NATIONAL WORK HEALTH AND SAFETY LEADING INDICATOR SURVEY

SUMMARY REPORT

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EXECUTIVE SUMMARY

The social and economic cost of work-related injury and illness are substantial. More than half a million Australian workers were injured at work in 2014. The nation's workers' compensation schemes spent more than $8 billion on income, healthcare, legal and other costs of claims in the same year, while the broader cost of work injury to society has been estimated at $61.8 billion or 4.1% of GDP. Time lost from work due to injury or illness can impact the financial security of individuals and the productivity of organisations. National estimates suggest that Australian workplaces are getting safer. The incidence of injuries, illnesses and workers compensation claims have been steadily reducing for more than a decade. However these lagging indicators of work health and safety (WHS) performance are not able to measure exposure to WHS risk factors at the worker or workplace level.

Over the past five years a number of leading indicator measures have been validated in groups of Australian workers. These include the Psychosocial Job Quality (PJQ) scale, the OHS Vulnerability Scale and the Organisational Performance Metric-Monash University (OPM-MU). These measures assess factors at the worker, job or workplace level that contribute to increased risk of injury or illness. Recent studies have shown that these measures are associated with, and in some cases predict, lagging indicators of WHS performance such as physical and psychological injury, incidents and near misses. These leading indicators measures assess different constructs and WHS risks and have not, to our knowledge, previously been compared. This study sought to (1) determine the associations between employee, workplace and job characteristics on these three WHS leading indicator measures; and (2) assess the degree of overlap and complementarity of WHS leading indicator measures.

A 20 minute telephone and internet based questionnaire was developed that included the leading indicator measures, lagging indicators and a range of questions relating to the worker, their workplace and their job. A total of 1130 working Australians completed the survey during June 2016. Analysis indicated that the sample was broadly representative of the Australian working population.

Analysis determined that a range of worker, job and workplace characteristics were associated with elevated risk for occupational injury and illness, as assessed by the leading indicator measures. These include age, type of employment, occupation, workplace size, job tenure and gender. Importantly, some of these factors were associated with specific sub-scale. For example, blue collar workers were much more likely to be exposed to hazards than white collar or other workers as assessed by the OHS Vulnerability Scale. They were also more likely to report inadequate WHS policy and procedure, but did not report different levels of awareness or empowerment. Similarly, workers in workplaces with more than 20 employees were more likely to consider their job to have high psychosocial demands than smaller workplaces, but workplace size was not associated with perceived job security or effort reward fairness. Such findings provide insights into the patterning of unique OHS risk factors among different segments of the labour force.

Comparison of scores on the three leading indicator measures indicated that nearly one-third of the sample (32.0%) met criteria for WHS risk on one of the three measures, 39.9% did not meet criteria on any measure, and a further 28.1% met criteria on at least two measures. Further exploratory analyses indicated that scores on the three leading

indicators measures varied by industry, occupation and workplace size. These findings suggest that there is some overlap in the constructs being measured by the three leading indicator scales, but also that each captures something unique corresponding to the type of prevention and control action being measured.

Analysis of lagging indicator data determined that while a minority of Australian workers experience injury or time loss in a 12 month period, there is a much larger proportion who observe a colleague being injured, experience a near-miss incident, or report some limitations in their ability to work. Similar to the leading indicator measures, the prevalence of these lagging indicators varied by industry segment, by occupation and by workplace size. Future analyses of survey data will assess the association between leading and lagging indicators.

These findings suggest that there may be opportunities for WHS regulators, employers, industry bodies, worker representative groups and workers to develop programs, policy and practices that target specific WHS risk factors in specific groups of workers. The leading indicators measures used in this survey may provide a suite of measurement tools that facilitate such approaches.

BACKGROUND

This report is the first in a series arising from a national (Australian) workplace health and safety study developed by Monash University with the first tranche of data collection occurring in 2016. The study sought to combine multiple measures of leading and lagging work health and safety indicators into a single, brief questionnaire that can be delivered via telephone and/or the internet; and to collect an initial national sample of data.

WORK INJURY AND ILLNESS IN AUSTRALIA

In Australia the cost of work injury to society was most recently estimated to be AUD$61.8 billion or 4.1% of Gross Domestic Product (Safe Work Australia, 2015c). During the 2014 financial year an estimated 528,000 work-related injuries were reported by workers in Australia (Australian Bureau of Statistics, 2014b), which is an average of 1 injury per minute. During the same year a total of 242,000 workers made workers' compensation claims (Lane et al., 2016) and the nation's workers compensation schemes spent AUD$8.26 billion in payments and services to injured workers, administration, dispute resolution and other costs (Safe Work Australia, 2015b).

There is also considerable investment in workplace health and safety (WHS) and workplace injury prevention activities by government and industry. These investments are made recognising the strong link between work, health, safety and productivity. The potential to improve the health and productivity of the labour force by reducing the rate and severity of injury and illness and minimising time off work after injury is recognised nationally (RACP, 2011). While rates of work-related injury and illness have reduced substantially over the past decade, rates of serious conditions resulting in two or more weeks of time lost have shown only modest reduction (Lane et al., 2016). Further, rates of injury and illness in some groups of workers (e.g., female workers) or across some types of conditions (e.g., mental health conditions) have either not changed or have increased in recent years (Lane et al., 2016), and rates of Return to Work (RTW) in those with compensable work injury have remained steady for over a decade (Safe Work Australia, 2015a).

LEADING AND LAGGING INDICATORS

Periodically, various government and non-government agencies produce data assessing indicators of WHS such as injury rates, compensation claims and duration of time lost to work. For example there is a biennial RTW survey conducted by Safe Work Australia on behalf of the nation's workers compensation systems. The Australian Bureau of Statistics (ABS) conducts a national work-related injury survey every 4-5 years as an adjunct to the multi-purpose household survey (ABS, 2014b). We have recently reviewed some of these data sources to provide a national overview of work injury in Australia (Lane et al., 2016). These data sources almost exclusively report lagging indicators of health and safety, and are thus measures of harm that has already occurred.

There is a need for a similarly comprehensive national data source assessing the leading indicators of WHS. Leading indicators have been characterised as "aspects of workplace activities that can be used to improve OHS outcomes prior to an unwanted outcome occurring. They are a signal and monitor of what is being done on an ongoing basis to prevent worker illness and injury" (Government of Alberta, 2015)

Measurement of leading indicators focuses on measuring things that lead to increased risk of injury or illness, so that these can be monitored or acted upon prior to the injury or illness occurring. Leading indicator measures thus provide information on how to improve future WHS performance (Eriksen, 2009).

There is now a substantial literature on the importance of assessing leading indicators of WHS, which has been summarised by De Cieri et al. (2012) and Shea et al. (2016). This literature indicates that leading indicators can provide effective early warnings, by enabling risks or risk increases to be detected and mitigated, before a WHS incident occurs or a hazardous state is reached.

In the past five years, multiple employee or employer reported leading indicator measures have been developed and validated with substantial Australian input. These measures are designed to provide simple, validated tools that can be used to assess leading indicators at the employer or employee level, and assess constructs such as exposure to physical and psychological hazards, worker empowerment, engagement in WHS activity, workplace WHS policy and procedures, job control and demands, effort-reward fairness and job security. These measures include the OHS Vulnerability Measure, the Psychosocial Job Quality (PJQ) Measure and the Organizational Performance Metric-Monash University (OPM-MU), described briefly in turn below.

Smith and colleagues developed the 27 item OHS Vulnerability Measure with input from Australian and Canadian work health and safety experts (Smith et al., 2015) and have validated this in a Canadian sample (Lay et al., 2016). The measure captures information on four related but distinct dimensions, thought to be associated with increased risk of injury. These dimensions are: hazard exposure; WHS policies and procedures; WHS awareness; and empowerment to participate in injury prevention. In a Canadian sample, more than one third of respondents experienced some level of WHS vulnerability, however, the type and magnitude of vulnerability varied by workplace and worker characteristics.

Butterworth and colleagues have developed an index of psychosocial job quality from the Household, Labour and Income Dynamics in Australia (HILDA) dataset. The index assesses self-reported exposures to four psychosocial job stressors that were available in the HILDA survey: job demands and complexity, job control, job security, and fairness of pay (an element of effort-reward imbalance). These factors have been shown in an Australian sample to be prospectively associated with physical and mental health as well as sickness absence (Butterworth et al., 2011; Milner, Butterworth et al., 2015; Milner, Krnjacki et al., 2015).

Finally, the OPM-MU is an 8 item measure designed to assess health and safety policies and practices in the workplace, and identify opportunities for improvement. The original OPM tool was developed by the Institute of Work and Health in Toronto (IWH). The OPM-MU is a modified version validated for use in an Australian environment (Shea et al., 2016; Sheehan et al., 2016).

These recent advances in WHS measurement mean that it is now possible to assess a range of leading indicators, using validated metrics, across a large sample of Australian workers and workplaces.

OBJECTIVES

In this study three leading indicator measures were combined with a series of questions assessing common lagging indicators (such as observed injuries and incidents and time lost from work) into a single, 20 minute questionnaire. This questionnaire was administered via telephone and internet to a sample of more than 1100 Australian workers. This study had multiple objectives including:

1. To determine the associations between employee, workplace and job characteristics on three WHS leading indicator measures.
2. To assess the degree of overlap and complementarity of WHS leading indicator measures.
3. To determine the association between scores on WHS leading indicator measures and employee-reported lagging indicator measures.

This report seeks to address the first two objectives, and presents an overview of the survey methodology including data collection, and a descriptive analysis of survey responses. Subsequent reports will address the third objective.
A future objective is to develop a larger dataset to (a) enable monitoring of employee rated WHS leading and lagging indicators across the Australian labour force, and to (b) develop a national benchmark survey that can be used in future comparative studies of WHS by employers and industry.

METHODS

The project was led by Monash University with input from a number of expert researchers from the University of Melbourne, the Institute of Work and Health and Deakin University. The project sought to develop a WHS survey including measures of leading and lagging indicators, as well as workplace and worker characteristics.

The survey questionnaire was designed by the research team. Monash commissioned Ipsos to review survey design, develop the telephone script and produce the online version and undertake data collection. Monash has completed data quality assurance, data analysis and reporting.

SAMPLE

Respondents were included if they were Currently employed for at least 1 hour of paid work per week, and aged 18 years and above.

Respondents were excluded if they were retired, studying but not working, under 18 years of age or unable to complete the survey. There was no upper age limit.

Respondents completed the questionnaire via telephone or the internet (refer Data Collection section below for details). For the sample completing via telephone, quotas were applied at the state level to ensure that the final sample approximated the distribution of the labour force across states and territories. A slightly larger sample was recruited in the smaller states and territories (Northern Territory, Australian Capital Territory, Tasmania) to ensure a sufficient sample size for interstate comparison. For the online sample, additional quotas were applied by age and gender, to ensure that the sample approximated the labour force across these demographic characteristics.

Participation in the survey was voluntary. Consent was sought from all the respondents and the ethics approval for the study was obtained via the Monash University Human Research Ethics Committee.

DATA COLLECTION

The main data collection method was Computer-Assisted Telephone Interviewing (CATI) with online refusal conversion via SMS or email. This was supplemented by a separate sample of respondents from an online panel. For the CATI component, Random Digit Dialling (RDD) was used to contact respondents via a mixture of landline and mobile phones. Using RDD allows for the inclusion of silent, unlisted and newly listed or allocated numbers. RDD optimises the working population representativeness of the sample. To reduce potential non-response bias, those respondents who were not able to or did not want to take part in the survey over the telephone were given the opportunity to be sent an online version of the questionnaire via SMS or Email. This option was provided to potential respondents upon the second re-contact as the primary focus of the data collection was to recruit participants to conduct the survey over the phone.

The telephone survey was administered from the 1st June 2016 until the 10th July 2016. This included a pilot was undertaken for one day (1st June 2016). The questionnaire was revised on the basis feedback from the interviewers in this pilot survey and was launched

on the 2nd June. Online refusal conversions began on 6th June 2016. As the fieldwork was wrapping up, a final concentrated effort was made to encourage respondents who had previously refused to complete the survey via telephone to complete the survey online (unless respondents explicitly indicated that they wanted to complete it over the phone). Fieldwork was conducted across the whole period except for the Queen's Birthday, a public holiday on 13th June 2016.

A supplementary sample of respondents from the online panel provider Survey Sampling International (SSI) were recruited and included in the sample. Recruitment of the SSI participants involved inviting SSI 'members' (an online panel of people who previously agree to participate in Market and Social Research) via an e-mail invitation to access and complete the online survey.

A version of the questionnaire was programmed to be conducted over the telephone with a slightly different version programmed to be conducted in an online environment. Differences in wording between the two versions were minimal and predominately related to the instructions for interviewers or to the respondent.

The interview length of the final draft of the questionnaire averaged 20.46 minutes.

A survey participant information statement was available on the Ipsos website for respondents to reference if they required more information about the survey.

MEASURES

The survey consisted of three leading indicator measures, as well as questions relating to lagging indicators, worker characteristics, job and workplace characteristics. A brief explanation of each of the main survey measures follows.

PSYCHOSOCIAL JOB QUALITY MEASURE

The PJQ measure was constructed according to the method used by Butterworth et al., (2011). Respondents were asked to rate their level of agreement with a series of 12 statements about their work. The statements are grouped into those relating to the job demands and complexity (4 statements), job control (3 statements), job security (3 statements) and effort reward fairness (1 statement). Responses to the statements ranged from 1 (strongly disagree) to 7 (strongly agree). Responses for one statement "I worry about the future of my job" were reverse coded, to maintain a similar interpretation to the rest of the statements. One statement "I fear that the amount of stress in my job will make me physically ill" was omitted for potential circularity reasons.

The items in the measure are presented below.

Psychosocial Job Quality Measure	
A.	Job demands and complexity
	1. My job is more stressful than I had ever imagined.
	2. My job is complex and difficult.
	3. My job often requires me to learn new skills.
	4. I use many of my skills and abilities in my current job.
B.	Job control
	1. I have a lot of freedom to decide how I do my own work.
	2. I have a lot of say about what happens on my job.
	3. I have a lot of freedom to decide when I do my work.
C.	Job security
	1. I have a secure future in my job.
	2. The company I work for will still be in business 5 years from now.
	3. I worry about the future of my job.
D.	Effort reward fairness
	1. I get paid fairly for the things I do in my job.

Scores for the PJQ were derived as per previously published methods (Butterworth et al., 2011). The total score for each measure was the sum of all the responses (using the values allocated to the response on the Likert scale, ranging from 1 for strongly disagree to 7 for strongly agree) for all the statements corresponding to that measure. Higher total scores on each of the four stressor measures represent greater job demands and complexity, greater job control, greater job security and greater effort-reward fairness. Cut-off points for each specific measure were for scores in the quartiles corresponding to the greatest difficulty (fourth quartile for high job demands or complexity and the first quartile for low job control, low job security and low effort -reward fairness.

Scores for missing values were imputed for each respondent using the average of the other items for that individual for the specific scale, as long as there was a response to one of the statements.

OPM-MONASH UNIVERSITY

The OPM-MU was constructed according to the method described by Shea et al. (2016). Respondents were asked to complete 8 statements with regards to health and safety leading indicators. Responses to the statements ranged from 1 (strongly disagree) to 5 (strongly agree) and the total score was a sum of all the responses to the 8 statements. In this study, OPM-MU is measured at the level of the individual worker (De Cieri et al., 2015; Shea et al., 2016).

The items in the scale are presented below.

OPM – Monash University	
1.	Formal OHS audits at regular intervals are a normal part of our workplace.
2.	Everyone at this workplace values ongoing OHS improvement in this workplace.
3.	This workplace considers health and safety at least as important as production and quality in the way work is done.
4.	Workers and supervisors have the information they need to work safely.
5.	Employees are always involved in decisions affecting their health and safety.
6.	Those in charge of OHS have the authority to make the changes they have identified as necessary.
7.	Those who act safely receive positive recognition.
8.	Everyone has the resources and or equipment they need to complete their work safely.

Higher total scores on the OMP-MU represent stronger agreement that leading indicators are present in a respondent's workplace. There are no formal cut-off points for this scale. However, in this report, scores in the first quartile of the distribution will be considered to be the cut-off point for a low OPM-MU score. This is in line with the construction of the PJQ index cut-offs. Scores for missing values were imputed using the mean, as was done for the PJQ measure.

OHS VULNERABILITY MEASURE

The OHS vulnerability measures were constructed following the method used by Lay et al., (2016). Respondents were asked to complete 9 statements on the frequency with which they might be exposed to health and safety hazards in their workplace. Responses to these items were recorded as never (1), once a year (2), every 6 months (3), every 3 months (4), every month (5), every week (6) or every day (7).

Respondents were also asked to indicate their level of agreement or disagreement across three dimensions of worker protections: workplace policies and procedures (7 questions); occupational health and safety awareness (6 questions); and a workers' perceived ability to ask questions and participate in health and safety at work (5 questions). Responses were recorded as strongly disagree (1), disagree (2), agree (3) or strongly agree (4). Respondents could also make don't know or not applicable responses for each item in the survey.

The items for the measure are presented below.

OHS Vulnerability Measure	
A.	Exposure to hazards
1.	Have to manually lift, carry, or push items heavier than 20 kg at least 10 times a day
2.	Have to do repetitive movements with your hands or wrists (packing, sorting, assembling, cleaning, pulling, pushing, and typing) for at least 3 hours during the day.
3.	Have to perform work tasks, or use work methods that you are not familiar with.
4.	Interact with hazardous substances such as chemicals, flammable liquids, and gases.
5.	Have to work in a bent, twisted, or awkward posture.
6.	Work at a height that is 2 metres or more above the ground or floor.
7.	Work in noise levels that are so high that you have to raise your voice when talking to people less than 1 metre away.
8.	Have you been bullied or harassed at work?
9.	Have to stand for more than 2 hours in a row.
B.	OHS policies and procedures (PP)
1.	Everyone receives the necessary H&S training when starting a job, changing jobs or using a new technique.
2.	There is regular communication between employees and management about safety issues.
3.	Systems are in place to identify, prevent, and deal with hazards at work.
4.	There is an active and effective health and safety committee, and or health and safety representative.
5.	Incidents and accidents are investigated quickly in order to improve workplace health and safety.
6.	Communication about workplace health and safety procedures is done in a way I can understand.
7.	This workplace considers health and safety at least as important as production and quality in the way work is done.
C.	OHS awareness (AW)
1.	I am clear about my rights and responsibilities in relation to workplace health and safety.
2.	I am clear about my employer's rights and responsibilities in relation to workplace health and safety.
3.	I know how to perform my job in a safe manner.
4.	If I became aware of a health or safety hazard at my workplace, I know who (at my workplace) I would report it to.
5.	I have the knowledge to assist in responding to any health and safety concerns at my workplace.
6.	I know what the necessary precautions are that I should take while doing my job.
D.	OHS empowerment (EM)
1.	I feel free to voice concerns or make suggestions about workplace health and safety at my job.
2.	If I notice a workplace hazard, I would point it out to management.
3.	I know that I can stop work if I think something is unsafe and management will not give me a hard time.
4.	If my work environment was unsafe, I would not say anything and hope that the situation eventually improves (responses required here are agree and strongly agree so as to maintain the same meaning as the other outcomes).
5.	I have enough time to complete my work tasks safely.

Scores for the OHS Vulnerability Measure were derived as per previously published methods (Lay et al., 2016). Respondents were considered to have met criteria for inadequate OHS policy and procedures (PP), inadequate worker awareness of OHS rights, responsibilities and job safety precautions (AW) and inadequate empowerment to engage in health and safety prevention (EM) if they disagreed or strongly disagreed with one or more of the statements for each measure.

Respondents were considered to have met the criteria for hazard exposure if they:

- reported exposure to two or more hazards on a weekly or daily basis; or
- manually lift, carry or push items heavier than 20kg at least 10 times a day or
- interact with hazardous substances or work at heights that are 2 metres or more above ground level or
- have been bullied or harassed at work.

An overall vulnerability score was calculated. Respondents were considered to have met criteria for overall vulnerability if they met the criteria for hazard exposure AND they met criteria on one or more of the three other sub-scales; PP, AW or EM, explained above.

LAGGING INDICATORS AND WORK FUNCTION MEASURES

In addition to the above three leading indicator scales, the questionnaire included a range of self-reported lagging indicator measures. These included questions relating to:

- work-related injury or illness to self in the past 12 months and the type of injury/illness experienced
- observations of injury or illness to co-workers in the past 12 months
- time lost to work-related injury and illness in the past 12 months
- observations of 'near misses' in the workplace over the past 12 months

The questionnaire also included a number of items assessing self-reported function at work. These included questions relating to:

- whether the respondent had experience pain and discomfort at work
- whether the respondent had experienced any work limitations

WORKER, JOB AND WORKPLACE CHARACTERISTICS

The questionnaire included a range of questions relating to the respondents demographic and personal characteristics (age, gender, education), their workplace and employer (size of workplace, industry, location) job characteristics (job tenure, occupation) and their self-rated health.

ANALYSIS

Descriptive statistics have been used to characterise the sample and responses to the survey at group level. These include frequencies, percentages, measures of central tendency such as means and medians and measures of variance such as standard deviation and interquartile ranges.

In some instances, sample data have been compared with national labour force data or other relevant comparator information. Respondents who had missing values for all the statements relating to any one of the leading indicator measures were excluded from the analysis.

Section 1 contains the descriptive statistics for the survey, including the total number of respondents, whether they completed the questionnaire via telephone or online, and information on missing observations for leading and lagging indicators. Sections 2 and 3 contain information on worker characteristics (such as gender and age) and workplace characteristics (such as workplace size and occupation). In addition statistical comparisons are made where available, of survey data to the national labour force data using the Chi-squared statistics.

Section 4 presents results of analysis of the leading indicator measures. We present the frequencies for each leading indicator outcome by demographic (sex, age, birth location, language spoken at home), workplace and occupation characteristics (employment type, workplace size, job tenure, occupation). Age is divided into four categories (<35, 35-44, 45-54 and ≥55 years), employment type is categorised as full- (≥35 hours per week) or part-time employment (<35 hours per week), and occupation is categorised as white collar (managers and professionals), blue collar (technicians and trades workers, machine operators and drivers and labourers) and other occupations (community and personal services, sales, clerical and administrative workers). Statistical comparisons are made using the Chi-squared statistic. Examples of the proportion of vulnerable workers for each of the leading indicators for specific industries, occupation and workplace site size are also presented.

Section 5 present results of analysis for the lagging indicators including descriptive statistics and examples of the distribution of each lagging indicator for specific industries, occupation and workplace site size.

RESULTS

The results are presented in five sections:

1. Response Rate and Survey Statistics
2. Worker Characteristics
3. Workplace Characteristics
4. Leading Indicators
5. Lagging Indicators

SECTION 1: RESPONSE RATE AND SURVEY STATISTICS

Overall, a total of 1,132 questionnaires were completed. This included 708 respondents (64.3% of total) recruited via CATI and 404 respondents (35.7% of total) recruited as the supplementary online sample. For the CATI sample, a total of 3,447 accurate numbers were contacted, of which a total of 708 respondents completed the survey (21% response rate). A total of 81 telephone refusal respondents were sent the online questionnaire and 20 completed it (25% response rate).

All the respondents who completed the survey were currently in paid work. The CATI sample consisted of participants who completed the survey on either a landline telephone or a mobile telephone. There were some differences in the sample characteristics depending on the method of survey completion. These data are provided in Appendix A.

The number of respondents with missing responses for the leading indicator measures were as follows:

OHS Vulnerability Scale

- 64 (5.7%) respondents for exposure to hazards
- 321 (28.4%) respondents for policies and procedures,
- 120 (10.6%) respondents for awareness
- 123 (10.9%) respondents for empowerment

Psychosocial Job Quality Index

- 7 (0.6%) respondents for job demands
- 32 (2.83%) respondents for job security
- 7 (0.6%) respondents for job control
- 10 (0.9%) for effort-reward fairness

OPM-MU measure

- 21 (1.9%) respondents for the OPM-MU measure.

Missing values were imputed for each respondent, by using the mean of the other responses in the relevant subscale, as long as there was a single [1] response for the subscale. Respondents with missing responses for all the statements in each subscale were removed from the analysis (exposure to hazards (N=3), policies and procedures (29), awareness (20), empowerment (22), job demands and control (2), job security (2), job control (2), unfair effort-reward (10) and the OPM-MU (19)).

For the lagging indicators, the number of respondents with missing values is presented in Section 5. No imputations were done for the missing values.

SECTION 2: WORKER CHARACTERISTICS AND COMPARISON TO AUSTRALIAN WORKING POPULATION

Table 1 summarises the participants' characteristics including gender, age, education, state or territory of residence, self-rated health, country of birth and language spoken at home. Comparisons are made to national benchmark data drawn from the Australian Bureau of Statistics datasets including labour force survey, census and the national health survey.

There were more male than female respondents in the survey. Compared to the ABS labour force data, male workers are slightly under-represented and female workers are slightly over represented in the sample (ABS, 2015b). With respect to age, the highest frequency was for respondents who are less than 35 years old (27.8%), followed by those aged 45-54 years (26.0%). The lowest frequency was for workers aged 35-44 years (20.9%) as shown in Table 1. Compared to ABS labour force figures, the sample has a lower representation of workers aged up to 44 years and a higher representation of workers aged 45 years and above (ABS, 2016b). The highest education level attained by most of the respondents was school level (27.7%), followed by Bachelor's degree (23.3%). Only 5.0% had a Graduate diploma or certificate. Compared to the ABS labour force data, the sample has a significantly lower proportion with school level qualifications as their highest education attainment (ABS, 2015a) and a significantly higher proportion with bachelor or post-graduate degrees.

The state with the largest sample was New South Wales (26.5%) followed by Victoria (25.2%). The lowest representation was for the Northern Territory (2.8%). The sample has a lower representation for New South Wales, Queensland and Western Australia workers and a higher representation for the other states and territories compared to labour force data (ABS, 2016a). Note though that the sample was stratified by state with the sample in NSW capped at 300 respondents and purposeful oversampling of some smaller states and territories.

More than three quarters (78.2%) of the respondents were born in Australia. This proportion is higher than the estimated resident population born overseas for 2014-2015, according to 2011 census data (ABS, 2016c). Almost all the respondents (96.2%) normally speak English at home. This is significantly higher than the proportion of people over the age of 5 years who spoke only English at home (80.7%) in the 2011 census (ABS, 2012).

[1] Comparison between the analysis using leading indicators with imputed values and leading indicators where all respondents with any missing observations were removed gave similar results.

The largest number of respondents indicated that they have very good health (35.3%), followed by good health (29.3%). Only 2.6% thought their health was poor. The distribution across categories is statistically equivalent to the results from the National Health Survey 2014-2015 (ABS 2015c).

TABLE 1. WORKER CHARACTERISTICS

	Survey Data		National Benchmark
Worker characteristics	Frequency	Percent	Percent
Total N respondents	1,132	100	
Gender			
Male	592	52.3	54.0
Female	540	47.7	46.0
Chi² p-value	*0.729*		
Age			
< 35 years	315	27.8	38.5
35-44 years	237	20.9	21.9
45-54 years	294	26.0	21.4
≥ 55 years	284	25.1	18.2
Prefer not to say	2	0.2	
Chi² p-value	*0.084*		
Highest level of education			
Postgraduate Degree	175	15.5	5.8
Graduate Diploma or Certificate	57	5.0	3.1
Bachelor Degree	264	23.3	17.2
Advanced Diploma or Diploma	132	11.7	9.5
Certificate Level (Certificate 1-4)	188	16.6	19.0
School Level (i.e. Year 12, 11, etc)	313	27.7	45.4
Prefer not to say	3	0.3	
Chi² p-value	*0.000*		
State of residence			
New South Wales	300	26.5	32.0
Victoria	285	25.2	25.1
Queensland	221	19.5	20.1
South Australia	96	8.5	7.1
Western Australia	105	9.3	10.9
Australian Capital Territory	47	4.2	2.2
Tasmania	46	4.1	1.0
Northern Territory	32	2.8	1.6
Chi² p-value	*0.065*		

	Survey Data		National Benchmark
Worker characteristics	Frequency	Percent	Percent
Country of birth			
Australia	885	78.2	71.8
Outside Australia	235	20.8	28.2
Prefer not to say	12	1.1	
Chi² p-value	*0.112*		
Language normally spoken at home			
English	1,089	96.2	80.7
Other	43	3.8	19.3
Chi² p-value	*0.000*		
Self-rated health			
Poor	29	2.6	4.4
Fair	116	10.3	10.4
Good	332	29.3	28.9
Very Good	400	35.3	36.5
Excellent	253	22.4	19.8
Don't know / prefer not to say	2	0.2	
Chi² p-value	*0.885*		

*The chi² p-value is from testing whether there are significant differences between the survey data and the ABS proportions.

SECTION 3: WORKPLACE AND JOB CHARACTERISTICS

Table 2 summarises the workplace characteristics by industrial sector, size of employer, and type of organisation. For the industry category, comparison is made to the ABS labour force data. The highest frequency is for respondents working in the health care and social assistance industry (15.7%), followed by the education and training industry (13.8%). The lowest frequency was for the rental, hiring and real estate services (0.7%). Compared to the national ABS labour force data, the proportion of workers in the mining industry in the present survey is similar (ABS, 2015b). All other industries are under and over-represented but the differences are not large (maximum of 4.0% lower for the 'other' industry and 5.9% higher for the education and training industry) and the survey sample is not statistically different from the labour force data.

TABLE 2. WORKPLACE CHARACTERISTICS

	Survey Data		National Benchmark
Workplace characteristic	Frequency	Percent	Percent
Overall total	1,132	100	100
Industry			
Agriculture, Forestry and Fishing	38	3.4	2.5
Mining	23	2.0	1.9
Manufacturing	62	5.5	7.8
Electricity, Gas, Water and Waste Services	27	2.4	1.2
Construction	75	6.6	8.9
Wholesale Trade	19	1.7	3.3
Retail Trade	104	9.2	10.3
Accommodation and Food Services	52	4.6	7.1
Transport, Postal and Warehousing	63	5.6	5.2
Information Media and Telecommunication	46	4.1	1.8
Financial and Insurance Services	45	4.0	3.3
Rental, Hiring and Real Estate Services	8	0.7	1.8
Professional, Scientific and Technical	86	7.6	8.7
Administrative and Support Services	50	4.4	3.5
Public Administration and Safety	65	5.7	6.3
Education and Training	156	13.8	7.9
Health Care and Social Assistance	178	15.7	12.5
Arts and Recreation Services	26	2.3	1.9
Other	1	0.1	4.1
Don't know / prefer not to say	8	0.7	
Chi^2 p-value	*0.504*		

The majority (58.9%) of respondents work for private (for profit) organisations, followed by government organisations (23.4%). Smaller proportions of respondents were employed by not-for-profit organisations or were self-employed.

FIGURE 1. DISTRIBUTION OF RESPONDENTS BY TYPE OF ORGANISATION

The majority of the survey respondents (35.6%) work in large companies which employ at least 1,000 workers, followed by those who work for companies employing 21-199 employees (22.6%) in total. Only 4.5% are self-employed. The highest frequency is for companies employing 21-199 workers (34.3%), followed by those employing 2-20 employees (33.5%) and the lowest frequency is for companies employing 1,000 or more employees (5.4%) at each work site.

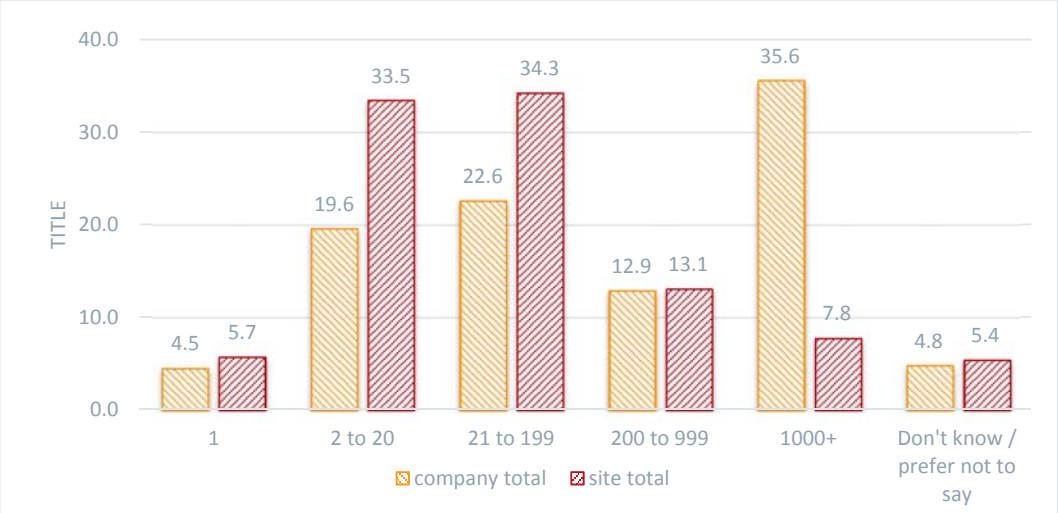

FIGURE 2. NUMBER OF EMPLOYEES BY COMPANY AND WORK SITE

Figure 3 shows the geographic distribution of respondents based on workplace post-code. Most (32.5%) of the workplace postcodes have only one respondent interviewed. The maximum proportion of respondents at a single workplace postcode was 3.0% for the Sydney CBD area, followed by 2.6%, 1.8%, 1.2% and 1.1% for the Melbourne, Adelaide, Brisbane and Perth CBD areas respectively.

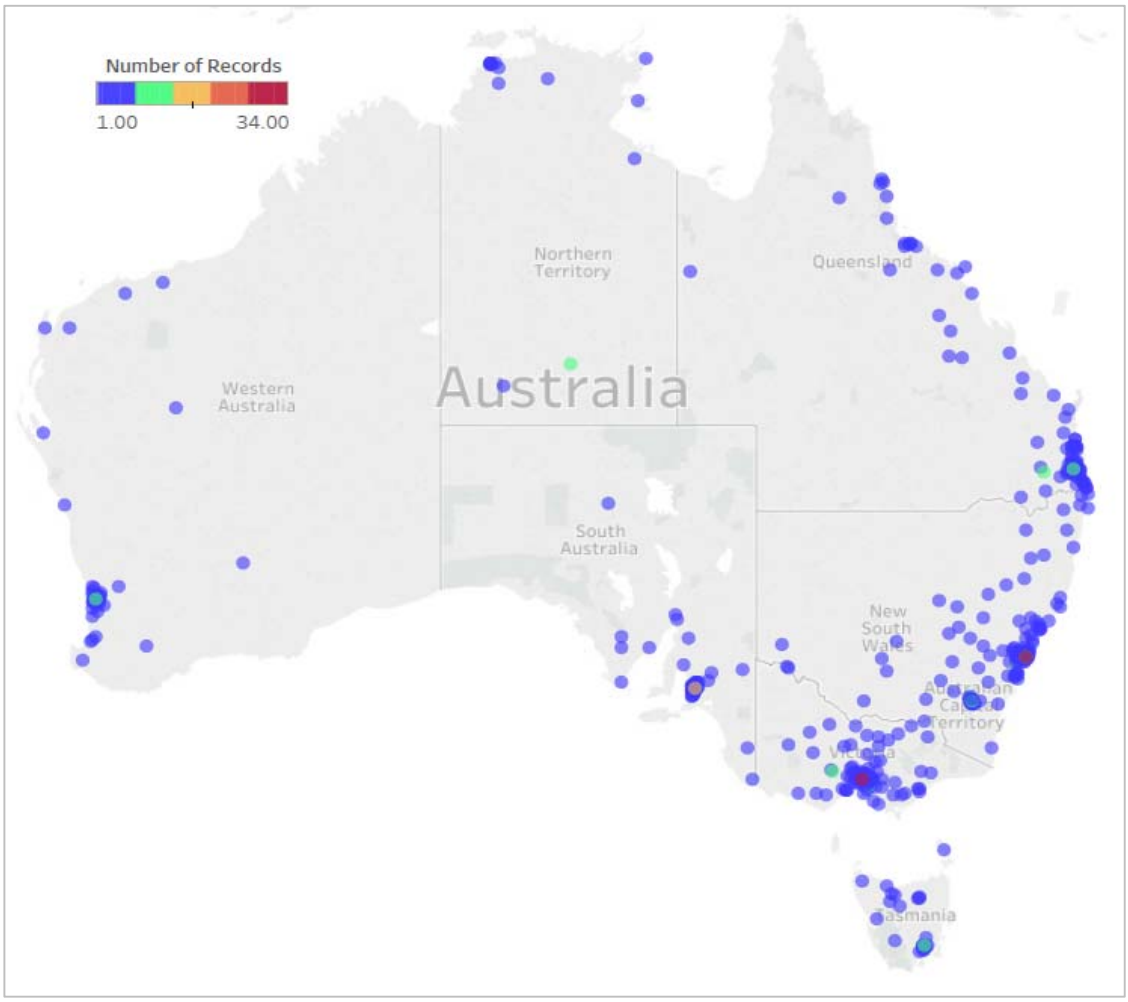

FIGURE 3. GEOGRAPHIC DISTRIBUTION OF RESPONDENTS

Table 3 summarises the job characteristics including occupation, employment type, position within organisation, supervisory responsibility and overtime. Almost half of the respondents interviewed are in white collar occupations (managers 32.3%; professionals 15.7%), and about a fifth of the respondents are in blue collar occupations (technicians and trades (10.3%); labourers (8.1%); machinery operators and drivers (4.1%)). There were significant differences between our study sample and the labour force data. Compared to the national ABS figures, white collar occupations are over represented and blue collar occupations are underrepresented in the study sample (ABS, 2015b).

In order to compare with the national labour force figures, employment type categories were constructed in the study sample based on hours worked, according to the ABS criteria. Those employed as part-time workers work less than 35 hours a week, whilst full-time workers work 35 hours or more a week. Based on these figures, our sample had a lower proportion of full-time (64.8%) workers compared to the national figures (68.8%) and a higher proportion of part-time workers (ABS, 2010) but these differences were not statistically significant.

Half (50.7%) of the respondents indicated that they are expected to work overtime in our sample. In November 2012, 34% of employees reported that they worked overtime nationally, which is lower than the proportion who are expected to work overtime in our sample (ABS, 2013). These differences are statistically significant.

TABLE 3. JOB CHARACTERISTICS OF SAMPLE

Job characteristic	Survey Data		National Benchmark
	Frequency	Percent	Percent
Overall total	1,132	100	100
Main Occupation[2]			
Managers	179	15.8	12.8
Professionals	366	32.3	23.1
Technicians and trades	117	10.3	14.4
Community and personal service	90	8.0	10.0
Clerical and administrative	154	13.6	14.0
Sales	83	7.3	9.3
Machinery operators and drivers	46	4.1	6.6
Labourers	92	8.1	9.7
Other/ prefer not to say	5	0.44	
Chi² p-value	*0.000*		
Employment type			
Full time	733	64.8	68.8
Part time or casual	374	33.0	31.2
Don't know	25	2.2	
Required to work overtime			
Yes	574	50.7	34.0
No	535	47.3	66.0
Don't know/ prefer not to say	23	2.0	
Chi² p-value	*0.000*		

[2] For subsequent analysis occupation is categorised into three groups: white collar jobs consisting of managers and professionals; blue collar jobs consisting of technicians and trades workers, machine operators and drivers and labourers; and other jobs consisting of community and personal services, clerical and administrative and sales workers.

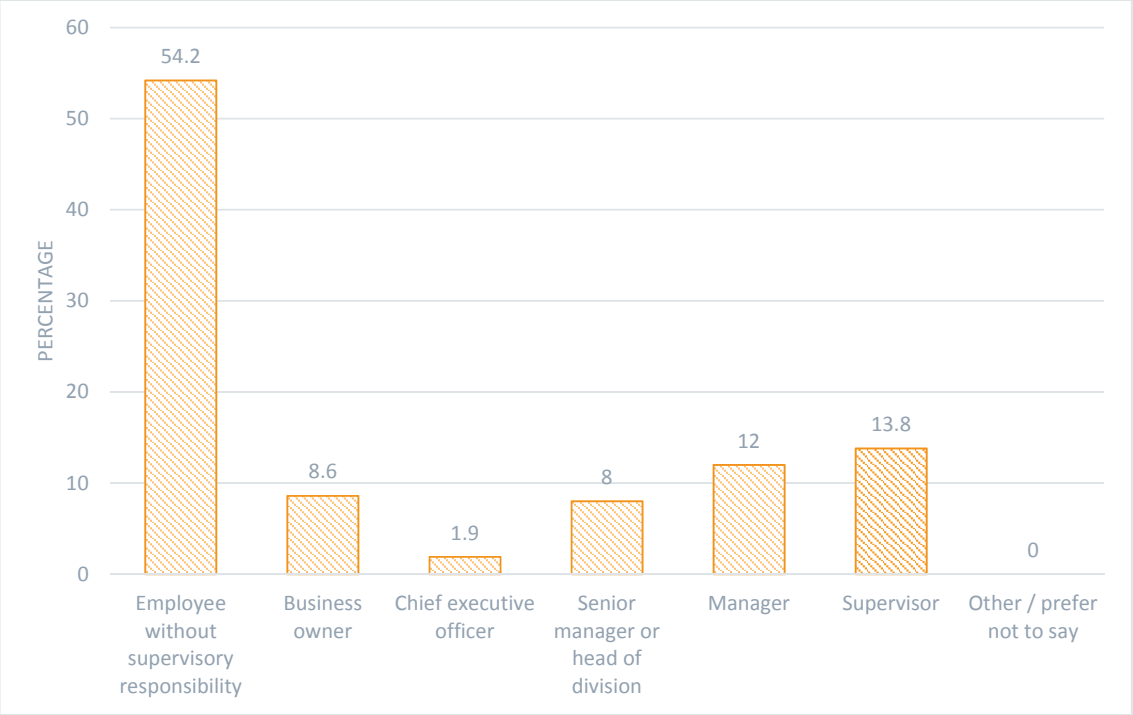

FIGURE 4. ROLE IN ORGANISATION

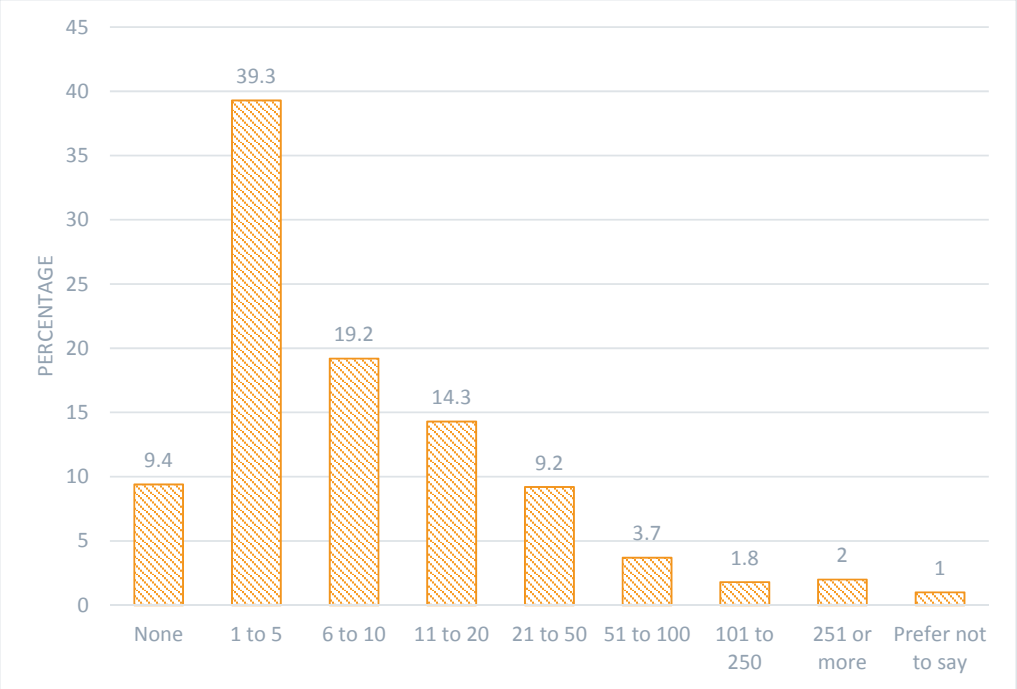

FIGURE 5. NUMBER OF STAFF SUPERVISED (FOR RESPONDENTS WITH SUPERVISORY RESPONSIBILITY)

Of the respondents interviewed, 54.2% are employees without any supervisory responsibilities, 13.8% are supervisors and only 1.9% are chief executive officers. Of the 502 respondents who indicated that they have supervisory responsibilities, 489 responded to the question on the number of staff they manage. Most of these respondents manage 1-5 workers (39.3%), followed by 6-10 workers (19.2%). Only 3.9% manage over 100 workers.

The distribution of the sample across employment tenure and experience in their type of occupation is presented in Figure 6. A majority of workers had greater than 5 years of tenure with their current employer, with the highest prevalence observed in the greater than 10 year category (31%), followed by at least 2 years but less than 5 years (22.4%). The lowest frequency is for employees who have been working for their current employers for over 6 months but under 1 year (5.7%). Over half of the respondents (54.0%) have been in the same type of job as their current jobs for 10 years and more and 18.1% have been in the same job for over 5 years but under 10 years. Very few employees have been in the same type of job for less than 6 months (2.4%).

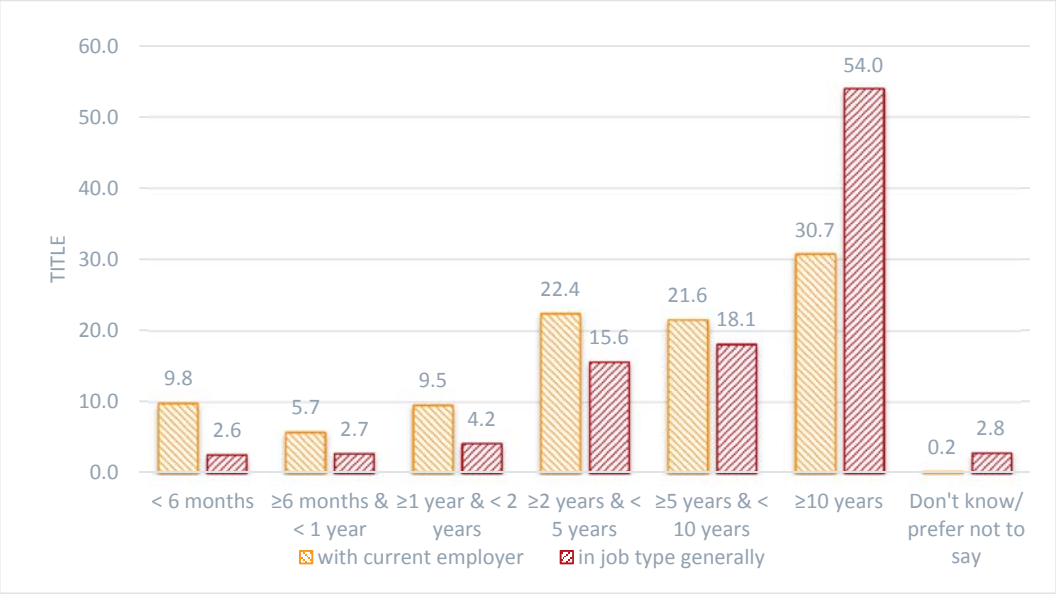

FIGURE 6. JOB TENURE

The hours worked per week ranged from 1 to 90 with a mean of 36.0 (SD = 14.3) hours per week. This is slightly above the average actual hours worked per week of 33 hours for 2010, nationally (ABS, 2010).

SECTION 4: LEADING INDICATORS

PSYCHOSOCIAL JOB QUALITY INDEX

Table 4 provides a summary for the PJQ Index. The major outcome is the number and proportion of respondents with scores above the cut-off (termed 'adversity' by Butterworth et al., 2011).

TABLE 4. DESCRIPTIVE DETAILS FOR SUB-SCALES OF THE PJQ MEASURE

Measure	Job demands and complexity	Job control	Job security	Effort- reward fairness
No. of observations	1,130	1,130	1,130	1,122
Mean	18.7	13.4	15.2	4.8
Standard deviation	4.73	4.58	4.12	1.77
Range	4 to 28	3 to 21	3 to 21	1 to7
Cut-off	≥ 23	≤ 10	≤ 13	≤ 4
No. above cut-off	258	295	371	427
Percent above cut-off	22.8	26.1	32.8	38.1

Binary variables were constructed for high job demands, low job control, low job security and unfair effort-reward, taking the value 1 if the respondent scored above the cut-off for that job stressor 'adversity' and 0 otherwise. This number of adversities was summed to derive the overall PJQ index. Optimal jobs had 0 adversities and poor quality jobs had 3 or more adversities. Approximately a third (31.5%) of the respondents have optimal jobs and a small proportion had the jobs characterised by three or more adversities (worst PJQ).

TABLE 5. PJQ MEASURE: DISTRIBUTION ACROSS FULL SAMPLE

Number of adversities	Freq.	Percent
Overall total	1,122	100
0	353	31.5
1	358	31.9
2	269	24.0
3+	142	12.7

ORGANIZATIONAL PERFORMANCE METRIC-MONASH UNIVERSITY (OPM-MU)

Table 6 presents a summary of results for the OPM-MU. The average OPM-MU score was 32.0. The range of scores was from 8 to 40 and the interquartile range was 8. Approximately 27.9% of the respondents had an OPM-MU score below the cut-off.

TABLE 6. OUTCOMES ON THE OPM-MU

Number of adversities	Freq.
No. of observations	1,113
Mean	32.0
Standard deviation	6.8
Range	8 to 40
Cut-off point	≤29
No. with low OPM-MU score	310
% with low OPM-MU score	27.9

The distribution of the PJQ and OPM-MU measures across different characteristics is presented in Table 7 below. Statistically significant differences were observed in the proportion of the sample who had high psychosocial job demands by age group, employment type, workplace size and occupation. The prevalence of high job demands was higher among older respondents, full-time employees, workers in larger workplaces and those in white collar occupations. For the low job security measure, statistically significant differences were observed by age group and employment type, with the prevalence of low job security higher in workers aged below 55 years and those in part-time employment. Statistically significant differences were also observed in the proportion of respondents who had low job control by employment type, workplace size, job tenure and occupation. The prevalence of low job control was higher in those working part-time, workers in larger workplaces, workers with less than 1 year of job tenure and those in blue collar occupations. No statistically significant differences were observed for the low effort-reward fairness measure.

Statistically significant differences were observed in the proportion of the sample who had low scores on the OPM-MU by location of birth, with a higher prevalence of low OPM-MU scores in workers born outside of Australia.

TABLE 7. DISTRIBUTION OF OPM-MU AND PJQ SCORES BY WORKERS, WORKPLACE AND JOB CHARACTERISTIC

	Overall		Psychosocial Job Quality Measure								OPM-MU	
			High job demands		Low job security		Low job control		Low effort reward		Low score	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Total sample	1,049	100	247	23.6	337	32.1	261	24.9	309	37.2	248.0	28.1
Sex												
Male	556	53.0	125	22.5	187	33.6	128	23.0	205	36.9	146	26.6
Female	493	47.0	122	24.8	150	30.4	133	27.0	185	37.5	138	28.3
Chi² p-value				*0.388*		*0.267*		*0.139*		*0.827*		*0.542*
Age												
< 35 years	292	27.84	51	17.5	105	36.0	83	28.4	112	38.4	90	30.9
35-44 years	225	21.45	56	24.9	67	29.8	47	20.9	74	32.9	55	25.0
45-54 years	267	25.45	72	27.0	96	36.0	63	23.6	106	39.7	68	26.0
≥ 55 years	265	25.26	68	25.7	69	26.0	68	25.7	98	37.0	71	27.1
Chi² p-value				*0.035*		*0.032*		*0.240*		*0.444*		*0.433*
Location of birth												
Australia	831	79.2	191	23.0	264	31.8	213	25.6	304	36.6	241	29.4
Outside Australia	218	20.8	56	25.7	73	33.5	48	22.0	86	39.5	43	20.0
Chi² p-value				*0.402*		*0.629*		*0.272*		*0.436*		*0.006*
Language spoken at home												
English	1,012	96.5	235	23.2	322	31.8	253	25.0	378	37.4	279	27.9
Not English	37	3.5	12	32.4	15	40.5	8	21.6	12	32.4	5	13.9
Chi² p-value				*0.195*		*0.264*		*0.641*		*0.543*		*0.064*
Employment type												
Full time	708	67.5	183	25.9	209	29.5	158	22.3	262	37.0	187	26.7
Part time	341	32.5	64	18.8	128	37.5	103	30.2	128	37.5	97	29.0
Chi² p-value				*0.011*		*0.009*		*0.006*		*0.868*		*0.425*
Number of employees in workplace												
1-4	162	15.4	26	16.1	55	34.0	23	14.2	60	37.0	36	23.7
5-20	277	26.4	53	19.1	92	33.2	73	26.4	111	40.1	89	32.4
21-99	276	26.3	75	27.2	84	30.4	74	26.8	103	37.3	65	23.6
100-399	186	17.7	51	27.4	63	33.9	51	27.4	70	37.6	54	29.0
≥400	148	14.1	42	28.4	43	29.1	40	27.0	46	31.1	40	27.2
Chi² p-value				*0.009*		*0.798*		*0.019*		*0.498*		*0.155*

	Overall		Psychosocial Job Quality Measure								OPM-MU	
			High job demands		Low job security		Low job control		Low effort reward		Low score	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Job tenure												
<1 year	157	15.0	28	17.8	58	36.9	54	34.4	62	39.5	38	24.4
≥ 1 year	892	85.0	219	24.6	279	31.3	207	23.2	328	36.8	246	28.0
Chi² p-value				*0.067*		*0.161*		*0.003*		*0.516*		*0.349*
Occupation												
White collar	516	49.2	148	28.7	150	29.1	91	17.6	185	35.9	125	24.6
Blue collar	236	22.5	41	17.4	88	37.3	84	35.6	88	37.3	72	30.6
Other	297	28.3	58	19.5	99	33.3	86	29.0	117	39.4	87	29.8
Chi² p-value				*0.000*		*0.071*		*0.000*		*0.602*		*0.131*

OHS VULNERABILITY MEASURE

Table 8 presents frequencies for the OHS vulnerability measures. Overall 34.2% of the respondents were categorised as being vulnerable to workplace injury and illness. Over half (56.9%) of the respondents were exposed to hazards and only 18.3% were rated as having inadequate EM.

TABLE 8. OHS VULNERABILITY MEASURE FREQUENCIES

	Frequency	Percent
Inadequate policies and procedures (PP)	413	37.4
Inadequate awareness (AW)	203	18.3
Inadequate empowerment (EM)	393	35.4
Exposure to hazards	642	56.9
Overall vulnerability	386	34.2

The distribution of the vulnerability measures across different characteristics is presented in the table below (Table 9). Statistically significant differences in frequencies were observed in the proportion of the sample who had high hazard exposure by location of birth, employment type, workplace size and occupation, with a higher prevalence of hazard exposure in workers born outside of Australia, those working part-time, those in smaller workplaces, and those in blue collar occupations. Significant differences were also observed in the proportion of workers who had inadequate policy and procedure by workplace size and occupation, with the prevalence of inadequate policy and procedure higher in workers from smaller workplaces and those in blue collar occupations.

For the inadequate awareness measure, statistically significant differences were observed by age, with younger workers having a higher prevalence of inadequate awareness. For the inadequate empowerment measure, statistically significant differences were observed by gender, age and location of birth, with a higher prevalence of inadequate employment in male workers, younger workers and workers born in Australia.

Finally, statistically significant differences in the proportion of the sample who had high overall vulnerability by age, location of birth, employment type, job tenure and occupation. The prevalence of high overall vulnerability was higher in younger workers, workers born in Australia, those in part-time employment, workers with job tenure of less than 1 year and those in blue collar occupations.

TABLE 9. DISTRIBUTION OF OHS VULNERABILITY SCORES BY CHARACTERISTIC

	Overall		Exposure to hazards		Inadequate PP		Inadequate AW		Inadequate EM		Overall vulnerability	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Overall	1,020	100	589	57.8	381	37.4	188	18.4	364	35.7	358	35.1
Sex												
Male	543	53.2	327	60.2	208	38.3	101	18.6	211	38.9	204	37.6
Female	477	46.8	262	54.9	173	36.3	87	18.2	153	32.1	154	32.3
Chi² p-value				*0.088*		*0.502*		*0.882*		*0.024*		*0.078*
Age												
< 35 years	284	27.8	182	64.1	123	43.3	81	28.5	128	45.1	118	41.6
35-44 years	216	21.2	117	54.2	82	38.0	42	19.4	86	39.8	80	37.0
45-54 years	259	25.4	145	56.0	87	33.6	29	11.2	88	34.0	89	34.4
≥ 55 years	261	25.6	145	55.6	89	34.1	36	13.8	62	23.8	71	27.2
Chi² p-value				*0.084*		*0.069*		*0.000*		*0.000*		*0.005*
Location of birth												
Australia	806	79.0	484	60.1	308	38.2	153	19.0	305	37.8	301	37.3
Outside Australia	214	21.0	105	49.1	73	34.1	35	16.4	59	27.6	57	26.6
Chi² p-value				*0.004*		*0.270*		*0.378*		*0.005*		*0.004*
Language spoken at home												
English	985	96.6	574	58.3	370	37.6	181	18.4	348	35.3	348	35.3
Not English	35	3.4	15	42.9	11	31.4	7	20.0	16	45.7	10	28.6
Chi² p-value				*0.070*		*0.461*		*0.808*		*0.208*		*0.410*
Employment type												
Full time	688	67.5	372	54.1	246	35.8	122	17.7	254	36.9	223	32.4
Part time	332	32.6	217	65.4	135	40.7	66	19.9	110	33.1	135	40.7
Chi² p-value				*0.001*		*0.129*		*0.407*		*0.237*		*0.010*

	Overall		Exposure to hazards		Inadequate PP		Inadequate AW		Inadequate EM		Overall vulnerability	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
Number of employees in workplace												
1-4	149	14.6	94	63.1	53	35.6	23	15.4	45	30.2	56	37.6
5-20	272	26.7	168	61.8	127	46.7	59	21.7	104	38.2	107	39.3
21-99	272	26.7	155	57.0	93	34.2	43	15.8	91	33.5	93	34.2
100-399	184	18.0	106	57.6	63	34.2	39	21.2	72	39.1	62	33.7
≥400	143	14.0	66	46.2	45	31.5	24	16.8	52	36.4	40	28.0
Chi² p-value				*0.022*		*0.006*		*0.263*		*0.368*		*0.199*
Job tenure												
< 1 year	154	15.1	99	64.3	61	39.6	28	18.2	56	36.4	66	42.9
≥ 1 year	866	84.9	490	56.6	320	37.0	160	18.5	308	35.6	292	33.7
Chi² p-value				*0.075*		*0.530*		*0.931*		*0.849*		*0.029*
Occupation												
White collar	497	48.7	241	48.5	165	33.2	87	17.5	176	35.4	141	28.4
Blue collar	233	22.8	200	85.8	102	43.8	49	21.0	90	38.6	125	53.7
Other	290	28.4	148	51.0	114	39.3	52	17.9	98	33.8	92	31.7
Chi² p-value				*0.000*		*0.016*		*0.502*		*0.510*		*0.000*

Note: PP = policy and procedures; AW = awareness; EM = empowerment

OVERLAP BETWEEN LEADING INDICATOR MEASURES

Comparison of sample performance on the three leading indicator measures may provide useful information about the extent to which the measure are assessing similar or different leading indicator constructs. The following section presents information on the overlap between scale scores and some examples to demonstrate how performance on leading indicator measures varies across selected industries, occupations and by work site size.

Figure 7 presents a Venn diagram recording the number (and percentage) of the total sample meeting the criteria for 'risk' on each of the leading indicator measures. A total of 1,113 respondents gave responses for all of the leading indicators. Of these, 444 (39.9%) do not meet criteria for being at risk on any of the measures.

Among the remaining respondents who are at risk, the largest frequency is for those who meet criteria for risk on one measure (32.0%). This included:

- 10.2% of the sample were considered vulnerable on the OHS vulnerability scale but not on the remaining measures:
- 15.3% were considered to have low PJQ but did not meet the criterion on other measures; and

- 6.5% had low scores on the OPM-MU but did not meet the criterion for risk on the remaining measures.

A total of 16.8% of the sample were considered to be at risk on two of the three leading indicator measures, and a further 11.3% of the sample met criteria for risk on all three measures. Nineteen (19) respondents with missing values for any of the leading indicators were excluded.

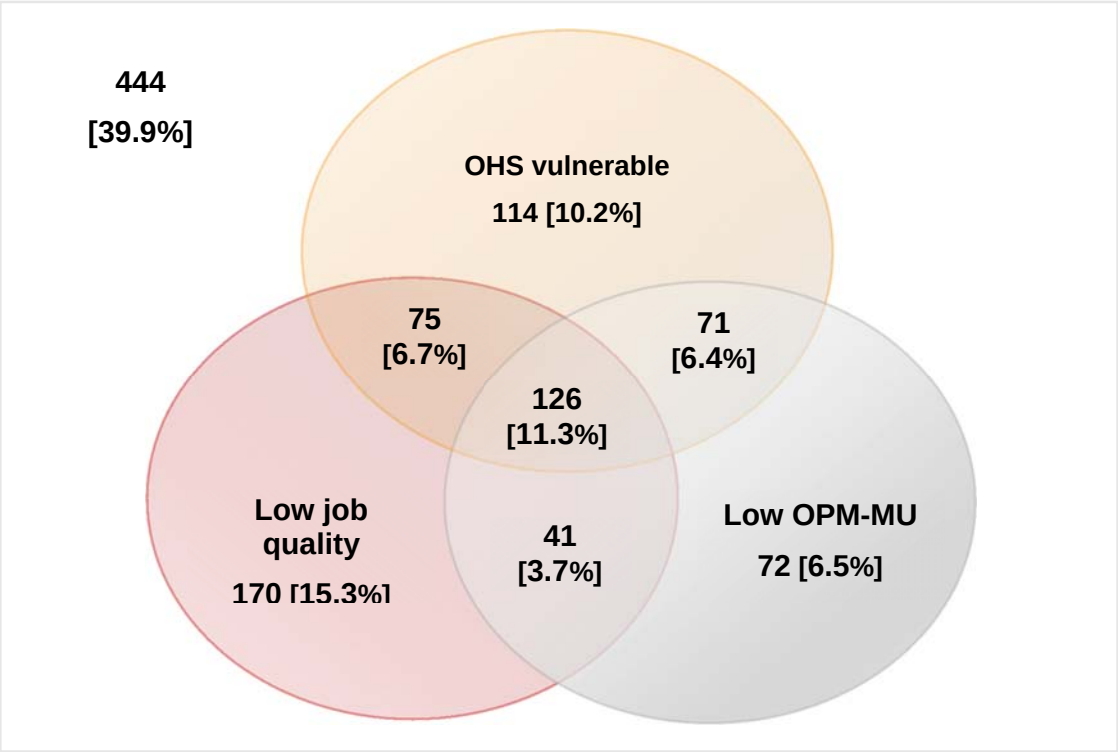

FIGURE 7. VENN DIAGRAM FOR LEADING INDICATORS

Figure 8 presents the percentage of sample meeting criterion for risk on each of the three leading indicator measures in the three industry segments with the highest number of respondents:

- Healthcare and social assistance (15.6% of sample)
- Education and training (13.8% of sample)
- Construction and manufacturing (12.0% of sample)

There are some substantial differences in outcomes between the industry segments and measures, notably:

- 28.4% of workers in the education and training sector have low OPM-MU scores compared to 19.9% of construction and manufacturing workers

- 41.8% of workers in healthcare and social assistance have low job quality compared with 36.8% of construction and manufacturing workers.
- 41.2% of construction and manufacturing workers meet criteria for overall vulnerability on the OHS vulnerability measure compared with 32.8% of healthcare and social assistance workers.

FIGURE 8. LEADING INDICATORS BY INDUSTRY

Figure 9 presents the percentage of sample meeting criterion for risk on each of the three leading indicator measures by occupation category. Respondents in blue collar occupations (technicians and trades, machine operators and drivers and labourers) are much more likely to meet the criteria for overall vulnerability on the OHS vulnerability scale (53.5%) compared to those in white collar (managers and professionals) and other (community and personal services, clerical and administrative and sales workers) occupations.

A smaller proportion of respondents in white collar occupations (24.1%) have low OPM-MU scores compared to workers in blue collar (32.0%) and other (30.9%) occupations. This pattern is replicated on the psychosocial job quality scale with fewer workers in white collar occupations meeting criteria for low job quality compared to blue collar and other occupations.

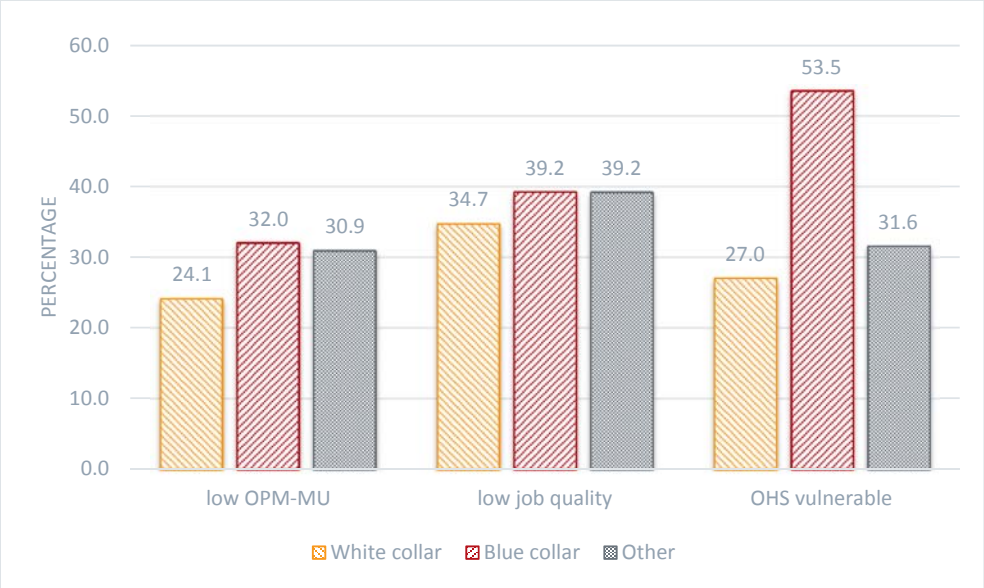

FIGURE 9. LEADING INDICATORS BY OCCUPATION

Figure10 presents the percentage of sample meeting criterion for risk on each of the three leading indicator measures by size of the work site (not overall company size). Respondents from workplaces with fewer than 20 employees were more likely to meet criteria for overall vulnerability on the OHS vulnerability scale (37.2%) than those at work sites with greater than 20 employees, and less likely to meet criteria for low job quality (34.7%) than those in larger workplaces. Respondents working in workplaces with between 21 and 200 employees were less likely to have low OPM-MU scores (at 25.4%) than those in small (≤ 20 employees) or larger (≥ 200 employees) workplaces.

FIGURE 10. LEADING INDICATORS BY WORK SITE SIZE

SECTION 5: LAGGING INDICATORS

Most respondents had not been physically injured or ill (83.3%) or psychologically ill (87.3%) due to work in the last 12 months. Over a third of the respondents (36.7%) indicated that their colleagues were injured or became ill due to work in the last 12 months. There was a high rate of missing data on this measure (11.4% of responses) indicating that respondents may find this item difficult to answer. 'Near misses" are something that could have caused an injury, but did not. Most respondents (61.1%) did not experience any "near misses" over the past 12 months. The rate of missing data for this measure was also quite high (10.5%), signifying that respondents found it difficult to answer this question (Table 10).

TABLE 10. INJURY, ILLNESS AND NEAR MISSES

Lagging Indicator	Freq.	Percent
Presence of physical injury or illness in the past 12 months		
Yes	179	15.8
No	943	83.3
Don't know, NA / prefer not to say	10	0.9
Psychologically ill due to work in the last 12 months		
Yes	127	11.2
No	988	87.3
Don't know, NA / prefer not to say	17	1.5
Co-worker experienced work related injury or illness in the last 12 months		
Yes	415	36.7
No	587	51.9
Don't know, NA / prefer not to say	140	11.4
Frequency of near misses in the past 12 months		
0	692	61.1
1	86	7.6
2	77	6.8
3 to 5	91	8
6 to 10	35	3.1
11+	32	2.8
Don't know, NA or prefer not to say	119	10.5

The 241 respondents who indicated they had experienced a physical or psychological injury or illness in the past 12 months completed a series of additional questions on the nature of their injury or illness, time lost from work, lodgement of workers compensation claims. These data are shown in Table 11 below. Of the 241 (21.3%) respondents who completed this question, 36.9% reported a mental health conditions in the last 12 months, followed by musculoskeletal disorders (25.7%). The next most common conditions were sprains and strains and 'other' types of injury/illness (Table 11). Only 16.2% of those reporting an injury submitted a worker's compensation claim, while 51.9% reported taking time off work due to the work-related injury or illness.

TABLE 11. TYPE OF INJURY, COMPENSATION CLAIM AND TIME OFF WORK

Indicator	Freq.	Percent
Type of injury or illness experienced in the last 12 months		
Musculoskeletal Disorder	62	25.7
Mental Health condition	89	36.9
Trauma	13	5.4
Sprains/strains	24	10.0
Infection / Flu	17	7.1
Other	30	12.4
Don't know, NA or prefer not to say	6	2.5
Submitted a workers' compensation claim in the last 12 months		
Yes	39	16.2
No	197	81.7
Don't know, NA or prefer not to say	5	2.1
Time off work due to work related injury or illness		
Yes	125	51.9
No	113	46.9
Don't know, NA or prefer not to say	3	1.2

A total of 125 respondents were injured and took time off work due to that injury. Of these, the average amount of time taken off was 24.0 (SD = 59.2) days, with a range of between one and 100 days. The survey also included questions relating to work function such as the experience of pain and physical discomfort, work limitations and the impact of long-term conditions on activity at work. Over a third (N=392 or 34.6%) of the respondents experienced pain at work and 41.8% (N=473) experienced physical discomfort at work in the last 12 months. More than half (57.2%) of the respondents were not limited in their ability to perform their normal work duties or in working normal work hours. The majority of respondents indicated that they had not experienced any work limitations in the past 12 months (Table 12), with 19.1% reporting that they were somewhat, moderately or extremely limited.

TABLE 12. WORK LIMITATIONS

Indicator	Freq.	Percent
Experienced work limitations in the last 12 months		
Not at all limited	647	57.2
Slightly limited	251	22.2
Somewhat limited	113	10.0
Moderately limited	73	6.5
Extremely limited	29	2.6
Don't know/ NA / prefer not to say	19	1.7

Figure 11 presents the proportion of the sample who reported any lagging indicator measures in the three industry segments with the highest number of respondents:

- Healthcare and social assistance (15.6% of sample)
- Education and training (13.8% of sample)
- Construction and manufacturing (12.0% of sample)

There are some notable differences between the industry segments. Respondents from the construction and manufacturing sectors were less likely to report being physically or psychologically injured or ill in the past twelve months than respondents in the other two industry sectors. Construction and manufacturing workers also reported being much less likely to submit a claim if they were injured or to take time off work.

The reported incidence of physical and psychological injury or illness was very similar between respondents in the healthcare and education and training sectors. However those in the education and training sector were more likely to report a colleague being injured at work, less likely to have experienced a ‘near miss’ and less likely to report taking time off work if they were injured, than respondents in the healthcare and social assistance sector.

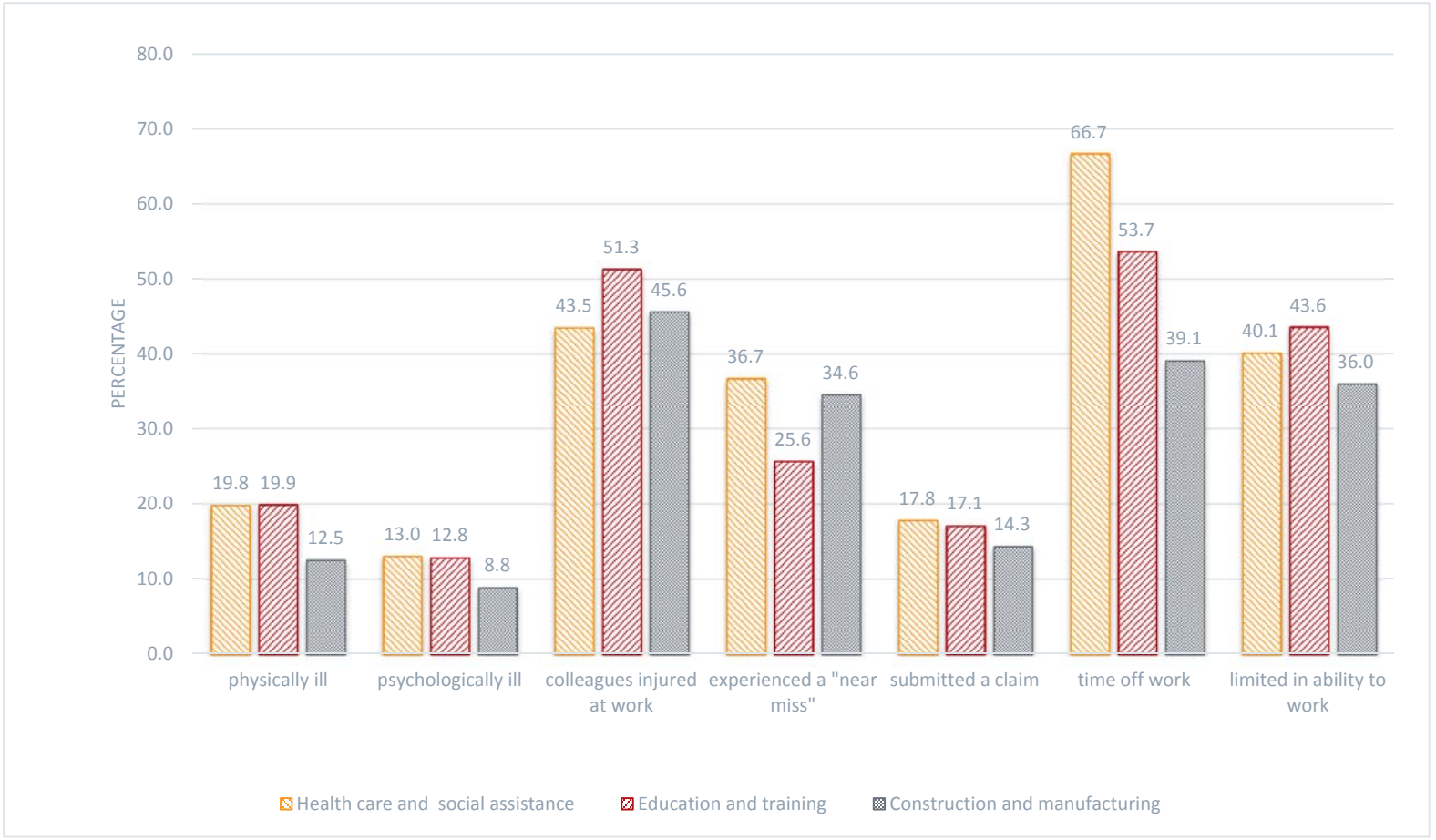

FIGURE 11. LAGGING INDICATORS BY INDUSTRY

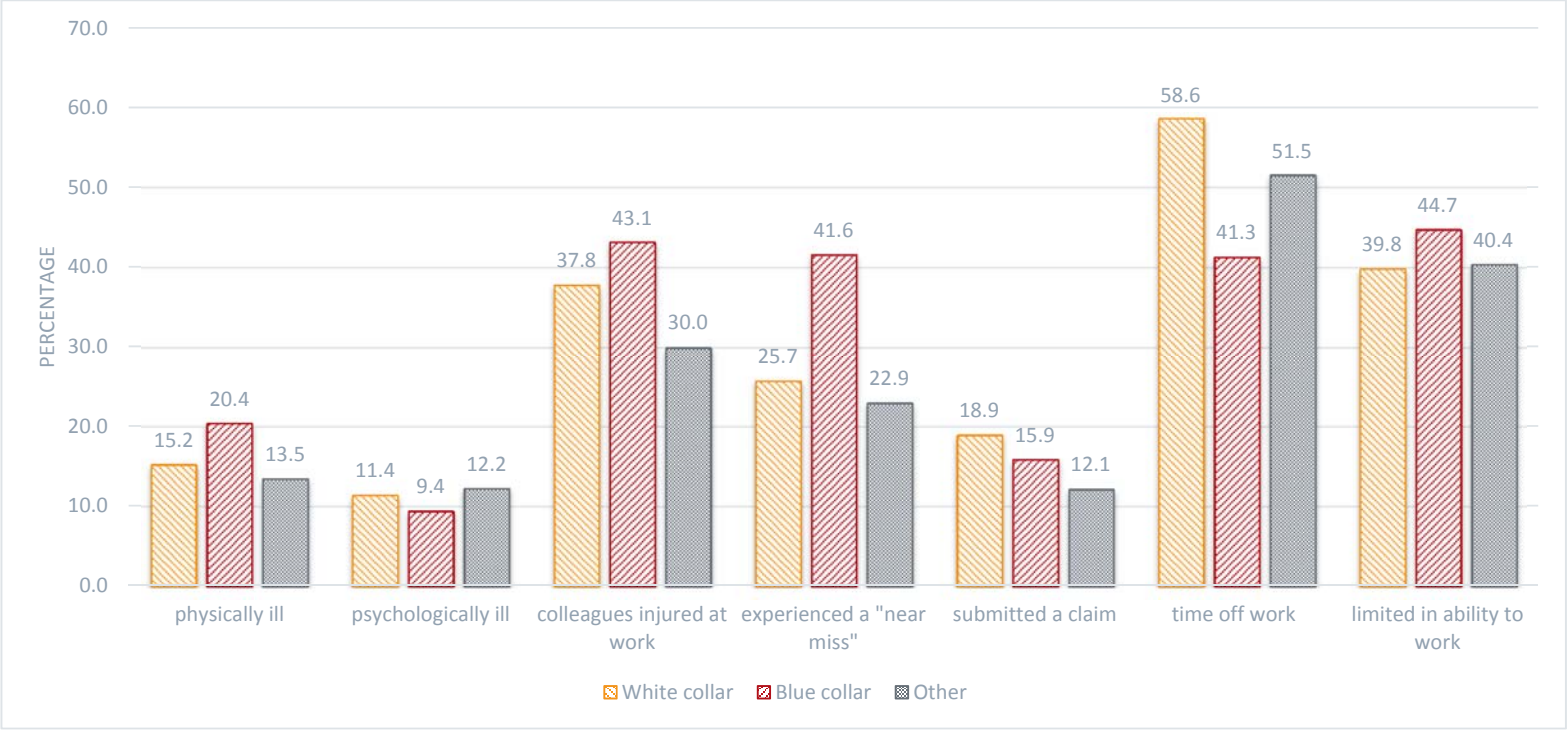

FIGURE 12. LAGGING INDICATORS BY OCCUPATION

Figure 12 presents the proportion of the sample who reported any lagging indicator measures by occupation category. Respondents in blue collar occupations (technicians and trades, machine operators and drivers and labourers) are more likely to experience physical injury at work (20.4%), report that their colleagues have been injured at work in the past 12 months (43.1%), experience a “near miss” (41.6%) and experience some limitation in their ability to perform their normal work duties or work their normal hours (44.7%) in the past 12 months compared to those in white collar (managers and professionals) and other (community and personal services, clerical and administrative and sales workers) occupations.

The proportion of respondents reporting any lagging indicators is quite similar for white collar workers and those in other occupations, with the exception of reporting colleagues being injured at work, where white collar workers are substantially more likely (37.8%) to report this, compared to workers in other occupations (30.0%).

Figure 13 presents the proportion of the sample who reported any lagging indicator measures by size of the work site (not overall company size). Respondents from larger worksites (> 200 employees) were more likely to report being physically or psychologically injured or ill in the past 12 months, and to have taken time off work if they were injured, than respondents from small and medium sized worksites. Respondents from medium sized worksites (20 to 200 employees) were most likely to report observing a colleague being injured or ill in the past 12 months, and most likely to report experiencing a near miss.

FIGURE 13. LAGGING INDICATORS BY WORK SITE SIZE

DISCUSSION AND CONCLUSIONS

This report provides an overview of results from a national survey of employees on three validated measures of WHS leading indicators, as well as a range of standard lagging indicator measures. A final sample of 1130 Australians of working age and employed in paid work completed the survey via the telephone or internet. The sample resembled the Australian labour force on a range of measures including age and gender distribution, education, occupation and industry, employment type and self-rated health.

Analysis undertaken for this report sought to (a) determine the associations between employee, workplace and job characteristics on the WHS leading indicator measures; and (b) assess the degree of overlap and complementarity of WHS leading indicator measures.

LEADING INDICATORS

The Psychosocial Job Quality scale was utilised to determine the proportion of workers reporting negative psychosocial job characteristics. Findings indicated that between 22.8% and 38.1% of respondents met criteria for one of the four adversities described by Butterworth et al., (2011), with two-thirds of the sample meeting criteria for adversity on at least one of the four sub-scales and more than one-third meeting criteria for two or more adversities.

The observed frequencies on the PJQ index were comparable to those reported by Butterworth and colleagues in 2011, noting that the surveys were not conducted in comparable years but both were on samples designed to be working population representative. Butterworth and colleagues (2011), analysing data from a sample of 7155 working age Australians across seven waves of a household level panel survey, reported that 33.7% of respondents who were participating in the labour force reported no job adversity (31.5% in our sample). Further Butterworth reported that 38.9% of labour force participants reported one adversity (31.9% in our sample), 20.2% reported two adversities (24.0% in our sample) and 7.3% reported three or more adversities and were considered to be in the poorest quality jobs (12.7% in our sample). There was some minor variation in these estimates over the seven waves of the Butterworth study sample. The major differences between the two studies are that a smaller proportion of the sample in the present study reported no or one adversity and a greater proportion reported two or three or more adversities.

Recent studies have demonstrated a dose-response relationship between the number of psychosocial job stressors reported by an employee and the odds of paid sickness absence (Milner et al., 2015a), and that people working with a disability have 25% higher odds of reporting one or more adversity on the PJQ scale (LaMontagne et al., 2016). The present analysis extends these findings but demonstrating that older age and larger workplace size were associated with higher scores on the PJQ scale, while being in part-time employment, shorter job tenure, and working in a blue collar occupations were also significantly associated with higher scores.

The OHS Vulnerability Scale was used to determine the proportion of workers reporting exposure to workplace hazards and the potential mitigating effects of workplace OHS policy and procedures, awareness and employee empowerment. Analysis demonstrated

that while 35.1% of the sample were considered to be vulnerable, there was substantial variability in the proportion of sample meeting criteria for each of the individual subscales.

This pattern was comparable to that observed in the largest previous study using the OHS Vulnerability Scale, in a sample of Canadian workers (Lay et al., 2016). While Lay and colleagues reported that 35.2% of their sample were considered to be vulnerable overall, the percentage of respondents meeting criteria for the sub-scales varied substantially. In total Lay and colleagues reported that 53.7% of respondents met criteria for exposure to workplace hazards (57.8% in our sample), and further that 46.1% met criteria for inadequate WHS policy and procedures (37.4% in our sample). Lay et al. also reported that 25.2% had inadequate awareness (18.4% in our sample) while 34.3% reported inadequate empowerment (35.7% in our sample).

In other respects the findings of the present study and the previous Canadian study by Lay et al. (2016) are very similar. Both studies observed similar associations between worker, job and workplace characteristics and scores on the OHS Vulnerability Scale. Younger age, being in part-time or temporary employment and having job tenure of less than 1 year were associated with greater vulnerability. In both samples employees from smaller workplaces reported greater hazard exposure. In the present Australian sample employees from smaller workplaces were more likely to report lack of appropriate OHS policy and procedure, but this was not statistically significant in the Canadian sample. In the Canadian sample employees from smaller workplaces were less likely to report lack of empowerment than workers in larger workplaces. This pattern was evident in the Australian sample but was not statistically significant.

The OHS Vulnerability scale has recently been shown to be associated with lagging indicator measures including physical and psychological injury and taking days off work due to injury (Lay et al., 2017). In this Canadian study the authors also identified an interaction between exposure to hazards and inadequate access to mitigation resources that elevates the risk of workplace injury greater beyond a simple additive effect.

The OPM-Monash University was used to assess the workers perception of organisational policy and practice with regards to WHS. Using an analytic method adapted from the PJQ scale, analysis indicated that 27.9% of workers considered their workplace to have low performance. Location was associated with scores on the OPM-MU. There is no equivalent analysis published previously, however it is possible to compare the mean and distribution of OPM-MU scores with a recent study of 3605 Australian employees across 66 workplaces (De Cieri et al., 2015). This prior study reported an average score of 29.0 (SD = 5.8), with higher scores in the electricity, gas, water and waste industry (avg score = 31.1), construction (avg score = 30.3) and mining (avg score = 29.9) and lower mean scores in the arts and entertainment (avg score = 28.0) and healthcare and social assistance industry (avg score = 28.5). The present study reported a higher mean score of 32.0 (SD = 6.8) but also identified some variation by industry, with mean scores of 33.2 (SD=6.1) for construction and manufacturing, 32.0 (6.5) for healthcare and social assistance and 31.9 (6.8) for education and training. The prior study also reported variation in mean OPM-MU score by type of employment (manager, supervisor, employee), between organisations and between work sites within organisations, although formal statistical testing of these differences was not reported. In the present study being born in Australia was associated with a higher prevalence of a high OPM-MU score, but prevalence was statistically equivalent when assessed using other predictors including age, gender, job tenure, employment type, occupation and worksite size.

As with both the PJQ scale and the OHS Vulnerability scale, scores on the OPM-MU have been shown to be associated with lagging indicators of WHS performance. Sheehan and colleagues (2016) reported negative associations between scores on the OPM-MU and lagging indicators of WHS including unreported incidents and near misses, but also that there was no association between OPM-MU and reported incidents.

Comparison of scores on the three leading indicator measures indicated that nearly one-third of the sample (32.0%) met criteria for WHS risk on one of the three measures, 39.9% did not meet criteria on any measure, and a further 28.1% met criteria on at least two measures. Further exploratory analyses indicated that scores on the three leading indicators measures varied by industry, occupation and workplace size. These findings suggest that there is some overlap in the constructs being measured by the three leading indicator scales, but also that each captures something unique corresponding to the type of prevention and control action being measured.

LAGGING INDICATORS

A number of lagging indicator measures were also collected including the presence of physical and psychological injury or illness in the past 12 months, observations of work-related injury or illness to colleagues or co-workers, near misses and duration of time loss.

Results from the present Australian sample are comparable to a recent study of Canadian workers (Lay et al., 2017), in which 18.9% of respondents reported experiencing a physical injury at work in the past 12 months (15.8% in our sample) and 12.6% reported a psychological injury (11.2% in our sample). The Canadian study also reported a prevalence of 15.4% taking a day off work or accessing medical care for injury. We did not capture data on medical care but identified a lower prevalence of working time loss at 11.1% of respondents.

The prevalence of workers compensation claims in the current sample was 3.4%, higher than a recent estimate of 2.2% across the Australian labour force for the 2014 financial year (Lane et al., 2016). Prevalence of claiming workers compensation varies between states and territories in Australia, and the estimate in this study is within the range of 1.4% to 3.5% previously reported (Lane et al., 2016).

Our findings also confirm that while a minority of Australian workers experience injury or time loss in a 12 month period, there is a much larger proportion who observe a colleague being injured, experience a near-miss incident, or report some limitations in their ability to work. Similar to the leading indicator measures, the prevalence of these lagging indicators varied by industry segment, by occupation and by workplace size.

Future analyses of survey data will assess the association between leading and lagging indicators.

STRENGTHS AND LIMITATIONS

This study is the first in Australia to include multiple validated leading indicator measures and concurrent collection of lagging indicator data, as well as numerous worker, job and workplace characteristics that have been previously demonstrated to be associated with the presence of workplace injury and illness. Thus the study has established a unique dataset that allows examination of the overlap between leading indicator measures, and

comparison of the nature and type of associations between scores on leading indicator measures and job, worker and workplace characteristics. Future analysis will enable comparison of the nature and strength of associations between these leading indicator measures and lagging indicators.

Overall, the study sample was representative of the Australian labour force, and was statistically equivalent to labour force data on factors including gender, age distribution, self-rated health and state of residence. The sample was more highly educated and more likely to speak English at home than the Australian working population. The study recruited participants by two methods (by telephone and via a pre-existing sample) and there were some differences between groups by recruitment method. The SSI sample was younger, more highly educated and less likely to be in full-time employment than the telephone sample (Appendix A). Amongst those recruited via telephone, some respondents completed the survey by landline phone and some by mobile phone. There were also differences on some characteristics between these groups (Appendix A). The mix of recruitment methods may have introduce some biases into the overall sample that affected results, although as a whole the full sample appears broadly representative of the Australian working population.

There was a large number of missing values on some measures, indicating that respondents found answering these questions difficult or were unable to provide an answer. This was particularly the case for the policy and procedure items on the OHS Vulnerability Scale, where 28.4% of respondents did not provide an answer for at least one of the seven questions. A previous study using this scale also reported a high rate of missing values on the policy and procedure scale (Lay et al., 2016). Imputation of values for these missing questions reduced the total proportion of missing scale scores, however further analyses and/or modification of the policy and procedure items for the OHS Vulnerability Scale may be warranted.

CONCLUSIONS

These findings confirm that there are a range of worker, job and workplace characteristics associated with elevated risk for occupational injury and illness, as assessed by the leading indicator measures. These include age, type of employment, occupation, workplace size, job tenure and gender. Importantly, some of these factors were associated with specific sub-scale scores. For example, blue collar workers were much more likely to be exposed to hazards than white collar or other workers. They were also more likely to report inadequate WHS policy and procedure, but did not report different levels of awareness or empowerment. Similarly, workers in workplaces with more than 20 employees were more likely to consider their job to have high psychosocial demands than smaller workplaces, but workplace size was not associated with perceived job security or effort reward fairness. Such findings provide insights into the patterning of unique WHS risk factors among different segments of the labour force.

All three of the leading indicator measures used in this study have been previously shown to be associated with, and in some cases predictive of, WHS performance measured using lagging indicators. Scores on these measures may therefore be considered a proxy for elevated risk of WHS lagging indicators such as physical and psychological injury, WHS incidents and near-misses. Combined with this prior research, the present findings suggest that strategies to reduce the prevalence of WHS leading indicators must address multiple

factors at the level of the worker, the job and the workplace; and that it may be possible to design specific strategies to address specific WHS risk factors.

Our analysis also demonstrated that there while there was some overlap between the leading indicator measures in the constructs being measured, there was also a substantial proportion of respondents who were identified as at increased risk on one leading indicator measure but not on others. This finding suggests that the measures are, at least partially, assessing unique WHS risk factors. In practice this suggests that utilisation of multiple leading indicator measures may be warranted to gain a comprehensive picture of view of WHS risks.

These findings suggest that there may be opportunities for WHS regulators, employers, industry bodies, worker representative groups and workers to develop programs, policy and practices that target specific WHS risk factors in specific groups of workers. The leading indicators measures used in this survey may provide a suite of measurement tools that facilitate such approaches.

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APPENDIX A

Overall, 39.3% of the sample completes the questionnaire via mobile, 35.7% completed online and 25.0% competed via landline phone, as shown in Table A1 below.

Respondents completing via landline tended to:

- be female
- be older (45years +)
- have a school level education as their highest level of education
- work for a company with 21-99 employees
- have worked for their current employer for more than 10 years
- be in the health care and social assistance industry.

Respondents in the mobile sample were more likely to:

- be male
- be younger (< 35 years)
- have a school level education as their highest level of education
- work for a company with 21-99 employees
- have worked for their current employer for more than 10 years
- be in the health care and social assistance industry.

Respondents in the online sample completers were more likely to:

- be male
- be younger (<35 years)
- have a Bachelor's degree as their highest level of education
- be from a company with 5-20 employees
- have worked over 2 years but less than 5 years
- be in the retail trade industry.

TABLE A1. CATI VS ONLINE SAMPLE

	Landline completes		Mobile completes		Online sample completes	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Total sample	283	25.0	445	39.3	404	35.7
Sex						
male	133	47.0	243	54.6	216	53.5
female	150	53.0	202	45.4	188	46.5
Age						
< 35 years	21	7.4	155	34.8	139	34.4
35-44 years	51	18.0	79	17.8	107	26.5
45-54 years	87	30.7	111	24.9	96	23.8
≥ 55 years	123	43.5	99	22.3	62	15.4
Don't know / prefer not to say	1	0.4	1	0.2	0	0.0
Location of birth						
Australia	220	77.7	340	76.4	325	80.5
Outside Australia	61	21.6	100	22.5	74	18.3
Don't know / prefer not to say	2	0.7	5	1.1	5	1.2
Language spoken at home						
English	278	98.2	429	96.4	382	94.6
Not English	5	1.8	16	3.6	22	5.5
Don't know / prefer not to say	0	0.0	0	0.0	0	0.0
Highest education level						
Postgraduate Degree	47	16.6	69	15.5	59	14.6
Graduate Diploma or Certificate	16	5.7	23	5.2	18	4.5
Bachelor Degree	57	20.1	98	22.0	109	27.0
Advanced Diploma or Diploma	31	11.0	45	10.1	56	13.9
Certificate Level (Certificate 1-4)	49	17.3	74	16.6	65	16.1
School Level (i.e. Year 12, 11etc)	83	29.3	134	30.1	96	23.8
Prefer not to say	0	0.0	2	0.5	1	0.3
Occupation						
Managers	42	14.9	59	13.3	78	19.5
Professionals	112	39.7	146	32.9	108	26.9
Technicians and trades	22	7.8	62	14.0	33	8.2
Community and personal service	36	12.8	26	5.9	28	7.0
Clerical and administrative	29	10.3	53	11.9	72	18.0
Sales	8	2.8	30	6.8	45	11.2
Machinery operators and drivers	11	3.9	26	5.9	9	2.2
Labourers	22	7.8	42	9.5	28	7.0
Other/ prefer not to say	1	0.0	1	0.0	3	0.0

	Landline completes		Mobile completes		Online sample completes	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Employment type						
full time	186	65.7	306	68.8	241	59.7
part time or casual	97	34.3	137	30.8	140	34.7
Don't know / prefer not to say	0	0.0	2	0.5	23	5.7
Workplace size (site)						
1-4 employees	38	13.4	70	15.7	59	14.6
5-20 employees	70	24.7	106	23.8	101	25.0
21-99 employees	79	27.9	119	26.7	84	20.8
100-399 employees	45	15.9	77	17.3	70	17.3
≥400 employees	35	12.4	59	13.3	56	13.9
Don't know / prefer not to say	16	5.7	14	3.2	34	8.4
Job tenure						
6 months or less	18	6.4	62	13.9	31	7.7
7 months to less than 1 year	6	2.1	22	4.9	37	9.2
≥ 1 year to less than 2 years	13	4.6	41	9.2	54	13.4
≥ 2 years to less than 5 years	51	18.0	94	21.1	109	27.0
≥ 5 years to less than 10 years	68	24.0	91	20.5	85	21.0
≥ 10 years	127	44.9	133	29.9	88	21.8
Don't know / prefer not to say	0	0.0	2	0.5	0	0.0
Organisation type						
Government organisation	99	35.0	102	22.9	64	15.8
Private, for profit organisation	125	44.2	266	59.8	276	68.3
Not-for-profit organisation	38	13.4	37	8.3	26	6.4
Self-employed/sole trader	16	5.7	35	7.9	25	6.2
Public/Public for profit	2	0.7	3	0.7	0	0.0
Don't know / prefer not to say	3	1.1	2	0.5	13	3.2
Industry						
Agriculture, Forestry and Fishing	14	5.0	19	4.3	5	1.2
Mining	4	1.4	14	3.2	5	1.2
Manufacturing	16	5.7	24	5.4	21	5.2
Electricity, Gas, Water and Waste Service	5	1.8	18	4.0	4	1.0
Construction	14	5.0	38	8.5	23	5.7
Wholesale Trade	1	0.4	7	1.6	11	2.7
Retail Trade	16	5.7	36	8.1	51	12.6
Accommodation and Food Services	7	2.5	19	4.3	26	6.4
Transport, Postal and Warehousing	14	5.0	25	5.6	24	5.9

	Landline completes		Mobile completes		Online sample completes	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Information Media and Telecommunication	8	2.8	18	4.0	20	5.0
Financial and Insurance Services	6	2.1	19	4.3	20	5.0
Rental, Hiring and Real Estate Services	0	0.0	2	0.5	6	1.5
Professional, Scientific and Technical	13	4.6	32	7.2	40	9.9
Administrative and Support Services	15	5.3	15	3.4	20	5.0
Public Administration and Safety	20	7.1	23	5.2	22	5.5
Education and Training	51	18.0	60	13.5	45	11.1
Health Care and Social Assistance	74	26.2	64	14.4	39	9.7
Arts and Recreation Services	5	1.8	11	2.5	10	2.5
Other	0	0.0	1	0.2	4	1.0
Don't know / prefer not to say	0	0.0	0	0.0	8	2.0