |         |
| <b>Occupation category</b>   |   |                                    | <0.001  |
| Nurses and midwives  | 41,311 (36.2%)  | 379 (0.3%)                         |         |
| Aged and disabled carers   | 13,392 (11.7%)  | 322 (0.3%)                         |         |
| Ambulance officers   | 6,357 (5.6%)  | 7 (<1%)                            |         |
| Social workers   | 17,231 (15.1%)  | 13,280 (11.4%)                     |         |
| All other healthcare workers   | 4,968 (4.4%)  | 204 (0.2%)                         |         |
| Administrators and Managers  | 12,772 (11.2%)  | 32,132 (27.7%)                     |         |
| Other occupations  | 18,166 (15.9%)  | 69,738 (60.1%)                     |         |
| <b>IRSAD quintile</b>  |   |                                    | <0.001  |
| 1 (most disadvantaged)   | 18,638 (16.3%)  | 19,001 (16.5%)                     |         |
| 2  | 27,915 (24.5%)  | 26,565 (23.0%)                     |         |
| 3  | 23,855 (20.9%)  | 21,983 (19.1%)                     |         |
| 4  | 16,693 (14.6%)  | 17,744 (15.4%)                     |         |
| 5 (most advantaged)  | 26,898 (23.6%)  | 30,079 (26.1%)                     |         |
| <b>Pre-injury working hours</b>  |   |                                    | <0.001  |
| Part-time  | 66,702 (58.4%)  | 55,429 (47.8%)                     |         |
| Full-time  | 47,495 (41.6%)  | 60,633 (52.2%)                     |         |
| <b>Nature of injury</b>  |   |                                    | <0.001  |
| Psychological injuries   | 10,997 (9.6%)   | 6,425 (5.5%)                       |         |
| Other injuries   | 103,200 (90.4%)                                       | 109,637 (94.5%)                    |         |
| <b>Mechanism of injury for all injuries</b>  |   |                                    | <0.001  |
| Mental stress  | 10,442 (9.1%)   | 6,024 (5.2%)                       |         |
| Body stress  | 45,146 (39.5%)  | 37,047 (31.9%)                     |         |
| Other external mechanism   | 52,239 (45.7%)  | 64,332 (55.4%)                     |         |
| Other non-specified mechanisms   | 6,360 (5.6%)  | 8,651 (7.5%)                       |         |
| <b>Employer size</b>   |   |                                    | <0.001  |
| Small size (<20 workers)   | 20,604 (18.0%)  | 46,551 (40.1%)                     |         |
| Medium size (20-199 workers)   | 54,458 (47.7%)  | 45,743 (39.4%)                     |         |
| Large size (>=200 workers)   | 39,135 (34.3%)  | 23,768 (20.5%)                     |         |
| Duration of time loss for all injuries (median (IQR)) (weeks)                          | 2.28 (0.7, 10.6)                                      | 2.42 (0.7, 11.4)                   |         |
| <b>Duration of time loss (categorised) for all injuries (time loss claimants only)</b> |   |                                    | <0.001  |
| Less than five weeks   | 33,723 (63.9%)  | 32,900 (62.3%)                     |         |
| Between 5 and 12 weeks   | 6,848 (13.0%)   | 7,279 (13.8%)                      |         |
| Greater than 12 weeks  | 12,167 (23.1%)  | 12,665 (24.0%)                     |         |
| Total (N) for duration of disability   | 52,738  | 52,844                             |         |

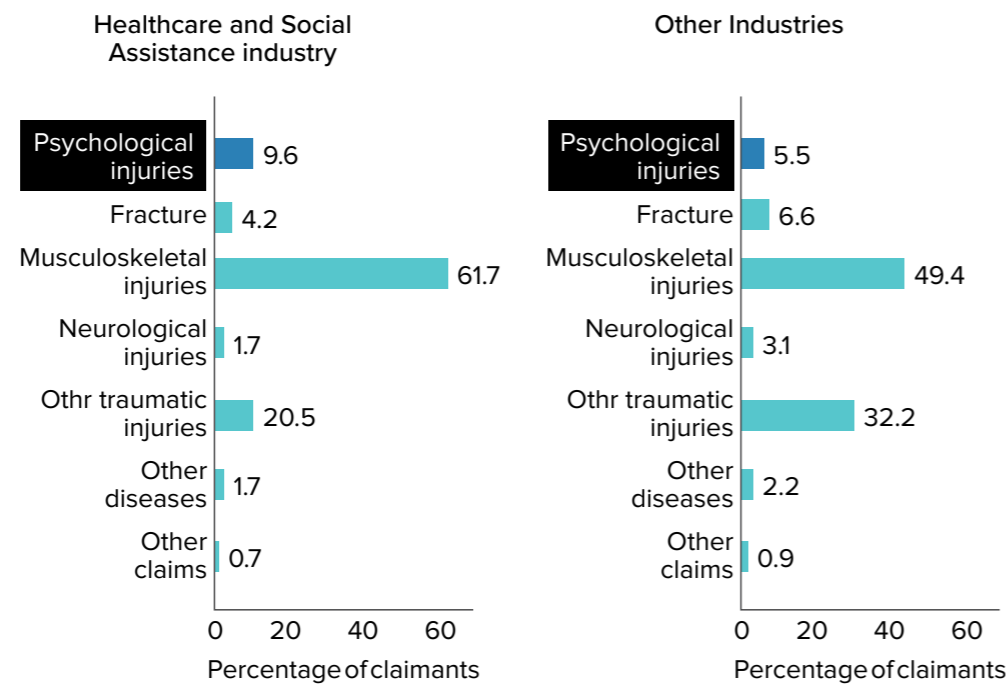
Note: All data is shown as Number (Column percentage); IQR = Interquartile range; IRSAD = Index of Relative Socioeconomic Advantage/Disadvantage.



### Profile of injury claims by industry

Figure 1 shows the proportion of psychological injury claims versus all other claims among workers in the HSA industry and other industry workers over the nine-year study period. Musculoskeletal injuries were the most common in both groups, followed by other traumatic injuries. Psychological injury claims account for 9.6% of claims in the HSA Industry and 5.5% of claims in Other Industries. Psychological injury was the third most common injury type in the HSA industry but the fourth most common in other workers, after fractures.

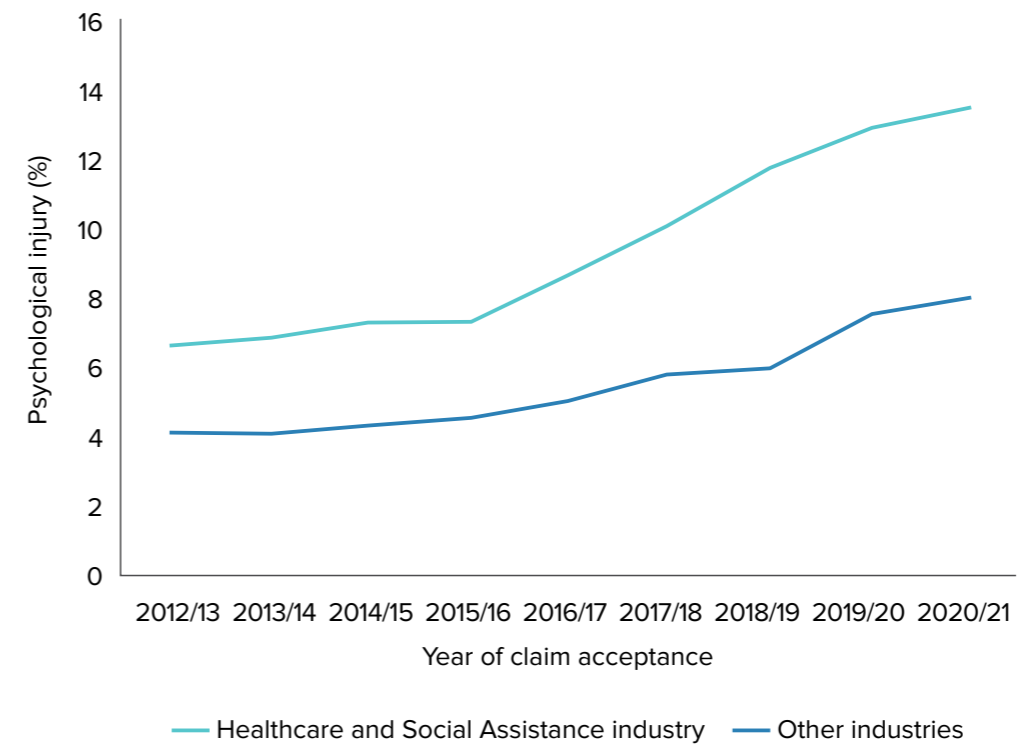
**Figure 1:** Proportion of psychological and other injury claims in HSA and other industry groups



### Proportion of psychological injury claims by year of claim acceptance

Figure 2 shows the proportion of all claims that were for psychological injury by industry and by year of claim acceptance. Over the nine-year study period, the percentage of psychological injury claims in the HSA industry has more than doubled from 6.7% in 2012/13 to 13.5% in 2020/21, with the strongest growth occurring after 2015/16. In comparison, the proportion of psychological injury claims among workers in other industries has increased from 4.1% in 2012/13 to 7.9% in 2020/21.

**Figure 2:** Proportion of psychological injury claims by industry and year of claim acceptance



### Nature and mechanism of psychological injuries

Figure 3 shows the nature of psychological injury claims among workers in HSA and other industries over the nine-year period. Claims categorised as stress/anxiety conditions accounted for approximately two-thirds of all psychological injury claims in both the HSA industry and other industries. Depressive disorders accounted for one in five psychological injury claims. There is a similar pattern in the type of psychological injuries between HSA and other industries.

**Figure 3:** Types of psychological injuries among HSA and other industry workers

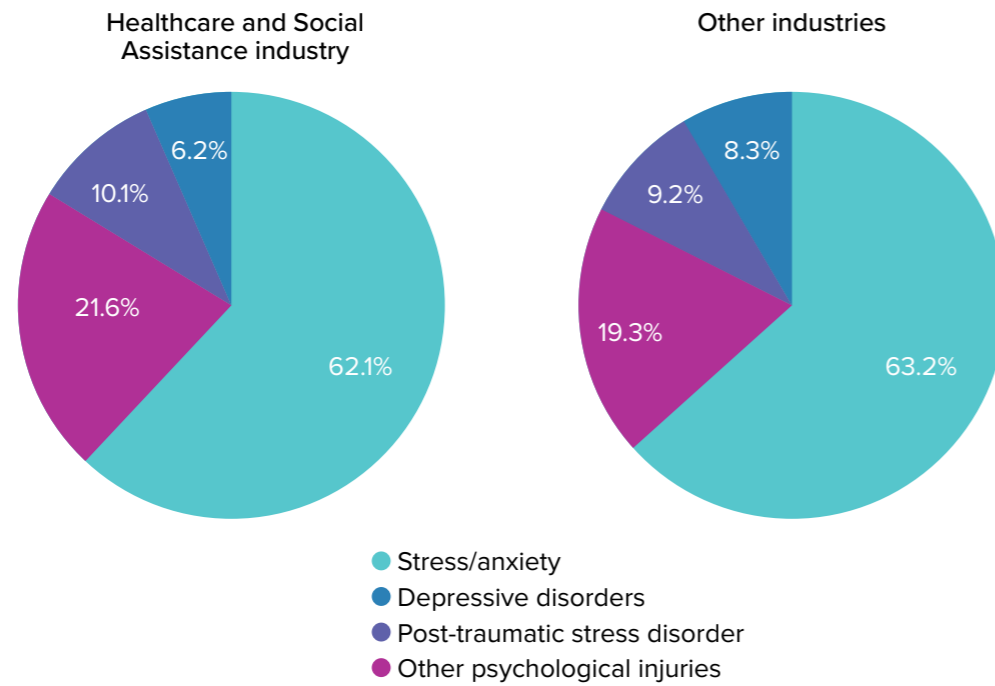
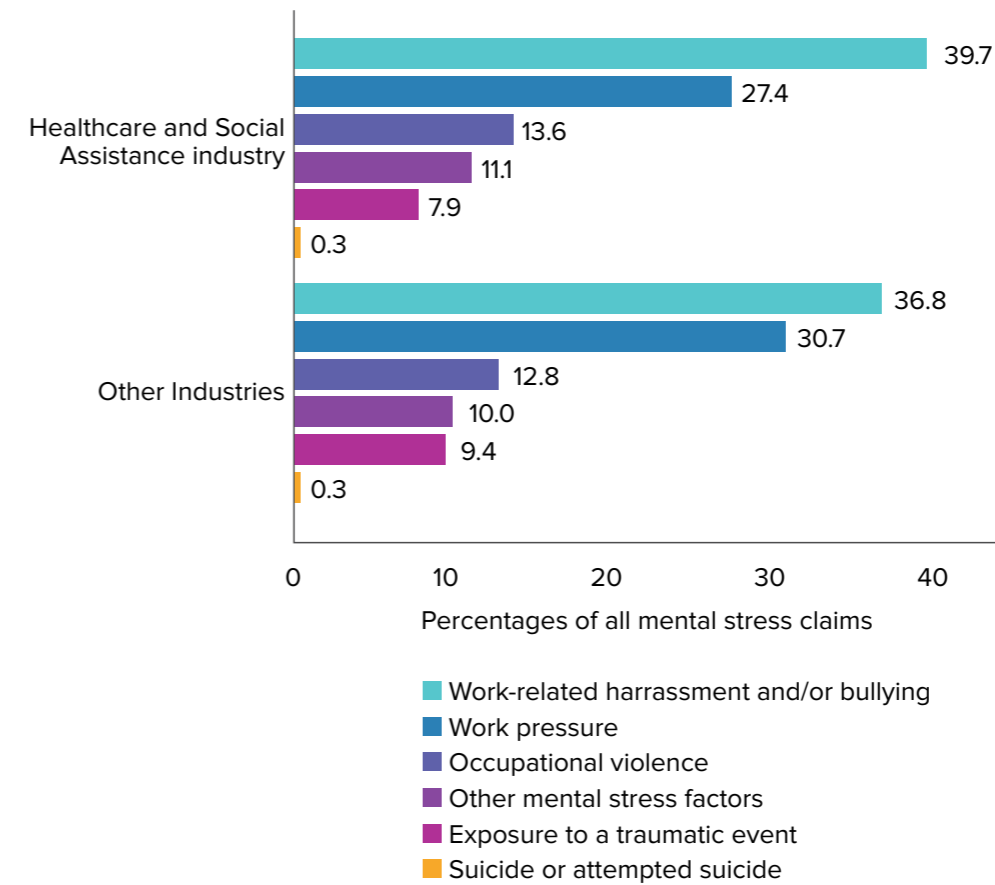


Figure 4 shows a breakdown of the mechanism of injury for psychological injury claims in the HSA and other industries over the study period. Work-related harassment and/or bullying (39.7% in HSA and 36.8% in other industries) was the most commonly specified mechanism, followed by workplace pressure (27.4% in the HSA industry and 30.7% in other industries). Occupational violence was the third most common mechanism in the HSA industry (13.6% of psychological injury claims) and the fifth most common in other industries (9.4%). Exposure to a traumatic event and “other mental stress factors” were also reported in 7.9% and 11.1% of claims in the HSA industry.

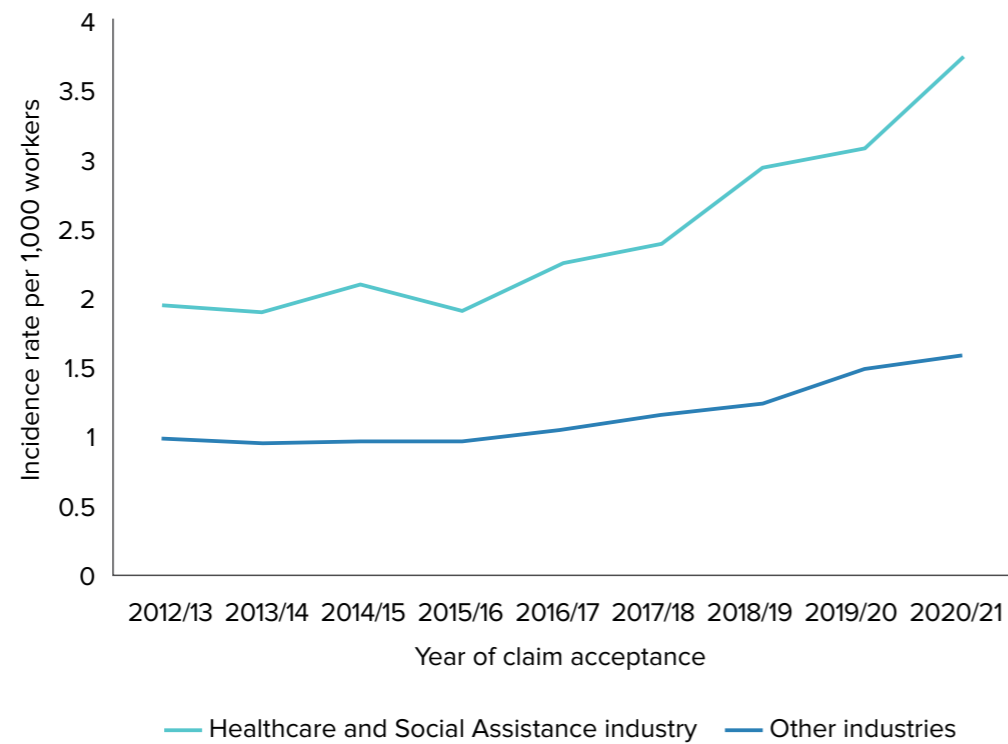
**Figure 4:** Mechanism of psychological injury claims by industry



### Incidence of psychological injury claims by year of claim acceptance

Figure 5 shows the incidence rate of psychological injury claims (per 1000 workers in the industry) by year of claim acceptance and industry. The incidence has more than doubled in the HSA industry from 1.8 in 2012/13 to 3.8 in 2020/21. In comparison, the incidence of psychological injury claims among workers in other industries has grown more slowly throughout the study period (from 0.9 in 2012/13 to 1.4 in 2020/21). In the final year of the time series the incidence rate in the HSA industry is more than two and a half times that in other industries.

**Figure 5:** Incidence of psychological injury claims by year of claim acceptance



### Disability duration of psychological injury and other claims

Figure 6 shows a comparison of the disability duration (number of compensated weeks' time loss) of psychological injury claims and all other claims in NSW. This analysis does not differentiate between industries as the pattern was comparable between HSA and other industry workers. The median (IQR) duration of time loss for psychological injury claims was 13.4 (3.7-43.0) weeks, whereas the median duration for other injuries is 2.0 (0.7-8.9) weeks. These boxplots indicate that the disability duration of 25% of psychological injury claims exceeds 43.0 weeks and the disability duration of 50% of psychological injury claims exceeds 13.4 weeks.

**Figure 6:** Box plot of disability duration of psychological injury and all other claims

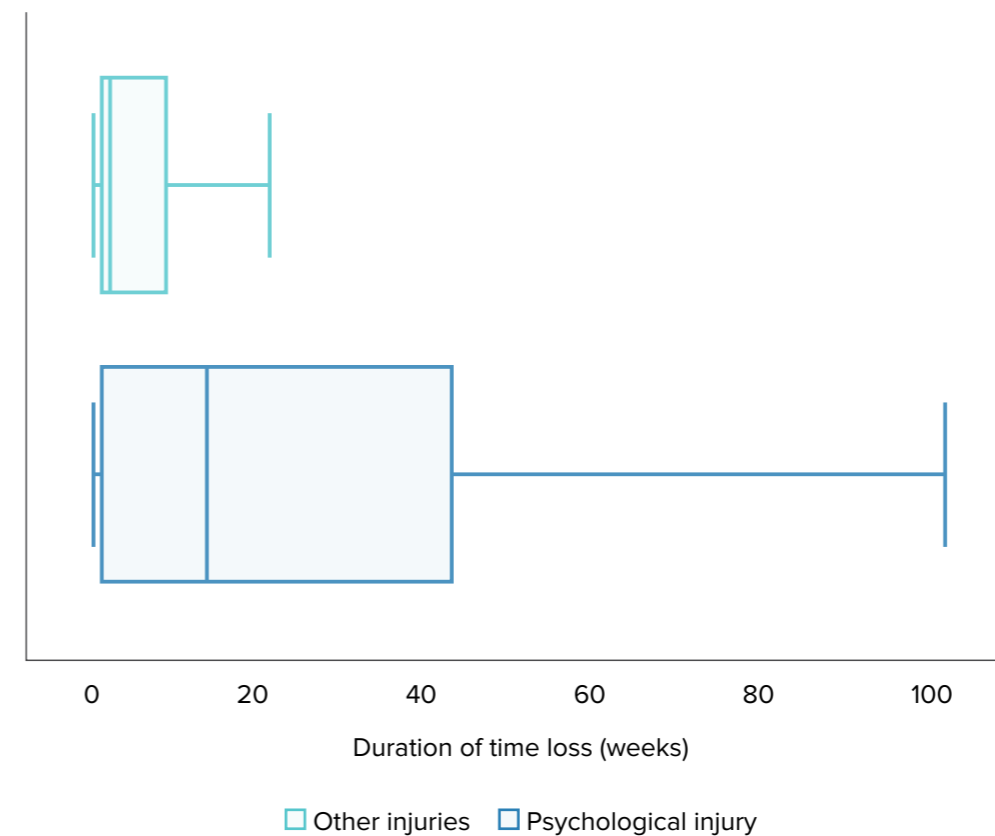
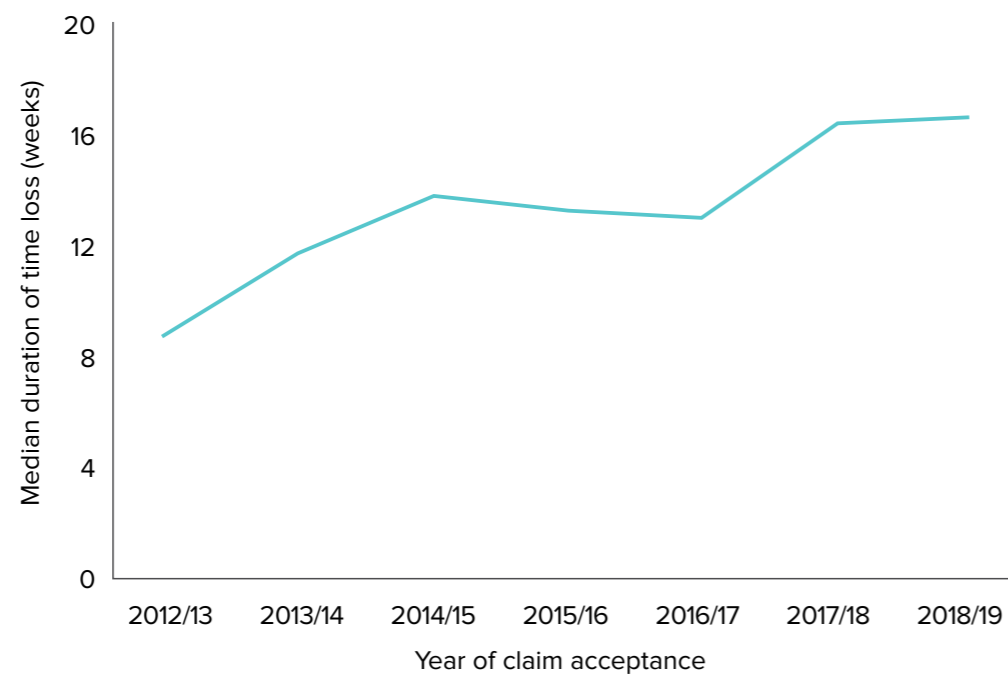




Figure 7 shows the median duration of disability in weeks for psychological injury claims in the HSA industry over the study period. This shows a growth in the median duration of each claim from 8.7 weeks in 2012/13 to more than 16 weeks for claims accepted in 2018/19. Note that the time series ends in 2018/19 to enable a 2-year follow-up period for each claim in the data series.

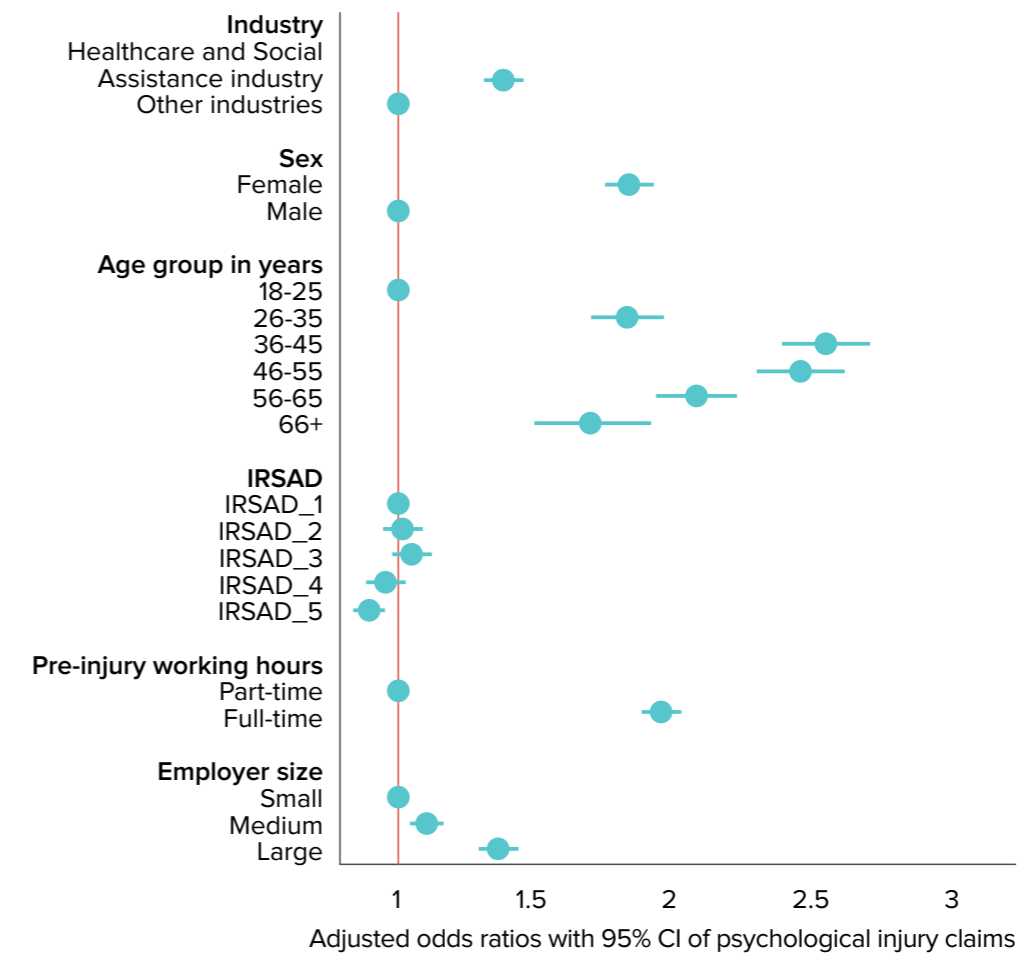
**Figure 7:** Median weeks disability duration of psychological injury claims by year of claim acceptance among HSA industry workers



### Factors associated with psychological injury claims

Figure 8 shows the occupational and sociodemographic factors associated with psychological injury claims in all claimants in the study. After adjusting for all other factors, workers in HSA industry had 32% higher odds of a workers' compensation claim for psychological injury than workers in other industries. Female claimants had 83% higher odds of claiming psychological injuries than males. Workers aged 26-35 years had 82% higher odds of claiming psychological injuries than those aged 18-25 years. Workers aged 36-45, 46-55 and 56-65 years had 256%, 243%, and 204% higher odds of claiming psychological injuries than participants aged 18-25 years respectively. Workers aged 66+ years had 59% higher odds of claiming psychological injuries than participants age 18-25. Workers living in the most socioeconomically advantaged areas had 11% lower odds of claiming psychological injury than workers living in the most socioeconomically disadvantaged areas. Workers who worked full-time prior to injury had 92% higher odds of claiming psychological injury than workers who worked part-time.

**Figure 8:** Factors associated with psychological injury claims



Note: Figure presents adjusted odds ratios with 95% confidence intervals for factors associated with psychological injury claims: CI=Confidence intervals; IRSAD=Index of Relative Socioeconomic Advantage and Disadvantage.

## Stage 2 (Specific HSA Occupations)

In stage 2 of the analysis we examined all injury claims in general and psychological injury claims among specific occupational groups within the HSA industry. This analysis uses data only from the HSA industry, but breaks claims down by occupation, to examine patterns and features within different job types.

### *Characteristics of occupational groups*

Table 5 shows the characteristics of the injured workers in each of the occupational groups. There were notable differences in sociodemographic characteristics, nature of injuries, mechanism of injuries and employer size among these occupational groups.

Females represented the majority of workers with workers' compensation claims among Social workers, Nurses and midwives, Aged and disabled carers, Other occupations, Other healthcare professionals, and Administrators and managers, whereas the majority of claims from Ambulance officers were from males. The age distribution differed significantly between occupational groups, with a higher proportion of Other healthcare workers, Ambulance officers and Social workers being aged under 45 years, compared to other groups.

A larger proportion of Aged and disabled carers were in the most disadvantaged quintile compared to Other occupational groups, with "Other healthcare workers" having the largest proportion of injured workers from the most advantaged socioeconomic quintile. The highest percentage of part-time workers was in the Aged and disabled carers group, while the highest percentage of full-time workers was among Ambulance officers. Nurses and midwives were most likely to work for large employers, Ambulance officers for medium sized employers, and workers in Other occupations for small employers.

Table 6 shows the nature and mechanism of injury among occupational groups, as well as the duration of disability. There were significant differences between groups. Administrators and managers recorded the highest proportion of psychological injury claims, followed by Ambulance officers and then Social workers. Musculoskeletal condition claims were the most common type of injury in all occupational groups, accounting for between 53% and 66% of claims, with traumatic injury being the second most common in most occupational groups. Ambulance officers also recorded the greatest proportion of claims exceeding 12 weeks disability duration.



**Table 5: Characteristics of injured workers by occupation**

| Characteristics                 | Nurses and midwives | Aged and disabled carers | Ambulance officers |  | Social workers | Other healthcare workers | Administrators and managers | Other occupations | p-value |
|---------------------------------|---------------------|--------------------------|--------------------|--|----------------|--------------------------|-----------------------------|-------------------|---------|
| <b>Sex of worker</b>            |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| Female                          | 33,953 (82.2%)      | 11,223 (83.8%)           | 2,524 (39.7%)      |  | 13,454 (78.1%) | 3,997 (80.5%)            | 10,437 (81.7%)              | 11,685 (64.3%)    |         |
| Male                            | 7,358 (17.8%)       | 2,169 (16.2%)            | 3,833 (60.3%)      |  | 3,777 (21.9%)  | 971 (19.5%)              | 2,335 (18.3%)               | 6,481 (35.7%)     |         |
| <b>Age group in years</b>       |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| 18-25                           | 3,559 (8.6%)        | 1,316 (9.8%)             | 327 (5.1%)         |  | 2,735 (15.9%)  | 663 (13.3%)              | 926 (7.3%)                  | 1,366 (7.5%)      |         |
| 26-35                           | 7,188 (17.4%)       | 2,011 (15.0%)            | 1,442 (22.7%)      |  | 3,190 (18.5%)  | 1,330 (26.8%)            | 1,963 (15.4%)               | 2,328 (12.8%)     |         |
| 36-45                           | 8,278 (20.0%)       | 2,714 (20.3%)            | 1,889 (29.7%)      |  | 3,538 (20.5%)  | 1,063 (21.4%)            | 2,484 (19.5%)               | 3,318 (18.3%)     |         |
| 46-55                           | 12,078 (29.2%)      | 4,237 (31.6%)            | 1,941 (30.5%)      |  | 4,539 (26.3%)  | 1,106 (22.3%)            | 4,059 (31.8%)               | 5,772 (31.8%)     |         |
| 56-65                           | 9,172 (22.2%)       | 2,773 (20.7%)            | 719 (11.3%)        |  | 2,900 (16.8%)  | 711 (14.3%)              | 2,935 (23.0%)               | 4,740 (26.1%)     |         |
| 66+                             | 1,034 (2.5%)        | 341 (2.5%)               | 39 (0.6%)          |  | 328 (1.9%)     | 95 (1.9%)                | 404 (3.2%)                  | 642 (3.5%)        |         |
| <b>IRSAD quintile</b>           |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| 1 (most disadvantaged)          | 7,134 (17.3%)       | 2,585 (19.4%)            | 874 (13.8%)        |  | 2,825 (16.4%)  | 498 (10.1%)              | 1,581 (12.4%)               | 3,141 (17.3%)     |         |
| 2                               | 10,175 (24.7%)      | 3,775 (28.3%)            | 1,331 (21.0%)      |  | 4,265 (24.8%)  | 881 (17.8%)              | 2,744 (21.5%)               | 4,744 (26.1%)     |         |
| 3                               | 8,613 (20.9%)       | 2,856 (21.4%)            | 1,083 (17.1%)      |  | 3,869 (22.5%)  | 832 (16.8%)              | 2,569 (20.2%)               | 4,033 (22.2%)     |         |
| 4                               | 5,990 (14.5%)       | 1,870 (14.0%)            | 794 (12.5%)        |  | 2,492 (14.5%)  | 790 (15.9%)              | 2,005 (15.7%)               | 2,752 (15.2%)     |         |
| 5 (most advantaged)             | 9,339 (22.6%)       | 2,270 (17.0%)            | 2,264 (35.7%)      |  | 3,754 (21.8%)  | 1,953 (39.4%)            | 3,844 (30.2%)               | 3,474 (19.1%)     |         |
| <b>Pre-injury working hours</b> |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| Part-time                       | 24,748 (59.9%)      | 10,047 (75.0%)           | 1,707 (26.9%)      |  | 10,383 (60.3%) | 2,966 (59.7%)            | 6,685 (52.3%)               | 10,166 (56.0%)    |         |
| Full time                       | 16,563 (40.1%)      | 3,345 (25.0%)            | 4,650 (73.1%)      |  | 6,848 (39.7%)  | 2,002 (40.3%)            | 6,087 (47.7%)               | 8,000 (44.0%)     |         |
| <b>Employer size</b>            |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| Small size (<20 workers)        | 4,885 (11.8%)       | 3,201 (23.9%)            | 155 (2.4%)         |  | 4,851 (28.2%)  | 1,521 (30.6%)            | 3,278 (25.7%)               | 2,713 (14.9%)     |         |
| Medium size (20-199 workers)    | 19,673 (47.6%)      | 5,547 (41.4%)            | 5,531 (87.0%)      |  | 7,884 (45.8%)  | 1,852 (37.3%)            | 5,075 (39.7%)               | 8,896 (49.0%)     |         |
| Large size (>=200 workers)      | 16,753 (40.6%)      | 4,644 (34.7%)            | 671 (10.6%)        |  | 4,496 (26.1%)  | 1,595 (32.1%)            | 4,419 (34.6%)               | 6,557 (36.1%)     |         |

Note: All data are reported as Number (column percentage);  
IRSAD = Index of Relative Socio-Economic Advantage/Disadvantage.

**Table 6: Nature and mechanism of injury and duration of disability by occupation**

| Nature of claim                      | Nurses and midwives | Aged and disabled carers | Ambulance officers |  | Social workers | Other healthcare workers | Administrators and managers | Other occupations | p-value |
|--------------------------------------|---------------------|--------------------------|--------------------|--|----------------|--------------------------|-----------------------------|-------------------|---------|
| <b>Type of injury</b>                |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| Psychological                        | 3,212 (7.8%)        | 975 (7.3%)               | 849 (13.4%)        |  | 2,174 (12.6%)  | 475 (9.6%)               | 2,227 (17.4%)               | 1,085 (6.0%)      |         |
| Fracture                             | 1,655 (4.0%)        | 410 (3.1%)               | 103 (1.6%)         |  | 853 (5.0%)     | 288 (5.8%)               | 800 (6.3%)                  | 662 (3.6%)        |         |
| Musculoskeletal                      | 27,113 (65.6%)      | 8,869 (66.2%)            | 4,093 (64.4%)      |  | 9,798 (56.9%)  | 2,631 (53.0%)            | 7,023 (55.0%)               | 10,933 (60.2%)    |         |
| Neurological                         | 5,45 (1.3%)         | 179 (1.3%)               | 94 (1.5%)          |  | 295 (1.7%)     | 112 (2.3%)               | 256 (2.0%)                  | 418 (2.3%)        |         |
| Other traumatic                      | 7,773 (18.8%)       | 2,774 (20.7%)            | 844 (13.3%)        |  | 3,823 (22.2%)  | 1,309 (26.3%)            | 2,227 (17.4%)               | 4,655 (25.6%)     |         |
| Other diseases                       | 776 (1.9%)          | 132 (1.0%)               | 159 (2.5%)         |  | 204 (1.2%)     | 101 (2.0%)               | 183 (1.4%)                  | 332 (1.8%)        |         |
| Other claims                         | 237 (0.6%)          | 53 (0.4%)                | 215 (3.4%)         |  | 84 (0.5%)      | 52 (1.0%)                | 56 (0.4%)                   | 81 (0.4%)         |         |
| <b>Mechanism of injury</b>           |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| Mental stress                        | 3,027 (7.3%)        | 886 (6.6%)               | 834 (13.1%)        |  | 2,071 (12.0%)  | 461 (9.3%)               | 2,155 (16.9%)               | 1,008 (5.5%)      |         |
| Body stress                          | 17,615 (42.6%)      | 5,409 (40.4%)            | 3,218 (50.6%)      |  | 5,334 (31.0%)  | 1,756 (35.4%)            | 4,067 (31.9%)               | 7,747 (42.6%)     |         |
| Other external mechanism             | 18,601 (45.0%)      | 6,232 (46.5%)            | 2,057 (32.4%)      |  | 8,715 (50.6%)  | 2,389 (48.1%)            | 5,838 (45.7%)               | 8,407 (46.3%)     |         |
| Other non-specified mechanism        | 2,065 (5.0%)        | 865 (6.5%)               | 247 (3.9%)         |  | 1,110 (6.4%)   | 361 (7.3%)               | 709 (5.6%)                  | 1,003 (5.5%)      |         |
| <b>Duration of disability</b>        |                     |                          |                    |  |                |                          |                             |                   | <0.001  |
| Less than five weeks                 | 12,872 (68.1%)      | 3,861 (61.3%)            | 1,702 (53.1%)      |  | 5,592 (64.8%)  | 1,118 (62.1%)            | 3,309 (58.3%)               | 5,269 (64.2%)     |         |
| Between 5 and 12 weeks               | 2,356 (12.4%)       | 814 (12.9%)              | 425 (13.3%)        |  | 1,136 (13.2%)  | 256 (14.2%)              | 804 (14.2%)                 | 1,057 (12.9%)     |         |
| Greater than 12 weeks                |                     |                          |                    |  |                |                          |                             |                   |         |
| Total (N) for duration of disability | 3,691 (19.5%)       | 1,622 (25.8%)            | 1,077 (33.6%)      |  | 1,902 (22.0%)  | 427 (23.7%)              | 1,566 (27.6%)               | 1,882 (22.9%)     |         |
|                                      | 18,919              | 6,297                    | 3,204              |  | 8,630          | 1,801                    | 5,679                       | 8,208             |         |

Note: All data are reported as Number (column percentage).  
The total number of claimants for the duration of disability has altered from others due to the exclusion of cases with no time loss and claims admitted after June 30, 2019.



### All injury claims by occupation and setting

Table 7 presents a summary of all injury claims among the seven occupational subgroups across six industry settings. Cells shaded in blue represent the combination of occupation and industry settings from which the greatest percentage of claims arise, with darker blue representing a higher percentage of claims. For example, 52.3% of all injury claims from Nurses and midwives occurred in Hospital settings, with a further 39.4% arising from Residential care settings. The vast majority (89.1%) of injury claims from Ambulance officers occurred in Ambulance services with a small percentage (10.6%) in Hospital settings. The greatest volume of claims arose from Nurses and midwives in Hospital settings (N=21,613), followed by Nurses and midwives in Residential care services (N=16,274) and Aged and disability carers in Residential care services (N=12,357).



**Table 7:** Frequency and percentage of injury claims by occupation and industry setting

| Industry/Setting                      | Occupation          |                          |                    |                 |  | Occupation               |                             |                   |                  |
|---------------------------------------|---------------------|--------------------------|--------------------|-----------------|--|--------------------------|-----------------------------|-------------------|------------------|
|                                       | Nurses and midwives | Aged and disabled carers | Ambulance officers | Social workers  |  | Other healthcare workers | Administrators and managers | Other occupations | All occupations  |
| Hospitals                             | 21,613 (52.3%)      | 76 (0.6%)                | 677 (10.6%)        | 2,499 (14.5%)   |  | 2,214 (44.6%)            | 4,311 (33.8%)               | 8,506 (46.8%)     | 39,896 (34.9%)   |
| Medical and other healthcare services | 2,556 (6.2%)        | 587 (4.4%)               | 11 (0.2%)          | 1,123 (6.5%)    |  | 2,523 (50.8%)            | 2,357 (18.5%)               | 1,862 (10.2%)     | 11,019 (9.6%)    |
| Ambulance services                    | 71 (0.2%)           | 0 (0.0%)                 | 5,665 (89.1%)      | 6 (<1%)         |  | 12 (0.2%)                | 203 (1.6%)                  | 100 (0.6%)        | 6,057 (5.3%)     |
| Residential care services             | 16,274 (39.4%)      | 12,357 (92.3%)           | 4 (0.1%)           | 7,589 (44.0%)   |  | 198 (4.0%)               | 3,681 (28.8%)               | 6,484 (35.7%)     | 46,587 (40.8%)   |
| Social assistance services            | 797 (1.9%)          | 372 (2.8%)               | 0 (0.0%)           | 6,014 (34.9%)   |  | 21 (0.4%)                | 2,220 (17.4%)               | 1,214 (6.7%)      | 10,638 (9.3%)    |
| All settings                          | 4,131 (100.0%)      | 13,392 (100.0%)          | 6,357 (100.0%)     | 17,231 (100.0%) |  | 4,968 (100.0%)           | 12,772 (100.0%)             | 18,166 (100.0%)   | 114,197 (100.0%) |

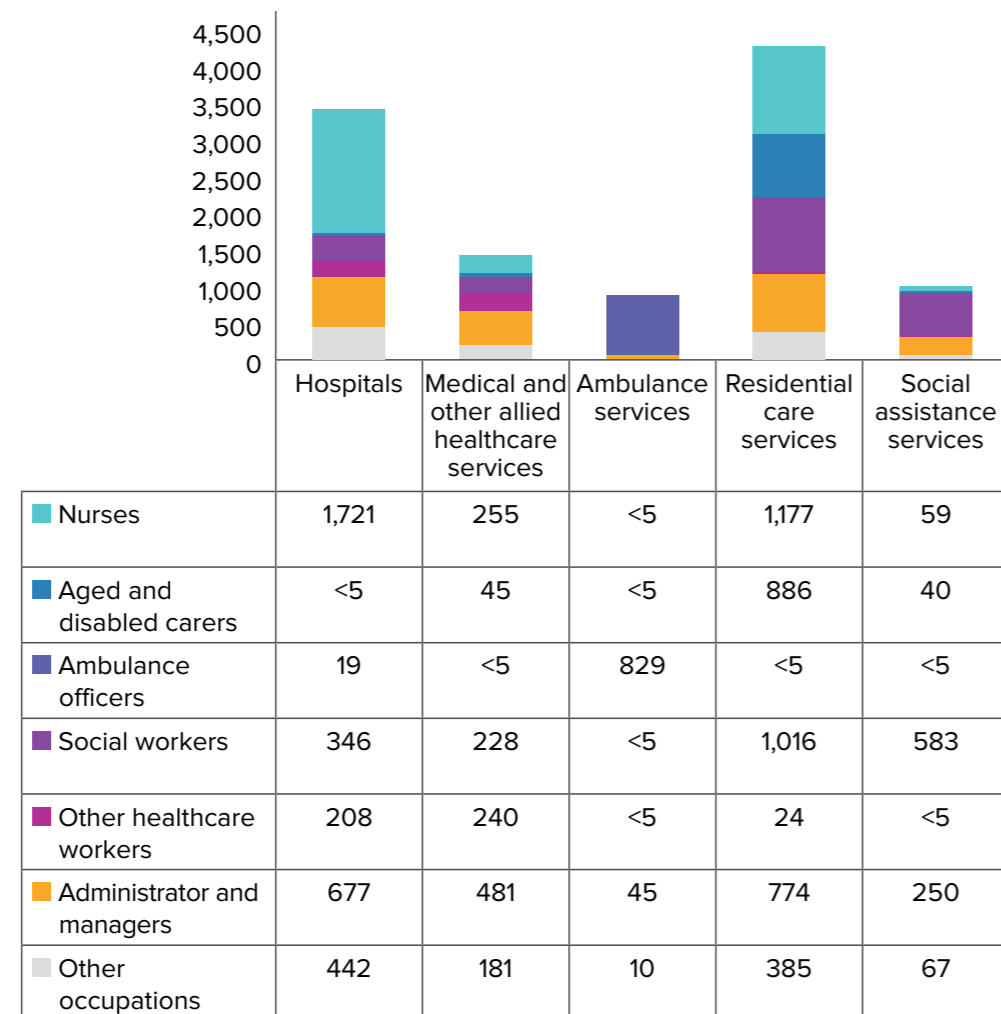
Note: All data are reported as Number (column percentage). Cells shaded in blue represent the combination of occupation and industry settings from which the greatest percentage of claims arise, with darker blue representing a higher percentage of claims.



### Psychological injury claims by occupation and setting

Table 8 presents a summary of psychological injury claims among the seven occupational subgroups across six industry settings. Cells shaded in blue represent the combination of occupation and industry settings from which the greatest percentage of psychological injury claims arise, with darker blue representing a higher percentage of claims. The greatest volume of claims arises from Nurses and midwives in Hospital settings (N=1,721), followed by Nurses and midwives in Residential care services (N=1,117), Social workers in Residential care services (N=1,016) and Aged and disability carers in Residential care services (N=886). The strongest concentration of psychological injury claims within an occupational category is among Ambulance officers in Ambulance services (97.6%), and Aged and disability care workers in Residential care services (90.9%). Figure 9 presents a visual summary of this data.

Figure 9: Number of psychological injury claims by occupation and setting



**Table 8:** Frequency and percentage of psychological injury claims by occupation and industry setting

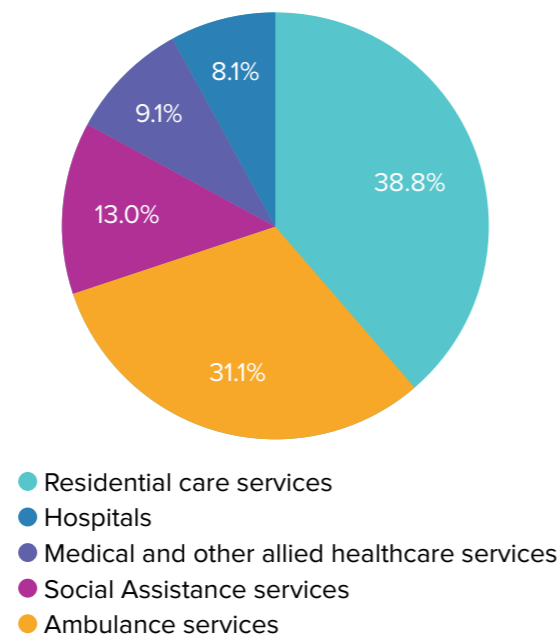
| Industry/<br>Setting                  | Occupation          |                          |                    |                |  | Occupation               |                             |                   | All occupations |
|---------------------------------------|---------------------|--------------------------|--------------------|----------------|--|--------------------------|-----------------------------|-------------------|-----------------|
|                                       | Nurses and midwives | Aged and disabled carers | Ambulance officers | Social workers |  | Other healthcare workers | Administrators and managers | Other occupations |                 |
| Hospitals                             | 1,721 (53.6%)       | <5                       | 19 (2.2%)          | 346 (15.9%)    |  | 208 (43.8%)              | 677 (30.4%)                 | 442 (40.7%)       | 3,417 (31.1%)   |
| Medical and other healthcare services | 255 (7.9%)          | 45 (4.6%)                | <5(0.1%)           | 228 (10.5%)    |  | 240 (50.5%)              | 481 (21.6%)                 | 181 (16.7%)       | 1,431 (13.0%)   |
| Ambulance services                    | <5                  | <5                       | 829 (97.6%)        | <5             |  | <5                       | 45 (2.0%)                   | 10 (0.9%)         | 886 (8.1%)      |
| Residential care services             | 1,177 (36.6%)       | 886 (90.9%)              | <5                 | 1,016 (46.7%)  |  | 24 (5.1%)                | 774 (34.8%)                 | 385 (35.5%)       | 4,262 (38.8%)   |
| Social assistance services            | 59 (1.8%)           | 40 (4.1%)                | <5                 | 583 (26.8%)    |  | <5                       | 250 (11.2%)                 | 67 (6.2%)         | 1,001 (9.1%)    |
| All settings                          | 3,212 (100.0%)      | 975 (100.0%)             | 849 (100.0%)       | 2,174 (100.0%) |  | 475 (100.0%)             | 2,227 (100.0%)              | 1,085 (100.0%)    | 10,997 (100.0%) |

Note: All data are reported as Number (column percentage). Cells shaded in blue represent the combination of occupation and industry settings from which the greatest percentage of claims arise, with darker blue representing a higher percentage of claims. Cells containing less than 5 claims have been suppressed.



Figure 10 shows the distribution of psychological injury claims by healthcare setting alone. The greatest proportion of psychological injury claims were from Residential care facilities (38.8%), accounting for more than twice as many claims as from Medical and other allied healthcare services (13.0%). Hospitals had the second highest proportion of psychological injury claims (31.1%).

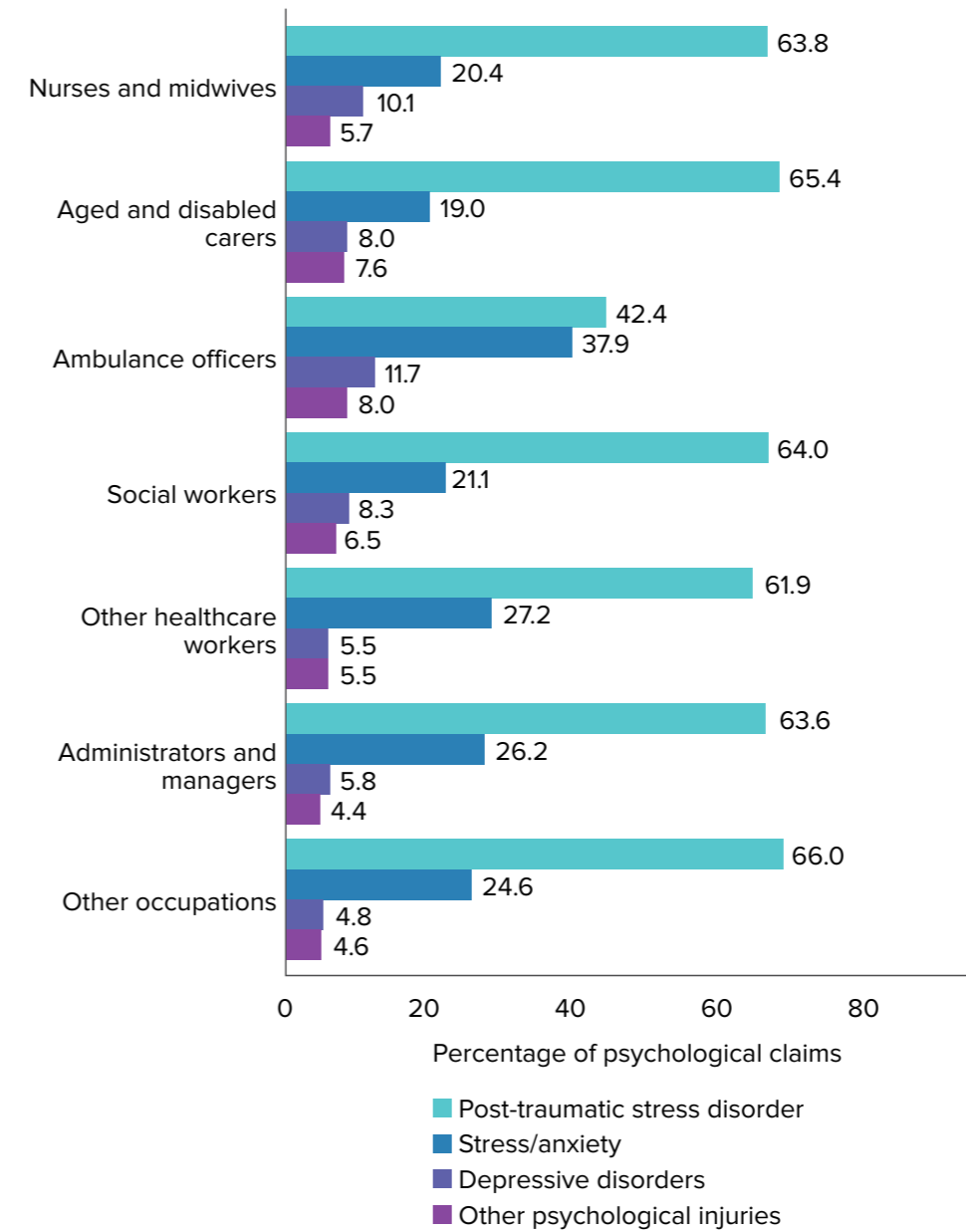
**Figure 10:** Proportion of psychological injury claims by setting



### Nature and mechanism of psychological injuries by occupational groups

Figure 11 shows the proportion of psychological injury claims by the nature of injury. Overall, stress/anxiety conditions accounted for more than two-thirds of all psychological injury claims. The most common type of psychological injury among all occupational groups except Ambulance officers was stress/anxiety. Among Ambulance officers, the most common type of psychological injury was post-traumatic stress disorder, followed closely by stress/anxiety conditions. Depressive disorders were the second most common type of injury among the remaining occupational groups.

**Figure 11:** Nature of psychological injuries by occupation



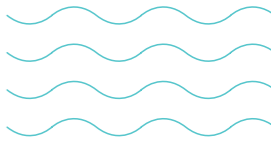
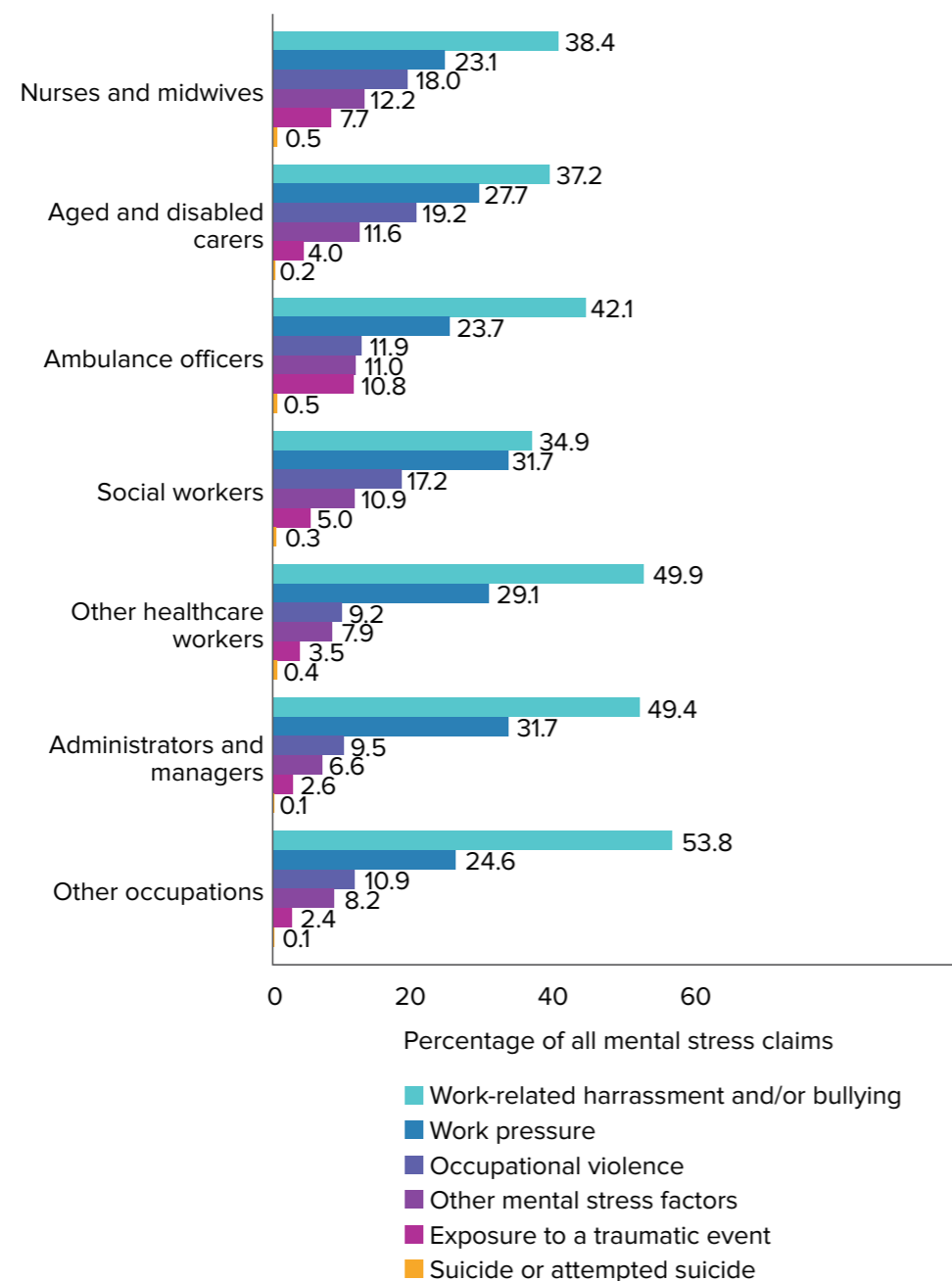


Figure 12 shows a breakdown of all psychological injury claims by mechanism of injury in each occupational group. For all occupations except for Ambulance officers, work-related harassment and/or bullying were the most commonly recorded sub-categories of psychological injury during the nine-year period (34.9 % in Social workers to 53.8 % in Other occupations). Exposure to traumatic events was the most common cause of psychological injury claims among Ambulance officers (42.1%). Workplace pressure was also a common source of psychological injury (varying from 23.1% in Nurses and midwives to 31.7% in Social workers).

**Figure 12:** Mechanism of psychological injury by occupation



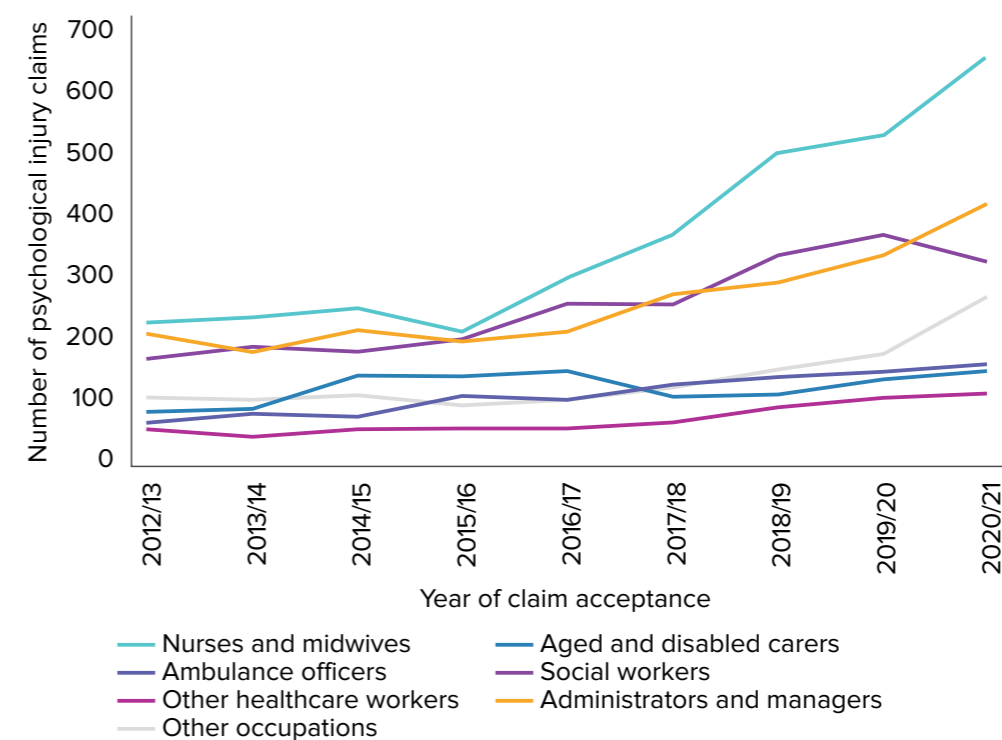
**Volume of psychological injury claims by occupation over time**

Figure 13 shows the number of psychological injury claims by occupation over the nine year study period. The number of claims has increased in all occupational groups. The largest growth has been among Nurses and midwives in which claim volume has increased more than three-fold from 212 in 2012/2013 to 660 in 2020/2021. The number of psychological injuries among Social workers has increased from 157 in 2012/2013 to 316 in 2020/2021. Three groups display a sharp upwards increase in psychological injury claim volume after the 2015/16 year including Nurses and midwives, Social workers and Administrators and managers. The number of claims among the other occupational groups increases more gradually over the study period.

To examine the growth rate in the number of claims between the start and end of the study period, we calculated the percentage change in the number of claims between two time periods: (1) the first three years of the time series, being the 2012/13 to 2014/15 financial years; and (2) the last three years of the time series, being the 2018/19 to 2020/21 financial years.

The number of claims for psychological injuries made by Nurses and midwives climbed by 150.6% between 2012-15 to 2018-21. There was a 31.2% increase in claims for psychological injuries among Aged and disabled carers, a 138.5% growth in claims from Ambulance officers, a 104.1% growth in claims from Social workers, a 169.8% increase in claims for psychological injuries among Other healthcare workers, and an 80.8% growth in claims made by Administrators and managers.

**Figure 13:** Frequency of psychological injury claims by occupation over time



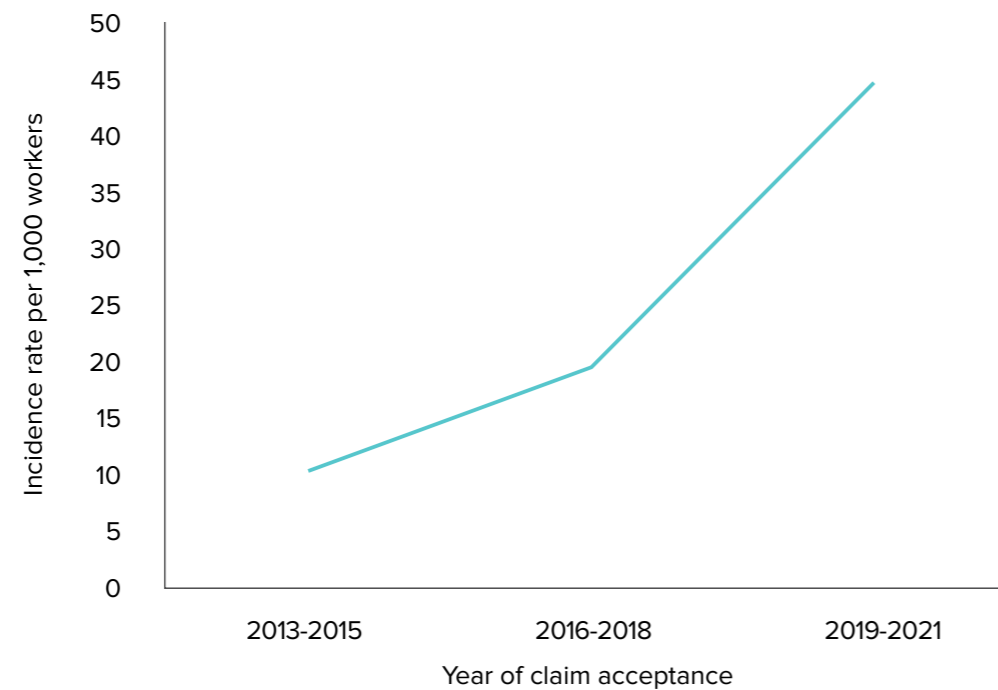


### Incidence of psychological injury claims by occupation over time

Figures 14 and 15 depict the incidence rates of psychological injury claims in the HSA industry by year of claim acceptance for selected occupations in which denominator data was available to enable calculation of incidence (Ambulance officers, Nurses and midwives, Aged and disabled care workers, Social workers, and Other healthcare occupations). Incidence was calculated in three periods corresponding to the first three, middle three and final three years of the nine-year study period.

Ambulance officers are shown separately in Figure 13 due to the very high incidence relative to the other occupations. The incidence of psychological injury claims of Ambulance officers increased more than four-fold from 10.5 per 1,000 workers in 2013-2015 to 44.5 per 1,000 workers in 2019-2021.

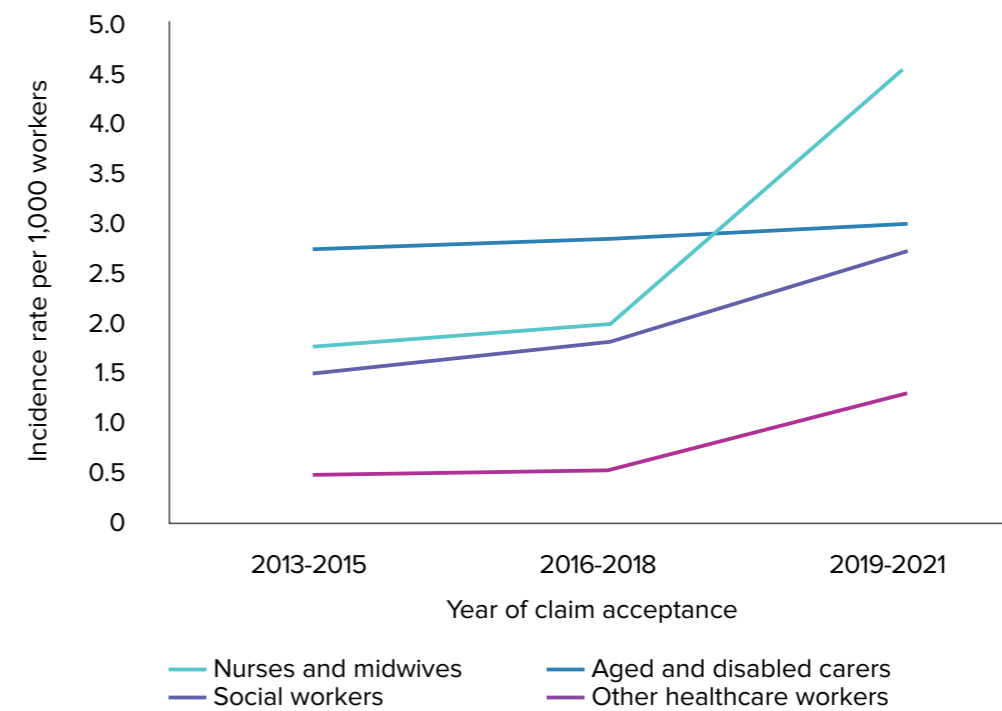
**Figure 14:** Incidence of psychological injury claims among Ambulance officers



Note: Denominator data in incidence calculations (number of workers in each group per year) for the period 2018-21 has been extrapolated from labour force data provided by Safe Work Australia for earlier years.

The incidence of claims for psychological injury also increased in four other occupational groups. Among Nurses and midwives the incidence increased from 1.8 per 1000 workers in 2013-2015 to 4.6 in 2019-2021. Among Aged and disabled care workers the incidence increased from 2.7 in 2013-2015 to 3.1 in 2019-2021. Among Social workers in NSW the incidence increased from 1.5 per 1000 workers in 2013-2015 to 2.7 in 2019-2021.

**Figure 15:** Incidence of psychological injury claims among other occupations



Note: Denominator data in incidence calculations (number of workers in each group per year) for the period 2018-21 has been extrapolated from labour force data provided by Safe Work Australia for earlier years.

### Duration of disability for psychological injury claims by occupation

Figure 16 shows a comparison of the duration of disability of psychological injury claims by selected occupations in the HSA industry in NSW.

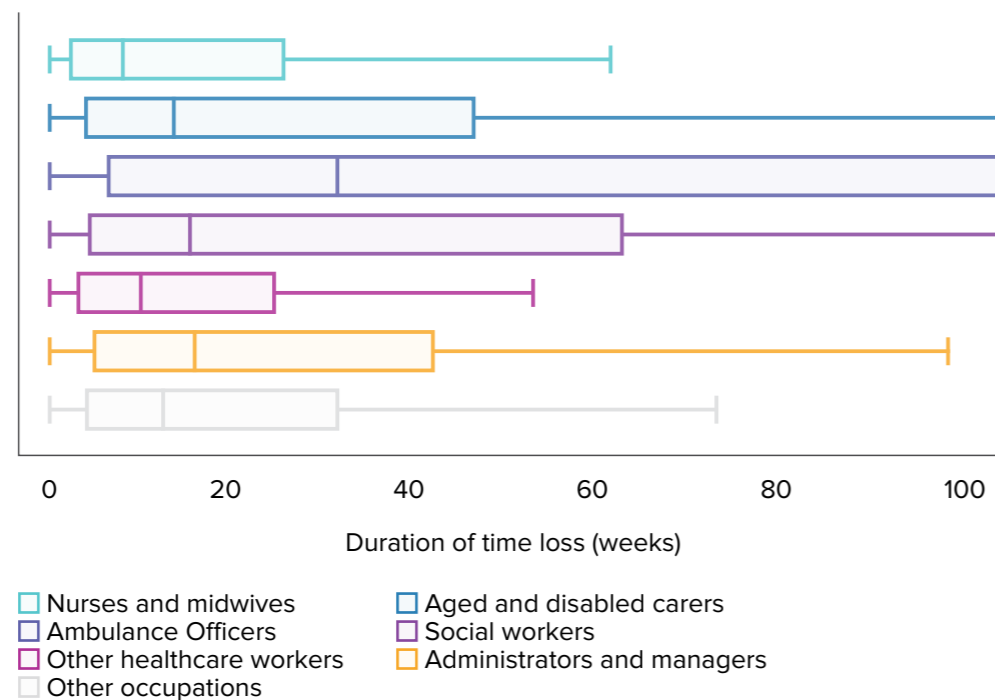
For each occupational group, the median weeks duration is indicated by the centre line within each coloured box, the 25th and 75th percentiles are represented by the edges of the box, and the 5th and 95th percentiles by the end of the lines extending from the box.

Ambulance officers recorded the longest median duration of time loss for psychological injury claims at 31.1 (6.1-104.0) weeks. Nurses and midwives had the shortest median (IQR) duration at 8.0 (2.0-25.8) weeks. The median (IQR) duration of time lost due to a psychological injury was 10.0 (2.7–24.8) weeks for Other healthcare workers, 12.4 (3.7–31.7) weeks for Other occupations, 13.6 (3.6–46.8) weeks for Aged and disabled carers, 15.1 (4.3–63.0) weeks for Social workers, and 15.7 (4.6–42.2) weeks for Administrators and managers.

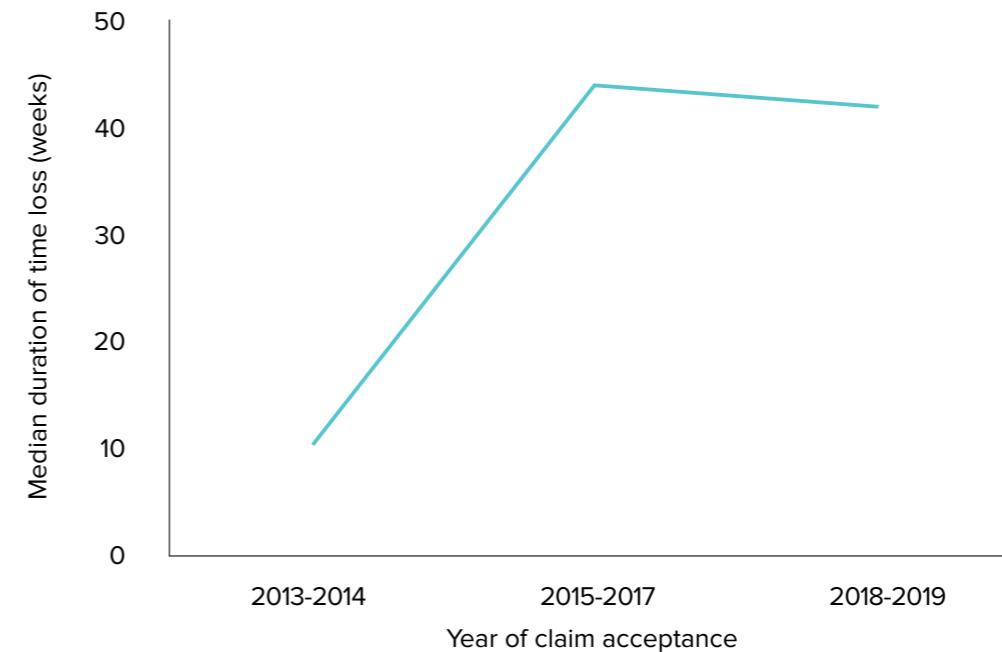
More than 25% of psychological injury claims had disability durations exceeding 30 weeks in the following occupational categories: Ambulance officers, Aged and disabled carers, Social workers, Administrators and managers.

Furthermore, the duration of disability in psychological injury claims among Ambulance officers (Figure 17), Nurses and midwives, Aged and disabled carers, Social workers, and Administrators and managers (Figure 18) increased over the last nine years.

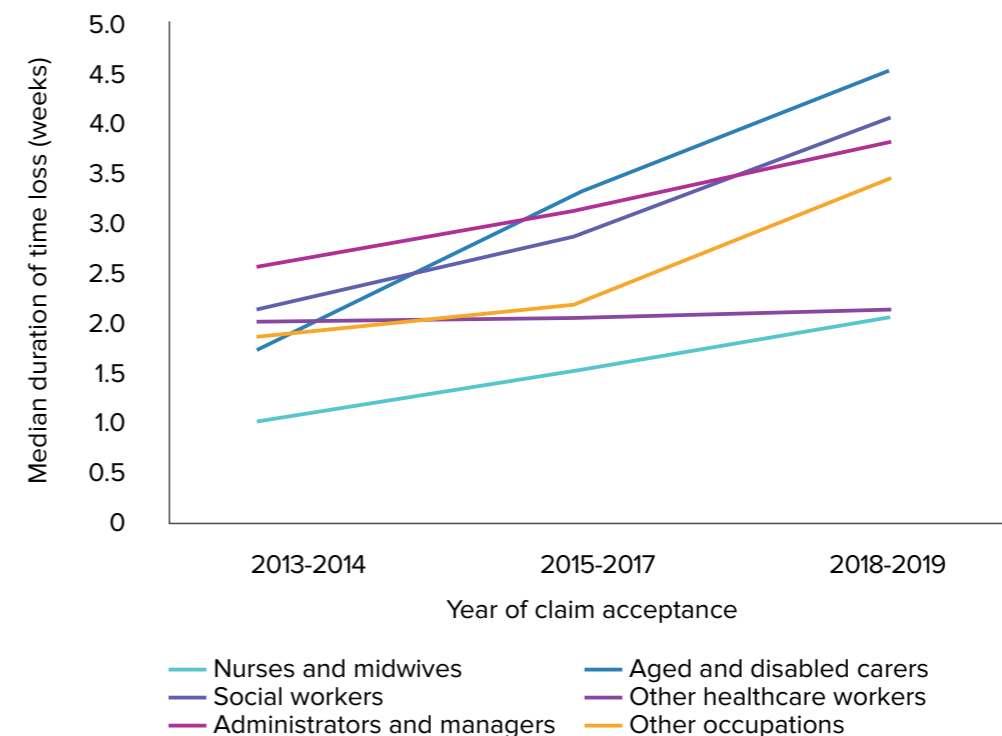
**Figure 16:** Box plot comparing disability duration of psychological injury claims among selected occupational groups



**Figure 17:** Disability duration of psychological injury claims by year of claim acceptance among Ambulance officers



**Figure 18:** Disability duration of psychological injury claims by year of claim acceptance among selected occupational groups

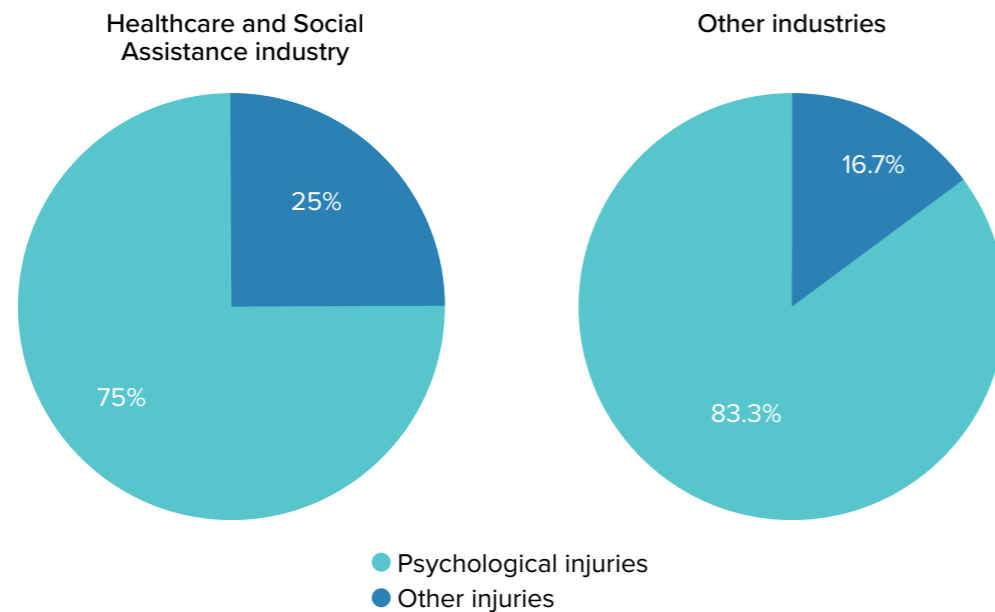


### Percentage of time lost due to psychological injuries

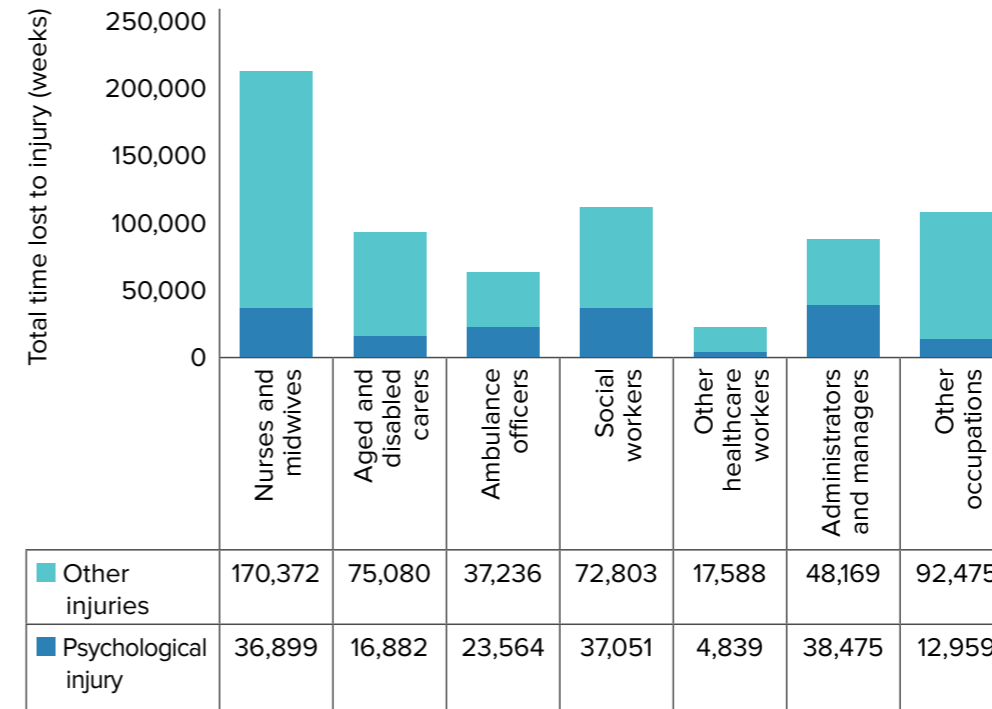
Figure 19 shows the percentage of time lost due to psychological and other injuries in the HSA and Other industries. Psychological injuries accounted for 25.0% (170,669) of the total time lost (684,394 weeks) due to any injury in the HSA industry. In contrast, psychological injuries accounted for 16.7% (117,287 weeks) of the total number of time (704,238 weeks) lost due to any injury in other industries.

Among specific occupational groups, psychological injuries accounted for 44.4% (38,475 weeks) of the total time lost (86,644 weeks) due to injuries among Administrators and managers; 38.8% (23,564 weeks) of the total time lost (60,802 weeks) due to injuries among Ambulance officers; 33.7% (37,051 weeks) of the total time lost (109,854 weeks) due to injuries among Social workers; 21.5% (4,839 weeks) of the total time lost (22,427 weeks) due to injuries among Other healthcare workers; 18.4% (16,882 weeks) of the total time lost (91,962 weeks) due to injuries among Aged and disabled carers; 17.8% (36,899 weeks) of the total time lost (207,271 weeks) due to injuries among Nurses and midwives, and 12.3% (12,959 weeks) of the total time lost due to injuries (105,434 weeks) in Other occupations (Figure 20).

**Figure 19:** Percentage of time lost due to psychological and other injuries in the HSA and Other industries



**Figure 20:** Total time lost due to psychological and other injuries by selected occupational groups in the HSA industry



### *Factors associated with psychological injury claims among selected occupational groups*

Table 9 shows the factors associated with a claim for workers' compensation being for a psychological injury among Nurses and midwives, Ambulance officers, Social workers and Aged and disabled carers. Significant effects were observed for sex, age, socio-economic advantage, working hours and size of employer, though these effects varied between occupational groups.

After adjusting for all other factors, female Ambulance officers had 24% higher odds of claiming for psychological injuries than males. However, female aged and disabled carers had 30% lower odds of claiming psychological injuries than males.

Generally, workers in older age groups had higher odds of claiming for psychological injury than workers aged 18 to 25 years. Nurses and midwives, Aged and disabled care workers and Social workers aged 26-35 years had 42%, 59% and 87% higher odds of claiming psychological injuries than workers in these occupations aged 18-25 years, respectively. Nurses and midwives, and Social workers aged 66+ years had 78% and 89% higher odds of claiming psychological injuries than workers in these occupations aged 18-25 years, respectively. Workers aged 36-65 years had higher odds of claiming psychological injuries than participants age 18-25 in all selected occupational groups.

Workers living in the most advantaged areas had lower odds of claiming psychological injuries than those living in the most socioeconomically disadvantaged areas in all selected occupations, with the exception of aged and disabled carers.

Workers who worked full-time prior to injury had higher odds of claiming psychological injury than workers who worked part-time, in all selected occupations. Results by employer size were mixed, with Aged and disabled carers working for medium and large employers reported 41% and 45% higher odds of a psychological injury claim than those working for small employers respectively. Social workers employed by large employers reported 34% increased odds of psychological injury claim than those working for small employers. Nurses and midwives employed by medium and large employers reported 30% and 19% decreased odds of psychological injury claim than those working for small employers respectively.





**Table 9:** Factors associated with psychological injury among selected occupational groups

| Characteristics                 | Nurses and midwives      |         | Ambulance officers       |         |  | Social workers           |         | Aged and disabled carers |         |
|---------------------------------|--------------------------|---------|--------------------------|---------|--|--------------------------|---------|--------------------------|---------|
|                                 | AOR (95%CI)              | p-value | AOR (95%CI)              | p-value |  | AOR (95%CI)              | p-value | AOR (95%CI)              | p-value |
| <b>Sex of worker</b>            |                          |         |                          |         |  |                          |         |                          |         |
| Male                            | 1 (Reference)            |         | 1 (Reference)            |         |  | 1 (Reference)            |         | 1 (Reference)            |         |
| Female                          | 1.02 (0.92, 1.11)        | 0.74    | <b>1.24 (1.11, 1.50)</b> | <0.01   |  | 0.94 (0.85, 1.10)        | 0.34    | <b>0.70 (0.59, 0.82)</b> | <0.01   |
| <b>Age group in years</b>       |                          |         |                          |         |  |                          |         |                          |         |
| 18-25                           | 1 (Reference)            |         | 1 (Reference)            |         |  | 1 (Reference)            |         | 1 (Reference)            |         |
| 26-35                           | <b>1.42 (1.18, 1.69)</b> | <0.01   | 1.47 (0.94, 2.30)        | 0.17    |  | <b>1.87 (1.55, 2.26)</b> | <0.01   | <b>1.59 (1.15, 2.21)</b> | 0.01    |
| 36-45                           | <b>1.76 (1.48, 2.10)</b> | <0.01   | <b>1.82 (1.18, 2.81)</b> | <0.01   |  | <b>2.52 (2.10, 3.01)</b> | <0.01   | <b>1.77 (1.31, 2.39)</b> | <0.01   |
| 46-55                           | <b>1.82 (1.54, 2.15)</b> | <0.01   | <b>2.38 (1.54, 3.71)</b> | <0.01   |  | <b>2.25 (1.89, 2.71)</b> | <0.01   | <b>1.74 (1.30, 2.33)</b> | <0.01   |
| 56-65                           | <b>1.69 (1.42, 2.01)</b> | <0.01   | <b>2.53 (1.59, 4.01)</b> | <0.01   |  | <b>2.12 (1.76, 2.61)</b> | <0.01   | <b>1.61 (1.19, 2.20)</b> | 0.01    |
| 66+                             | <b>1.78 (1.36, 2.34)</b> | <0.01   | 0.72 (0.16, 3.19)        | 0.65    |  | <b>1.89 (1.31, 2.76)</b> | <0.01   | 1.40 (0.64, 2.34)        | 0.20    |
| <b>IRSAD quintile</b>           |                          |         |                          |         |  |                          |         |                          |         |
| 1 (most disadvantaged)          | 1 (Reference)            |         | 1 (Reference)            |         |  | 1 (Reference)            |         | 1 (Reference)            |         |
| 2                               | 0.92 (0.83, 1.02)        | 0.14    | 0.93 (0.73, 1.18)        | 0.45    |  | 1.03 (0.89, 1.18)        | 0.48    | 1.17 (0.97, 1.43)        | 0.10    |
| 3                               | <b>0.86 (0.77, 0.96)</b> | <0.01   | 0.89 (0.69, 1.14)        | 0.28    |  | 0.98 (0.84, 1.12)        | 0.78    | 1.15 (0.94, 1.42)        | 0.18    |
| 4                               | <b>0.76 (0.67, 0.87)</b> | <0.01   | 0.81 (0.61, 1.10)        | 0.13    |  | 1.01 (0.86, 1.18)        | 0.89    | 0.97 (0.77, 1.24)        | 0.84    |
| 5 (most advantaged)             | <b>0.72 (0.64, 0.82)</b> | <0.01   | <b>0.68 (0.54, 0.86)</b> | <0.01   |  | <b>0.79 (0.68, 0.92)</b> | <0.01   | 1.02 (0.81, 1.31)        | 0.87    |
| <b>Pre-injury working hours</b> |                          |         |                          |         |  |                          |         |                          |         |
| Part-time                       | 1 (Reference)            |         | 1 (Reference)            |         |  | 1 (Reference)            |         | 1 (Reference)            |         |
| Full-time                       | <b>1.32 (1.23, 1.43)</b> | <0.01   | <b>1.97 (1.63, 2.40)</b> | <0.01   |  | <b>1.73 (1.58, 1.89)</b> | <0.01   | <b>1.83 (1.60, 2.11)</b> | <0.01   |
| <b>Employer size</b>            |                          |         |                          |         |  |                          |         |                          |         |
| Small size                      | 1 (Reference)            |         | N/A                      |         |  | 1 (Reference)            |         | 1 (Reference)            |         |
| Medium size                     | <b>0.70 (0.63, 0.78)</b> | <0.01   |                          | 0.33    |  | <b>1.17 (1.05, 1.31)</b> | 0.01    | <b>1.41 (1.18, 1.70)</b> | <0.01   |
| Large size                      | <b>0.81 (0.73, 0.91)</b> | <0.01   |                          | 0.12    |  | <b>1.34 (1.18, 1.52)</b> | <0.01   | <b>1.45 (1.17, 1.76)</b> | <0.01   |

AOR = Adjusted Odds Ratio, CI = confidence interval, N/A = not applicable as there are small number of employers of ambulance officers in NSW; Bold indicates a statistically significant result.



## Summary of findings

## Summary of findings

This study provides a detailed investigation of the frequency, proportion, incidence, pattern, duration of time off work, and factors associated with workers' compensation claims for psychological injury among HSA workers in NSW over the most recent nine years, using data provided by the state nominal insurer. There are several noteworthy findings.

### 1 Psychological injury claims are more likely among HSA workers than other workers

In accordance with previous studies, our study demonstrated that psychological injury claims were more likely among HSA workers than workers in other industries (13,14,24,40–42). Specifically, we observed that the proportion of all injury claims that were for psychological injury in the HSA industry (9.6%) was higher than that of other industries (5.5%) over the past nine years. This finding does not mean that the HSA industry is performing "worse" than all other individual industries, because data from all of those individual industries was aggregated into a single comparator condition for this analysis. It is possible that certain other specific industries or industry segments may have a higher frequency of psychological injury than observed in the HSA industry. Among Ambulance officers, psychological injury was the second most common type of compensable injury and accounted for 13.4% of all claims. Among Administrators and manager psychological injury was also the second most common injury type accounting for 17.4% of all claims. The percentage of all claims that were for psychological injury in other occupational groups was also higher than that observed in other industries, for example 7.8% in Nurses and midwives and 7.3% in Aged and disability carers.

### 2 Psychological injury claims have grown rapidly in the HSA industry in New South Wales

The prevalence and incidence of psychological injury claims in the HSA industry in NSW has more than doubled over the past nine years. This rate of growth is faster than that observed in other industries in NSW. At the end of the 2020/21, the rate of psychological injuries in the HSA industry was more than two and a half times that observed in other industries in NSW. There was a noticeable shift from the 2015/16 years onwards – a point at which the number and incidence of workers' compensation claims for psychological injury began to grow more rapidly in the HSA industry. Some occupational groups showed the most rapid growth over the past nine years, including Ambulance officers, Social workers, Nurses and midwives, and Administrators and managers.

### 3 Workers with psychological injury have prolonged periods of work disability

Consistent with prior studies (31,43), we observed that the duration of time off work was substantially longer in workers with psychological injury claims than that observed in workers with other types of injury claims. The median duration for claims involving psychological injuries in NSW was 13.4 weeks, more than six times that observed in workers with other injury claims, at 2.0 weeks. Among the occupational groups studied, Ambulance officers had by far the longest duration of disability with more than 50% of claims exceeding 31 weeks duration whereas this was considerably lower at 8 weeks duration among Nurses and midwives.

### 4 Psychological injuries produce a substantial burden of work disability

While accounting for 9.6% of claims in the has industry, psychological injury produced 25.0% of the total burden of work disability (calculated as compensated time away from work) arising from compensable injury claims in the has industry during the study period. In total NSW workers in the HSA industry lost more than 170,000 working weeks to psychological injury over the 9-year study period, equivalent to approximately 3,540 full-time equivalent working years lost. The percentage of all work disability attributable to psychological injury was higher for some occupations in the HSA industry, and exceeded 35% in Administrators and managers and Ambulance officers. In these occupational groups psychological injury is clearly a leading cause of work disability even when compared with more common injuries such as trauma and musculoskeletal conditions.

### 5 Stress and anxiety were the most common type of psychological injury

Stress and anxiety conditions accounted for approximately two thirds of all psychological injury claims both in HSA industry and other industries. Depressive disorders accounted for one in five psychological injury claims. Post-traumatic stress disorder was less common, though highly prevalent among Ambulance officers. Overall, the nature of psychological injury pattern observed was similar in the HSA and other industries. It should be noted that accepted claims for psychological injury in workers' compensation schemes do not necessarily indicate that a worker has a diagnosed mental illness. Further investigation is required to understand the precise nature of mental health conditions among workers in the HSA industry.

## 6 Harassment, bullying and work pressure were the most common cause of psychological injury

Harassment and bullying was recorded as the cause (mechanism) of psychological injury among 2 of every 5 claims in the HSA industry, followed closely by work pressure which accounted for nearly 30% of claims. Overall, harassment/bullying and occupational violence were more common causes of psychological injury in the HSA industry than in other industries. Exposure to trauma was a less commonly observed cause of injury, though it was more prevalent in Ambulance officers (accounting for more than 40% of psychological injury claims). These findings are consistent with prior research reporting on work-related stressors in the HSA industry (8,8,9,26,46,47).

## 7 There are some clear socio-demographic and occupational risk factors for psychological injury claims in HSA workers

A range of employment and socio-demographic factors were observed to be associated with making a psychological injury claim compared with a physical injury claim among HSA workers in NSW. Generally, older age, more socioeconomic disadvantage and working full time were significant predictors of psychological injury claims. In some occupational groups employer size, and worker sex were also associated with psychological injury claims. Workers in some occupational groups had a much higher incidence of psychological injury claims and/or much longer durations of disability.

## 8 Some occupations in the HSA industry are of particular concern

The pattern of psychological injury claims including the frequency, incidence, growth and associated duration of disability differs markedly between some specific occupational groups in the New South Wales HSA industry. Table 10 presents a summary of findings across four of the occupational groups included in this study. This demonstrates for instance, that:

- Although the number of claims for psychological injury was relatively low among Ambulance officers, the incidence is very high due to the small size of this workforce, the growth rate over the past nine years has been rapid, and Ambulance officers often have more than half a year off work following psychological injury. Post-traumatic stress disorder is the most common cause of psychological injury among Ambulance officers, compared with stress/anxiety among other occupations. We note that Ambulance officers were exempt from the 2012 legislative reforms to the NSW workers' compensation system which tightened access to the scheme, particularly for psychological injury claims (44,45). This likely explains the higher incidence among Ambulance officers than other HSA occupations at the beginning of our data series which coincides with the year after these reforms were introduced. It does not however explain the growth in claims observed over time, or the longer duration of time loss in these workers.
- The largest volume of claims for psychological injury was among Nurses and midwives. These claims were distributed across two main settings: Hospitals and Residential care services. Most people making claims for psychological injury in this group were over 45 years and female, and work for medium or large employers. The rate of psychological injury claims was higher than in some other occupational groups in the HSA industry. The most common causes of psychological injury related to interpersonal relationships at work, including with co-workers (harassment and bullying) or members of the public (occupational violence).

These occupation-specific insights provide valuable information to develop and target primary and secondary prevention strategies for psychological injury in the HSA industry. Preventive efforts should be targeted towards demographic and occupational groups at greatest risk of psychological injury, or in whom psychological injury leads to the greatest duration of disability.



### Comparison with prior literature

This study provides new knowledge regarding psychological injury in the HSA industry. While some of our findings are consistent with prior research, we isolate these findings to workers in NSW and have extended prior analysis to include a focus on specific occupational groups within the HSA industry.

Our findings confirm prior research that the HSA industry is one of the most stressful industries for workers (8,8,9,26,46,47). Occupations in the HSA industry have been characterised as high demand and in some instances, involve low levels of job control (48). Furthermore, HSA workers dealing with medical emergencies and exposure to traumatic events may experience high levels of emotional stress, which can lead to the development of psychological conditions (49–53). We extend these prior studies by reporting differential patterns between workers in different occupations, including differences in the nature and causes of psychological injury between occupational groups, and differences in the rate of growth of psychological injury claims specifically within NSW. Previous research on psychological injuries among people who work in healthcare and social services found that burnout, anxiety, depression, PTSD, and other mental injuries are common (9–13). We observe similar results, noting that the nature of injury recorded in workers' compensation claim data does not equate to diagnosable mental disorders. Previous research has shown that psychological injury claims can be more complex than physical injury claims and that workers with psychological claims take more time off of work and have a lower chance of eventually returning to work (RTW) (31). Our findings confirm this prior finding, but also extend it by describing substantial differences in the duration of disability following work-related psychological injury among workers in different occupations, and identifying occupational groups of particular concern with respect to time off work (e.g., Ambulance officers). Finally, we report a substantial growth in psychological injury claims in the NSW HSA industry over the past nine years, most notably since the 2015/16 calendar year. This growth far outstrips the rate observed among other industries, providing a clear justification for investment in efforts to prevent work-related psychological injury in the HSA industry.



**Table 10:** Summary of findings in four occupational groups

|   | Nurses and midwives   | Ambulance officers   |  | Social workers  | Aged and disability carers  |
|---|---|--|--|---|---|
| Nature of workers making compensation claims                              | 82.2% female<br>53.9% aged over 45 years<br>3 in 5 work part-time<br>88.2% work for medium or large employers | 60.3% male<br>58% aged under 45 years<br>Nearly 3 in 4 (73.1%) work full-time                  |  | 78% female<br>54.9% aged under 45 years<br>3 in 5 work part-time<br>74% work for a small or medium employer | 83.8% female<br>54.8% aged over 45 years<br>3 in 4 work part-time<br>65.3% work for small or medium employers |
| Most common settings in which psychological injuries occur                | Hospitals (53.6%)<br>Residential care services (36.6%)  | Ambulance services (97.6%)   |  | Residential care services (46.7%)<br>Social assistance services (26.8%)                                     | Residential care Services (90.9%)   |
| Percent of workers' compensation claims that are for psychological injury | 7.8%  | 13.4%<br>1st most common type of injury  |  | 12.6%<br>2nd most common type of injury   | 7.3%  |
| Percent of all lost time due to psychological injury                      | 17.8%   | 38.8%<br>Highest percent of all lost time due to psychological injury                          |  | 33.7%<br>2nd highest percent of all lost time due to psychological injury                                   | 18.4%   |
| Number of psychological injury claims over past nine years                | 3212<br>Largest number of any occupational group  | 849  |  | 2174<br>2nd Largest number of any occupational group  | 975   |
| Most common type of psychological injury                                  | Stress / Anxiety (63.8%)  | Post-Traumatic Stress Disorder (42.4%)   |  | Stress / Anxiety (64.0%)  | Stress / Anxiety (65.4%)  |
| Most common causes of psychological injury                                | Harassment or Bullying (38.4%)<br>Work pressure (23.1%)<br>Occupational violence (18.0%)                      | Exposure to a traumatic event (42.1%)<br>Work pressure (23.7%)<br>Occupational violence (11.9) |  | Harassment or Bullying (34.9%)<br>Work pressure (31.7%)<br>Occupational violence (17.2%)                    | Harassment or Bullying (37.2%)<br>Work pressure (27.7%)<br>Occupational violence (19.2%)                      |

**Table 10:** Summary of findings in four occupational groups (continued)

|  | Nurses and midwives  | Ambulance officers  |  | Social workers   | Aged and disability carers  |
|--|--|---|--|--|---|
| Growth in number of psychological injury claims between the first three and the last three years of claim acceptance | 150.6%<br>Highest growth in number of psychological injury claims                            | 138.5%<br>2nd highest growth in number of psychological injury claims                               |  | 104.1%<br>3rd highest growth in number of psychological injury claims                        | 31.2%   |
| Rate of psychological injury claims per 1000 workers   | 4.6 in 2019-2021   | 44.5 in 2019-2021<br>At least 8 times the rate of psychological injury in other occupational groups |  | 2.7 in 2019-2021   | 3.1 in 2019-2021  |
| Median duration of time off work for workers with psychological injury   | 8.0 weeks<br>Shortest duration of occupational groups  | 31.1 weeks<br>More than double the duration of other occupational groups                            |  | 15.1 weeks   | 13.6 weeks  |
| Determinants of psychological injury claims vs other claims  | Older age<br>Socioeconomic disadvantage<br>Working full-time<br>Working for a small employer | Older age<br>Female sex<br>Socioeconomic disadvantage<br>Working full-time                          |  | Older age<br>Socioeconomic disadvantage<br>Working full-time<br>Working for a large employer | Older age<br>Male sex<br>Working full-time<br>Working for a medium/large employer |



### Study strengths and limitations

This study has a number of strengths and limitations. Many of these relate to the nature of administrative workers' compensation claims data. The data is not collected for the purposes of research and thus misses some information that would be highly valuable such as more detailed information on the nature of psychological conditions experienced by workers, and information on a broader range of social, occupational, personal and employment related risk factors for work-related psychological injury. It is also likely that many cases of work-related psychological injury will not result in a workers' compensation claim, and thus our analysis underestimates the full extent of work-related psychological harm in the HSA industry in NSW, and it is probable that our analysis is skewed to more serious cases which result in accepted compensation claims. However, workers compensation claims database also have some unique advantages. Workers compensation systems have effective full coverage of the employed labour force, meaning that our findings represent a population-based estimate, and enabling the calculation of incidence rates in some quite specific occupational groups using state-wide labour force data. They also enable analyses of time series data, such as that presented in this study over the most recent decade.







# Conclusions

## Conclusions

Psychological injury claims are almost twice as common in the NSW Health and Social Assistance industry workers than among workers in other industries.

There has been a more rapid growth in the number, proportion and incidence of psychological injury claims in the HSA industry in recent years compared to other industries. Some occupational groups account for a larger number of psychological injury claims in the HSA industry, in order (1) Nurses and midwives; (2) Administrators and managers; (3) Social workers; (4) Ambulance officers. However, the occupation group with the highest rate of psychological injury is Ambulance officers. In addition to the occupation in which they work, results showed that socio-demographic characteristics and work environments, such as full-time employment and employer size, influenced psychological injury claims among HSA workers. Workers with psychological injury often experience prolonged periods of disability resulting in many weeks or months away from work. The study findings demonstrate a pressing need to focus on prevention and early intervention in the HSA industry, in order to minimise the frequency of psychological injury and the associated disability.



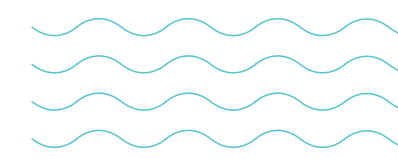


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