

September 2022

Climate Impacts at Work

Supporting a climate ready
workforce

Todd Denham
Lauren Rickards

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Todd Denham
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A collaboration between Friends of the Earth, RMIT University's Climate Resilience Living Lab and the following unions:

Australian Services Union
Community and Public Sector Union
Health and Community Services Union
Hospo Voice
Rail, Tram and Bus Union
Retail and Fast Food Workers Union

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Executive Summary



All workers and all industries need to be supported to adapt to climate change. Serious impacts are evident now and are escalating rapidly. Urgent adaptation is needed both to manage the proliferating climate-related risks and to reduce the many existing, non-climatic vulnerabilities that greatly exacerbate climatic stresses and disruptions.

This report presents the first worker-centric analysis of climate change impacts. Workers are all those who contribute to the economy and enable organisations to function. For methodological reasons this study focuses on those with paid jobs, from CEOs to apprentices. How impacts on employees cascade through organisations and impact economies and wider society, and vice versa, is under-analysed.

The report provides rare empirical insights into workers' experiences of climate-related disruptions and stresses. It is based on a cross-sectoral survey of 1,165 workers, predominantly located in Victoria, and distributed online via six unions in the first half of 2022. Responses were received from more than ten industries and nine occupation types. The results point to many climate-significant aspects of workplaces and workers' wider systems, including supply chains, homes and daily commutes.

Workers reported a wide range of direct and indirect impacts from climate-related events upon their capacity to do their jobs properly. From bodily stress to uncomfortable workplaces and houses, and climatic disruptions to electricity and transport infrastructure, workers are already being impacted by multiple elements of climate change at multiple scales. Notable findings include:

- 75% of workers indicated physical health impacts, and 43% indicated mental health impacts
- More than 60% of workers indicated their work had been impacted in some way
- Indoor and especially outdoor workers reported varied physical health impacts
- Nearly 60% have had to manage staffing disruptions
- 50% have had to manage more agitated clients or customers
- Approximately 45% have had to manage transport and supply chain disruptions
- 43% have had to manage blackouts
- More than a third have not been able to travel to or from work due to extreme weather
- A quarter have had to work additional hours due to extreme events and disasters
- Almost 10% have lost wages or had to take personal leave and 2% have already lost jobs

Overall, the results point to the multiple, proliferating and often insidious ways climate change is impacting work. They also document workers' high levels of concern about climate change and fear and frustration about inaction on it,

including some organisations' lack of responsiveness to the growing stresses workers are under. Workers offered various suggestions about what measures are needed, including new Occupational Health and Safety (OH&S) measures, training and education, and more flexible work options.

The report ends with five recommendations for next steps:

- 1.** Rapidly advance climate change adaptation planning and action for workers, organisations, industries and workforces
- 2.** In particular, adapt OH&S standards and practices to suit current and future climates
- 3.** In particular, address work arrangements and conditions to improve outcomes for vulnerable groups
- 4.** Advocate for action, education and training on climate change adaptation and mitigation
- 5.** Undertake further research to build the empirical base and advance adaptation understanding and options.

1 Introduction



1.1 Purpose

All workers and all industries need to be supported to adapt to climate change. Impacts are evident now and are escalating rapidly. Adaptation is needed to lessen the effects and greenhouse gas mitigation is needed to reduce climatic change.

This report describes how climate change is already affecting workers (predominantly from Victoria) and provides recommendations for next steps. It is based on a survey of paid workers' experiences of climate-related disruptions and stresses. Respondents reported numerous impacts on their capacity to do their jobs properly, including impacts created by effects on their co-workers, clients and organisations. The results point to the multiple, proliferating and often unexpected and insidious ways climate change is impacting work.

Previous research has usefully documented the direct, bodily effects of a single aspect of climate change (heat) on workers in single industry sectors (see Chapter 2 of this report). While rising heat is important as both a long-term trend and increasingly extreme periodic condition in the form of heatwaves, this research encompasses a far wider range of climate impacts. Human-induced climate change involves a large number of concurrent climatic changes and their far-reaching, flow-on effects across occupational, organisational, industry and sectoral boundaries. The Intergovernmental Panel on Climate Change recently assessed the implications of climate change for Australia and concluded that one of the key risks the nation faces is 'cascading, compounding and aggregate impacts on cities, settlements, infrastructure and supply-chains' due to disruptions to and stresses on systems

including 'road networks, power and water supply, interdependent wastewater and stormwater services, and business activities' (Lawrence et al. 2022: 11-5). As the intersecting stress of the COVID-19 pandemic has also demonstrated, supply chains and other systems do not function effectively when workers cannot get to work or perform their roles normally, and these problems in turn disrupt other systems, affecting more and more workplaces, and the supplies or services each of their work supports. By affecting organisations and systems at all points simultaneously, climate change is far more than a health, OH&S or environmental issue. It threatens all of society. This includes our ability to respond. We need to adapt and mitigate now before our ability to do this work is itself undermined.

This report aims to set a new benchmark for understanding the effects of climate change on workplaces and workforces, and for appreciating the range, type and coordination of responses that the adaptation of work urgently requires. The findings are of importance to all workers, industries and sectors, especially those charged with managing

organisations, other workers and the economy.

The report is structured as follows:

The second section provides a brief overview of previous studies of the impact of climate change on work, including an introduction to climate change and the projected impacts, and examples of how workers have been affected by and are responding to climate change.

The third section provides the outcomes of the survey, including workers' perceptions of climate change, the impacts on their work and then the physical and mental health effects.

The fourth section summarises the survey, including workers' perceptions of climate change, the impacts on their work and then the physical and mental health effects.

The fifth section sets out recommendations that respond to the outcomes of the survey.

A detailed description of the survey method and results are included in the appendix.

1.2 Project team

This project has been run by the Friends of the Earth and RMIT University's Climate Resilience Living Lab. The project has been undertaken with the assistance of six unions, based in Victoria and representing a diverse array of industries, who distributed the survey to members and collated the results. The union participants are:

- Australian Services Union
- Community and Public Sector Union
- Health and Community Services Union
- Hospo Voice
- Rail, Tram and Bus Union
- Retail and Fast Food Workers Union

Friends of the Earth Melbourne (FoE) has a long track record of engaging with the union movement to secure key climate and energy policies in Victoria, such as the Victorian Renewable Energy Target. FoE has worked with unions and the Victorian Trades Hall Council in recent years to have input into Victorian climate policy formulation processes, such as the setting of Victorian Emissions Reduction Targets. This collaboration has included assistance and

advice with making government submissions, co-hosting community events, and sharing policy ideas and interests at roundtable discussions.

The Climate Resilience Living Lab (CRL) is exploring “the work of climate change adaptation and the adaptation of work”, focused on organisational contexts. This new, more systemic approach is providing insights into the far-reaching implications of climate change for work and thus the sort of adaptation that is needed across organisations and professions.

1.3 The survey

This survey takes a worker-centric perspective and does not limit responses to any specific climatic stressor. It examines workers' perceptions of climate change, impacts on their work, and the physical and mental health impacts.

The survey was distributed via the six unions in the first half of 2022. Each union distributed the survey to its members independently, using web-based survey services.

The survey included questions on:

- Demographics – age and gender
- Work details – job location, industry sector, occupation, job status, travel to and during work, outdoor work
- General understanding of climate change and its impacts
- Experience of climate impacts on physical and mental health
- Impacts of climate events on productivity and working time

is important to note that the mix of workers is not representative of the whole workforce. Many workers’ experiences (e.g. those of high level managers) remain undocumented. Climate change is also unfolding rapidly and the situation is highly dynamic. Thus the results need to be taken as merely indicative of how climate change is beginning to affect work. There is an urgent need for more investigation and monitoring, as well as robust assessment of future risks and adaptation options.

Overall, 1,165 workers responded, representing a wide cross-section of industry, occupations, regions and demographics. Nevertheless, it

Figure 1. Survey on climate impacts on work.



2 Background



2.1 Climate change in Australia

The entire global climate system has altered as a result of a build-up of excess greenhouse gases and is now acting differently. The Australian climate is no exception and is changing rapidly. The CSIRO (2020) estimates that temperatures have increased by 1.4° since records began in 1910 and of the nine hottest years in the country, seven were between 2013 and 2019. Rainfall patterns have changed, with most of Southern Australia experiencing a decline in annual rain, a shift from winter to summer rain and dramatic drop in freshwater availability due to effects on soil exacerbating the effects of the decline (DELWP 2019; Lawrence et al. 2022). On top of these trends is an observed and projected increase in the frequency, intensity, spatial scale and co-occurrence of climatic extremes and weather events,

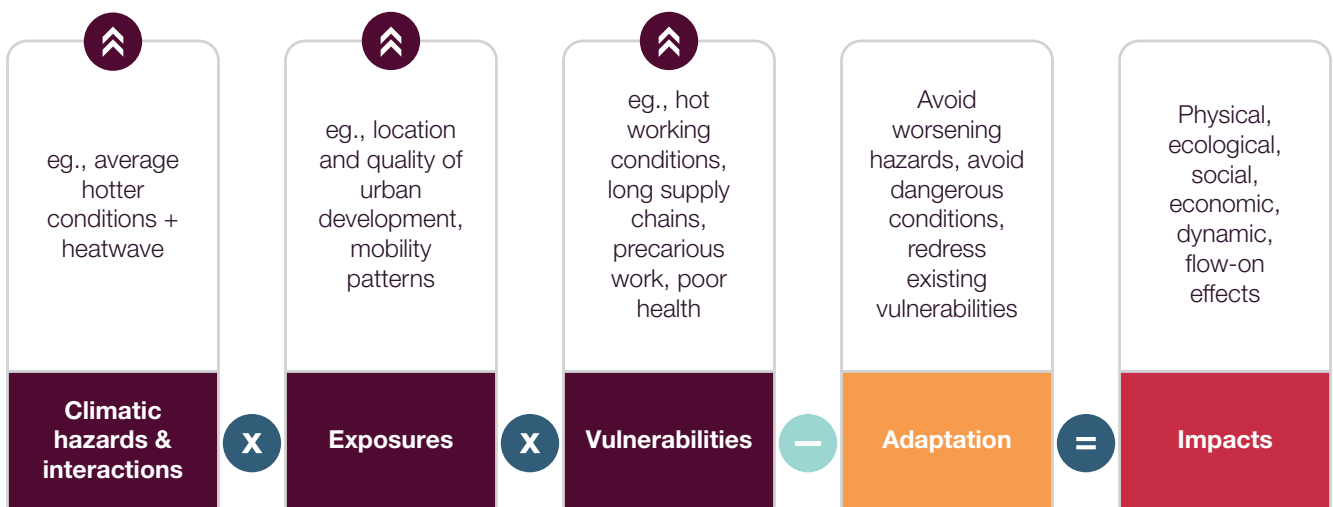
including heat waves, bushfires, droughts, floods and storms. Increasingly, such extremes and events are causing compounding, nonlinear effects. At the same time, sea level rise is combining with storm surges and changed tides to erode coastlines. Combined, these stresses are adding to the increasing costs of natural disasters (Handmer et al. 2018), with one estimate suggesting they already cost Australia \$38bn annually (Deloitte 2021), even excluding supply chain disruptions.

Climate change impacts stem from a collision between a given system (e.g. a household, organisation or infrastructure network) and particular weather and longer-term climate conditions. While some aspects of climate change are global (notably increasing average temperatures), other aspects vary over time and space,

and so whether someone or something is impacted depends on whether they, or something they rely on (e.g. a supplier), is physically exposed when certain conditions occur (Figure 2). Their characteristics at that time (e.g. how well they are already functioning or coping with life) largely determines how impacted they will be. Existing problems and weaknesses (referred to as non-climatic vulnerabilities) are made more consequential when they co-occur and interact with the added stress of difficult climatic hazards and their flow-on effects. For example, inadequate staffing levels, poor

coordination, or long commutes all exacerbate the effects of climatic challenges such as storms or drought-induced economic downturns. Unless carefully managed, the additional stresses and disruptions caused by climate change will exacerbate existing problems in workplaces, including systemic ones such as the gender pay gap (Foley et al. 2020), insecure work (McManus 2018) and regional inequalities in digital connectivity and other services (Rueda et al. 2021). In this way, climate change draws into focus the condition of our existing systems.

Figure 2. *The climate change impact equation.* Climate change impacts stem from the interaction of: 1. climatic changes (hazards and their flow-on effects); 2. physical exposure to these stresses and disruptions; 3. other vulnerabilities (problems at that point in time), minus the positive effect of risk-reducing adaptation actions.



Adaptation refers to any measure that reduces the actual or anticipated impacts of climate change. It is about enabling society to function in a climate changed world. Any aspect of the world that we want to keep functioning needs to be equipped with appropriate adaptation, including the work of climate change mitigation and adaptation itself. At the same time, adaptation requires we face hard decisions about what is feasible to protect. Some things face adaptation limits: levels of climate change that they will simply not be able to manage in their current form. This is leading

some organisations to relocate (e.g. away from the coast, see Sider et al. 2019) or profoundly change (e.g. change enterprise type), with implications for associated communities, regions and workers (Mushtaq 2018).

Adaptation has two main levers. One lever is climate risk management. This is about tackling weather and climate-related stresses by reducing climatic hazards where possible (e.g. cooling areas with more trees) and reducing exposure to them (e.g. relocating businesses to a cooler climate; improving evacuation routes to enable

Figure 3. *Workplace at home.* From “Pexels” by Kelly, 2020, (<https://www.pexels.com/photo/modern-workplace-with-gadgets-in-cozy-room-with-soft-light-4041405/>). Copyright 2020 by Kelly. CC0.



people to quickly escape). The second lever is reducing existing, non-climatic vulnerabilities (e.g. high resource dependencies) and enhancing the resilience of the things we need to work (e.g. building in redundancies). Helping people and places thrive today means they will be less impacted by climate change tomorrow. This form of adaptation includes diverse hard and soft measures, from tackling various forms of systemic disadvantage, to increasing cross-jurisdictional cooperation, improving workplace culture or better targeting teams' resourcing. Research indicates that adaptation is most effective when it is informed by insights by those with detailed understanding of existing systems as well as rigorous analysis of how things may change in the future.

The ambition or intensity of adaptation can range from incremental (minor alterations, often to do barely more than try to cope with climate change impacts) through to more systemic and transformational (fundamental) changes (Warner et al. 2019). What counts as transformational depends on scale and perspective. For a worker, a transformational adaptation may be to leave one

job and find a more safe and secure one. For an organisation, a transformational adaptation may be to adopt a far leaner, more flexible business model. In these and other ways, climate change adaptation may expose and exacerbate tensions between workers and their organisations.

Inadequate or ineffective adaptation allows impacts to accumulate and spread across systems. By definition, being impacted makes us worse off than we were. Impacts today therefore make us more vulnerable tomorrow, and so the longer we wait to begin adapting, the further behind we fall. Conversely, adaptation today will deliver continuous benefits. More than just less climate risk, these benefits include the potential for better wellbeing, productivity and other outcomes than what we have today.

2.2 Climate change adaptation and mitigation

Most discussion about climate change and work focuses on the urgent issue of greenhouse gas emission mitigation. Decarbonising the economy is absolutely a

priority. Without rapid, large scale decarbonisation, climate change impacts will quickly worsen beyond what adaptation can manage. Reorganising the economy involves reorganising the workforce, as work on Just Transitions and green jobs emphasises. The Victorian Government's Climate Change Strategy includes projections of 24,400 jobs in the state through the transition to 50% renewable energy and 3,900 through Recycling Victoria (DELWP 2021). According to Australian Conservation Foundation and Unions (2008), the Australian economy stands to gain an estimated 500,000 additional workers by 2030 by facilitating growth of the green industry.

At the same time, adaptation to reduce climate change impacts is essential to enabling mitigation. Without adaptation, we will not be able to decarbonise the economy — or even sustain it. While adaptation of the economy is not yet a public conversation or policy agenda, adaptation efforts and residual climate change impacts will — as with decarbonisation — profoundly reshape the economy. And as with decarbonisation, this will include industry restructuring, relocation and a swathe of

policy and regulatory changes. It will also similarly involve a redistribution and reassessment of work tasks and jobs, altering roles and skills in a way that responds to and anticipates the risks and opportunities presented by the changing climate (Blashki et al. 2011).

However, in comparison to decarbonisation, adaptation of the economy and workforce is a far less linear force for change. All sectors, industries, organisations and individuals are being affected by climate change in different, dynamic ways. Their adaptation options and decisions depend on subjective and context-specific factors. Despite this complexity, some directional shifts are very likely under a changing climate, including a decline in the sectors most obviously sensitive to rising average temperatures and shifting precipitation, such as the skiing industry, as well as a decline in business models sensitive to climate-related stresses and disruptions, such as those reliant on long supply chains or fragile infrastructure.

Climate change adaptation requires looking beyond the spatial boundary of any given workplace or organisation and

appreciating the infrastructural networks and systems it requires to function. In particular, the escalating risk of blackouts in large scale, highly exposed electricity grids presents challenges, especially given the increasing reliance on digital technologies and on electrification as a means of decarbonisation.

Because of the interconnected nature of workplaces, the need to adapt shared systems, and the intersection of adaptation with other trends and transitions (notably decarbonisation), there is an urgent need for a consistent, coordinated approach to adaptation by industry and government.

A necessary foundation for effective adaptation is to understand climate change impacts and risks. This report documents some of the climate change impacts already being experienced by some workers in order to help kick start and inform a new public and policy focus on adapting the economy.

2.3 Contextualising workers

All aspects of work stand to be affected by climate change

and need to be considered in assessments of climate change impacts. Within the workplace this includes:

- physical components such as buildings, equipment, energy, water, ICT and outdoor spaces
- human aspects such as staff, contractors, suppliers, clients, regulators, neighbours, trainers
- organisational elements such as supply chains and other logistics, staff management, finance, strategy, policy and governance.

All of these areas themselves are the result of work and require ongoing input and review by certain workers.

A worker-centric view (of the sort this report takes) brings into view a range of other factors that intersect with climate change and influence individuals' ability to work. These include:

- 'personal' factors such as domestic considerations, skills, knowledge and health
- 'place-based' factors such as the jobs, transport and services available within their region.

As indicated above, climate change impacts also cascade through systems – partly because of effects on workers. Impacts on individual workers flow through to affect not only organisations and the industries and sectors they are part of, but also the households and families, and communities and regions, they are part of (Figure 4). In turn, climate change impacts on these spheres affects workers.

In this report, we focus on paid work and workers because of their importance and because, pragmatically, they are easiest to identify and research. Nevertheless, as the increase in voluntary work driven by climatic disruptions and stresses underlines, work incorporates a wide range of unpaid tasks and roles, and these are essential to keeping current organisations and systems functioning. Further research is needed into the relationship between unpaid work and climate change.

A worker-centric framing of climate change also does not mean adopting a reductive lens focused only on individuals. Instead, the framework above points to the wide range of stakeholders, policy areas and

fields of research relevant to understanding how climate change is impacting and may impact workers, and the multiple scales and arenas of adaptation needed, including workforce planning. It points to the need to build on the survey below with far more comprehensive, in-depth, longitudinal research.

Although there is some emerging work on adaptation within different sectors, to date most practical climate change adaptation has been centred on communities and regions. In part this is because of the well-known importance of community in coping with disasters, as shown

Figure 4. A worker-centric framing of climate change impacts: workers in the context of wider spheres they are part of.



in the classic study of the severe 1995 heatwaves in Chicago where community interaction reduced mortality (Klinenberg 2000). Conversely, most practical greenhouse gas mitigation work has focused on sectors and industries, namely the energy industry and a substitution of jobs from fossil fuel energy production to renewable energy production. An unintended consequence of these focal areas is that the question of climate change impacts on and adaptation of and within a wider array of workplaces – that is, all workplaces - has been neglected.

2.4 Previous research about climate change impacts on workers

Climate change is already impacting Australian workers. Most research explicitly on the topic is in the field of public health and has focused on individuals, notably their bodies. In particular, it has focused on their direct experiences of physical heat stress, reflecting the fact that heat is the deadliest climate change stressor in Australia (Kjellstrom et al. 2016). In 2015, a South Australian study of 749 outdoor workers found that

more than half were concerned about heat exposure (Xiang et al. 2016) and a nation-wide survey of 1,719 Australian workers found that three quarters had experienced heat stress at work and 10% were intending on quitting their jobs because of it (Zander et al. 2015). A study for the United Workers Union, which has members across 45 industries, found workers experienced significant heat impacts in both indoor and outdoor settings (Humphrys et al. 2022). More than half of the workers reported that climate change was having an impact on their working conditions, with 20% of workers unable to work (because work was stopped or cancelled, or they had to take sick leave) at some point over the previous year. When exposed to heat at work, many workers experienced fatigue (77.6%), headaches (59.5%) and/or nausea or dizziness (36.8%). In some instances, this heat stress was compounded by strategies to manage COVID-19, notably new forms of PPE. Tragically, heat also contributed to the death of workers in Australia. Between 2000 and 2015 heat was associated with the death of 13 workers across the country (Gun 2019), and animal and

horticultural workers, cleaners, food service workers, metal workers and warehouse workers seen as particularly at risk (Longden et al., 2021). More recently, a laundry worker in Perth died after working extended shifts during hot weather, further indicating that it is not just outdoor workers at risk (Pilat, 2022).

Research by the Victorian Council of Social Services found that some manufacturing workers in poorly ventilated spaces, workers with physically strenuous jobs, or those needing to spend a lot of time in hot cars or visiting clients in homes without insulation or air condition, are also suffering heat stress. People in insecure work (that is, those managing the non-climatic vulnerability of work precarity) are more at risk because they are slowing, changing or stopping their work due to heat may cause them to lose their shifts or jobs (Latham 2021). Other studies indicate that outdoor council workers and delivery cyclists in Sydney are already having to use coping mechanisms such as extra breaks, lighter duties and stopping working to try to avoid heat stress (Bilora et al. 2019). Because we carry heat in our

bodies, heat stress experienced at work comes home with us, and vice versa: heat stress incurred in our personal time (e.g. playing sport) goes to work with us. It also accumulates over days. Climate change is especially increasing night-time temperatures, reducing the ability of our bodies and buildings to dissipate heat overnight and leaving us more susceptible to heat stress (again) the next day, even if the temperature is not too extreme. Difficulty cooling down over sequences of hot days is a major problem for electricity utility workers in the Northern Territory who work on hot equipment in ever hotter, humid conditions, including emergency repair work in response to increasingly frequent, life-endangering blackouts (Rickards & Oppermann 2018, Oppermann et al. 2018).

Heat is impacting work productivity in multiple sectors, notably the utilities, services, construction, manufacturing and agriculture sectors, and flowing to the sectors that rely on them (Steffen et al. 2019). A major report found that in 2019:

- For work in shaded areas, 58,673 potential hours of

Figure 5. Chef cooking at restaurant. From “Pexels” by T. Gorelova, 2020, (<https://www.pexels.com/photo/photo-of-holding-stainless-bowl-3933194/>). Copyright 2020 by T. Gorelova. CC0.



work were lost due to heat stress across Australia (about 1.9 times the 10-year average);

- For work in direct sunlight, the construction sector was most impacted, losing 67,565 hours of work (nearly 2.7 times the 1991–2000 average) (Beggs et al. 2021).

These findings suggest that warnings that a two degree increase in workplace temperature could halve workers’ productivity are beginning to be borne out (Hanna et al. 2011). The International Labour Organisation estimates that by 2030, 10,000 Australian jobs will be lost due to heat stress alone (ILO 2019). Heat also affects the machinery and equipment workers rely on, as well as the critical infrastructures that enable work to occur, such as transport, communications, water and energy (McEvoy et al. 2012). Heat is far from the only significant source of climate change impacts on workers. It interacts with the myriad other worsening climate-related disasters affecting the Australian workforce. Indeed, one way in which events such as bushfires, cyclones and floods turn into social disasters is that they often disrupt people’s paid employment while generating a huge amount of unpaid work. The fatal and far-reaching 2019/2020 Black Summer bushfires along the east coast of Australia and the 2022 flooding in Queensland and New South Wales have clearly affected many workers and their households. For example, floods result in mould in buildings, which

has been found to exacerbate asthma, respiratory, allergy conditions (Coulburn & Miller, 2021). Jobs are affected in terms of both demand and supply. Paid work can decline after disasters as employers, supplier and customers can no longer supply, afford or use various services. Or tasks, roles and responsibilities can alter and grow, especially in disaster contexts. Concurrently, people's capacity to perform their jobs can be undermined by physical or mental health issues, as well as housing and family difficulties, loss of equipment or difficulties getting to work. Resultant declines in income

generate further problems. Following the Black Saturday bushfires, affected agricultural workers' in Victoria experienced an income deficit of \$8,000 on average over the following two years, and accommodation and food workers a deficit of \$5,000 (Ulubasoglu 2020).

Work generated by disasters includes that undertaken by first responders, as well as the volunteers who make up more than 90% of Australia's fire service workforce (Australian Government 2019). Disaster response work can be lengthy, gruelling and even lethal,

Figure 6. People commuting by train in Melbourne by T. Denham, 2019.



triggering long-term effects for workers and others, including grief, post-traumatic stress disorders (PTSD), depression, elevated stress and work-family conflict (Cowlshaw et al. 2008; Pennington et al. 2018; Varker et al. 2018). Disaster response work and its aftermath can mean volunteers forgo weeks and even months of paid work. A recent review found that the time and financial costs for volunteers is an increasingly serious barrier to participation (O'Halloran & Davies 2020).

per se, work on climate change impacts in general is relevant to workers in the sense that all of them (us) face risks as residents, owners, community members, customers etc (Figure 4). This includes threats to water security, food safety, natural environments, animals, supply chain reliability, social cohesion, and institutional function, among other factors (Lawrence et al. 2022).

Figure 7. *Professional feeling stressed.* From "Pexels" by energpic.com, 2017, (<https://www.pexels.com/photo/woman-sitting-in-front-of-macbook-313690/>). Copyright 2017 by energpic.com. CC0.

It is important to note that while little research focuses on work



3 'Climate change at work' survey results



This section presents the key findings regarding climate change impacts on workers from the survey. The survey method and detailed results are included in the appendix of this report.

3.1 Workers are concerned about climate change

More frequent and intense extreme heat, bushfires and intensifying storms were the major concerns of survey respondents. There are also regional variations in the concerns, with fires more of a concern in the more densely vegetated Gippsland, while workers from the northern area of Loddon-Mallee were more concerned with drought, and coastal erosion was the main concern in the Barwon South West. Females were also more likely to express concern regarding climate impacts across all categories except floods and changing seasons. Younger

people are also generally more concerned, particularly regarding extreme heat and coastal erosion.

Extended survey responses demonstrate workers' concern about lack of action by governments and industry and impacts on family, community and environment.

3.2 Workers' health is being impacted

In addition to being generally concerned about climate change, a striking 20% of those who work outdoors have seen an increase in physical injuries due to climate conditions. Tiredness and fatigue, and reduction in sleep quality after work, are issues for approximately 55% and 45% of workers respectively. Also, 48% of respondents indicated that they had experienced mental health issues to do with climate change. Effects include anxiety, concerns regarding fires, concern

“There were days where I simply had to use up sick leave because it was too hot to get safely to work with my predisposition to low blood pressure and migraines.”

Female, aged 41-50,
Professional

for future generations, and stress and distress. There is evidence that experiences of the 2019-20 bushfires across eastern Australia are having long-lasting detrimental effects on workers' mental health. Written responses indicate that some organisations have not been responsive to workers' physical discomfort and health concerns, adding to their mental stress.

Workers' physical health is also being directly impacted. More than half of those who spend a majority of their working time outdoors in the elements reported tiredness and fatigue,

“I am worried that we are going to get to a point where impacts are unmanageable and we see frequent injury, crises and deaths from climate impacts. With increasing frequency of floods, heat waves, fires, heavy storms - there comes a point where you cannot adapt to these impacts, where even good government and good public/community services will not be able to respond to the level of need. We are close to that point. At a personal level, I am considering not having kids because I feel guilty and pessimistic about the world they would have to make their way in. This breaks my heart. The grief from these types of personal losses as well as grieving for the damage done to this beautiful world is frequently overwhelming. I live in a fairly constant state of climate anxiety and grief. I completely understand why people switch into denial and stop thinking about it. But this is our challenge to overcome, whether we recognise it or not.”

Female, aged 31-40,
Professional

dehydration, reduced productivity and excessive sweating. More than 40% of this cohort also reported sunburn, reduced sleep quality and headaches.

Indoor workers also reported high rates of tiredness, fatigue and reduced productivity. For those with pre-existing health conditions, extreme heat can be especially dangerous. One professional reported not being able to get to work because the heat made it too risky for her.

Most workers reported being satisfied with their working environments in terms of temperature, humidity, air quality, shade and shelter. However, some workers already work in hot environments (e.g. kitchens, ones with faulty air conditioning), which can become dangerously hot when external temperatures are high.

A similar issue faces workers (e.g. machinery operators) who are required to wear uniforms that retain heat - notably the public health COVID-related measures of masks or PPE - and are therefore especially susceptible to hot weather. Other workers reported needing masks to manage the bushfire smoke they

were experiencing on top of hot conditions.

COVID-19 pandemic management measures also intersect with climate in terms of working from home. Some workers mentioned working from home as a positive for climate change in that it avoids the greenhouse gas emissions and exposure to extreme weather that travel can entail. However, depending on where extreme weather hits and the relative condition of home versus work environments, working from home can also exacerbate climate change risk. For example, some workers, particularly renters, reported that their poor housing conditions make it difficult to stay cool on hot days. The survey was conducted prior to the increases in energy costs in mid-2022, and so the reported impacts are likely to have worsened over the winter months, due to household heating needs.

3.3 Climate change is stressing and disrupting work in multiple other ways

In addition to affecting their health, climate-related weather events are directly impacting

workers by altering their roles, job security and capacity to get to work.

- More than 60% of workers indicated they have been impacted in some way
- More than a third have not been able to travel to or from work due to extreme weather
- A quarter have had to work additional hours due to extreme events and disasters
- Almost 10% of respondents have lost wages or had to take personal leave,
- 2% have lost jobs due to climate-related events.

Thirty respondents stated that working from home had resulted in increased household costs, as a result of their housing not suitably equipped to cope in

“Smoke from bushfires two years ago was intolerable. The heat also was horrific at times. During the smokiest days temperatures often shot up to over 40 degrees. It was like the planet Venus. My employer, [retail], provided no masks at all at that time, despite numerous requests, even pleadings. They said they couldn’t source any and I should find my own and they would reimburse me. I found one pack. I was never reimbursed. This is a period of months we’re talking about. Eventually, about a year later, a pack appeared in our service cupboard, but they’re gone now.”

Male, aged 61 to 70,
Sales worker

“Working in a kitchen any day over about 20°C is pretty uncomfortable, but 30°C and up is very, very difficult, because the heated surfaces already raise the temperature inside by up to 10°C, and our air conditioning isn’t always reliable. Sometimes it turns off when it’s supposed to be on because it’s on a timer.”

Non-binary, aged 18-30,
Sales Worker

“Bush fire issues have resulted in cancellations of planned visits - location in unsafe or closed down area, or route to location is through unsafe area. Floods can also have the same effect. Longer travelling times can occur due to driving around the problem area. Office closures or advisory to go home early when there is a storm on the way - otherwise caught out in the storm.”

Female, aged 51 to 60,
Professional

hot weather. People living in rental housing were particularly impacted, as the cost of improving their heating and cooling would be lost at the end of what are mostly temporary living arrangements.

Part-time and casual workers are more likely to have lost pay or their job due to climate-related disruptions or stresses. Sales workers, an occupational group associated with insecure work, are most likely to have not been able to meet workload requirements or targets. Community and personal service workers are the most likely to

have had to do additional work outside their job description in an emergency situation. Managers and professionals are the most likely to have been unable to get to work.

Respondents reported a wide range of serious indirect impacts in the form of climate-related impacts on their organisations and thus working conditions (Figure 8). Notably, nearly 60% have experienced staffing disruptions, with such disruptions implying that other workers are being impacted in other ways.

Figure 8. Climate change impacts on organisations.

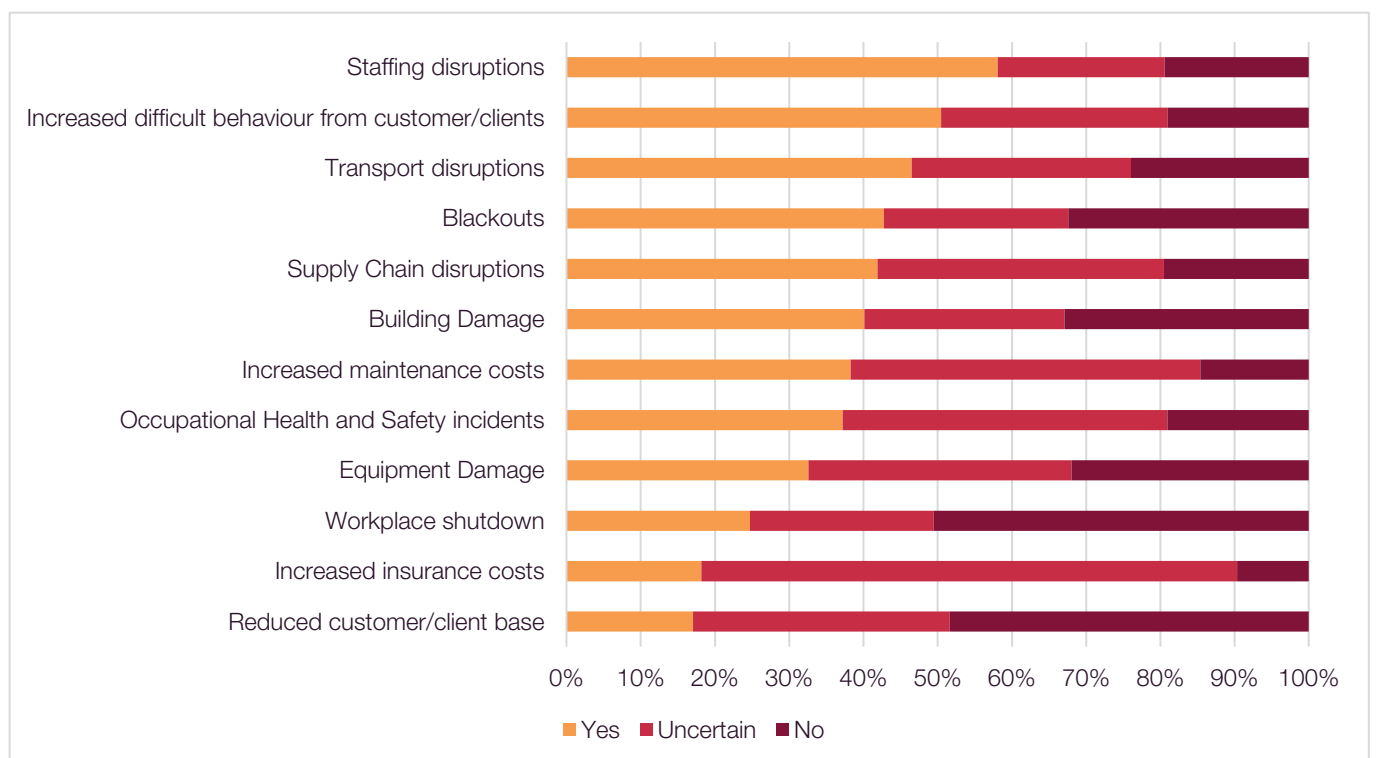


Figure 9. *Workers walking on rainy street.*
From "Pexels" by V. Gladkov, 2020, (<https://www.pexels.com/photo/unrecognizable-women-under-umbrella-walking-on-rainy-city-street-6213696/>). Copyright 2020 by V. Gladkov. CC0.



“There have been days when it has been too dangerous to do my commute (due to intense rain or extreme heat) and I’ve needed to work from home. But in one rain event the roof collapsed in our office building and we needed to evacuate.”

Female, aged 31-40,
Professional

“I have to work additional hours when our severely asthmatic staff can’t make it due to the weather giving them asthma attacks.”

Female, aged 18-30,
Manager

Workers are affected by these organisational problems in myriad ways, reducing the quality of their work environment and their capacity to do their jobs properly. By impacting the functioning of the whole organisation, these problems may also drive cost-cutting and other responses that ultimately effect workers, including possible business shut down.

3.4 Workers want to see action

The survey asked workers about what they believe should be done. The responses include many calls for increased mitigation action by industry, government and as individuals to reduce greenhouse gas emissions.

They also included calls for greatly increased adaptation measures. According to respondents, few organisations have a climate change adaptation strategy; only 14% of respondents reported that their organisation has one. Only 12% have received any training to help avoid or manage climatic impacts. As a result, many called for:

- Training and education programs to help avoid or manage climate change impacts.
- Reviews of occupational health and safety requirements, particularly of uniform requirements including PPE
- More flexible work arrangements to enable workers to undertake work when conditions are more conducive to productivity (e.g., early morning rather than middle of the day), avoid commuting, or take personal leave to respond to extreme weather events.

Workers’ recommendations for government build on the above:

- Enforce OH&S regulations
- Mandate access to flexible working arrangements, as well as ensure that home working situations are also safe and comfortable
- Improve building design standards to provide better protection from extreme conditions.

4 Conclusions



This report provides empirical evidence of widespread climate change impacts on workers and organisations. Building on existing research into the effects of extreme heat on outdoor workers, it underlines that workers are being affected in multiple, compounding ways: across diverse roles, settings and sectors. All forms of work are impacted, including loss of hours and jobs. From bodily stress to poor working environments, uncomfortable houses, difficulties commuting, and climatic disruptions to electricity infrastructure and supply chains, workers are already being impacted by multiple elements of climate change at multiple scales. That 48% of workers have had their mental health of been impacted by climatic events (including frequent reports of anxiety and distress), and 75% indicated some form of physical health effects highlights the extent

of the impacts. And it's not just health, 2% had lost jobs for climate-related reasons, further indicating the seriousness of the issue.

The results help illustrate that climate change impacts are determined by a combination of hazard exposure and non-climatic vulnerabilities. One reason ambient heat is such a significant climate change hazard is that exposure to it is exacerbated by some conditions that are compounded by internal sources of heat or ineffective cooling systems, as well as by some work conditions that compound hot conditions with types of work that raise workers' core temperature. This includes not only physically strenuous work but also uniform requirements. It is clear that for some workers climatic impacts are being exacerbated by the compounding effects of COVID-19 responses,

particularly through PPE requirements.

Crucially, it is not just climatic conditions within the formal workplace per se that determines impacts on workers. A worker-centric view illuminates all the spaces that workers are exposed to through work. For example, the survey demonstrates that some people's workspaces include public and private spaces they have little control over (e.g. temporary building sites, clients' homes) and that conditions in these spaces can be a source of climatic stress. Most workers also need to travel to work, and climatic stress commuting between home and work can make it difficult to get to the workplace at all, on time, or in a state ready to work effectively. Other survey results further demonstrate that impacts on work can originate from climate-related difficulties outside the workplace. For example, workers are finding they need to deal with customers, clients or colleagues whose poor behaviour reflects their earlier exposure to climate-related stresses.

Climate impacts on some workers are greater as they are already managing vulnerabilities

such as insecure work contracts, poor quality housing and a lack of control in the workplace or home as a renter. It is also clear that some workers are not receiving the support from management that they need. As a result, some are coping by developing their own work arounds, but the sense of inaction among many employers is deepening the stressfulness of the situation. At the same time, the survey provides some glimpses into the challenges that those in management positions are facing under a changing climate, including managing organisation-level effects such as disruptions to staffing and supply chains.

The range of impacts on workers indicates the need for reconsidering workplace arrangements and operating procedures to provide safe working conditions and to also facilitate workers to fulfil their roles. The example of working from home also highlights the need to understand how individuals' circumstances affect how they experience what may be well-meaning interventions in the workplace, and that single-issue solutions can create more difficulties.

This implies the need for a coordinated and long-term approach to addressing potential impacts across the workforce. Adaptation needs to range from the incremental to the transformational, the micro to the macro, the immediate to the very long term. It needs to begin with analysis of the sort of work we need and can sustain under a changing climate, how to organise and schedule that work, how to ensure that people are secure in their work, how to arrange, construct and retrofit workplaces, and how to design and implement appropriate multi-hazard safety measures including

equipment and uniforms – all in ways that generate shared positive outcomes for workers, organisations, industries, unions and governments. Given that work is inseparable from our other roles in society, the adaptation of work also needs to involve close coordination with groups advancing climate change adaptation from other perspectives (e.g. regional adaptation, supply chain adaptation), and advocating for wider adaptations such as the improved use of urban planning and bolstering of emergency services. If we do not adapt effectively, the impacts

Figure 10. *People cooking at restaurant.*
From “Pexels” by E. Hughes, 2019, (<https://www.pexels.com/photo/man-and-woman-wearing-black-and-white-striped-aprons-cooking-2696064/>). Copyright 2019 by E. Hughes. CC0.



of climate change will grow with rapidly increasing extreme events, average temperatures, and cascading stresses and disruptions.

This report provides a spur for ongoing research into how climate change is affecting work and workers, including but not limited to the most obvious direct effects. Many gaps remain. Five major ones are highlighted here.

1. Multiple intersecting impacts and feedbacks, present and future

There is little understanding of how work is being and could be impacted by diverse and compounding climatic hazards, and their intersecting flow-on effects on organisations, communities, services, supply chains, infrastructural systems, natural environments and economies. Similarly, there is little research into how impacts upon work contribute to wider issues such as the risk of organisational accidents and infrastructural failures, or to long-term trends such as changes in population, labour mobility or industry competitiveness. These future impacts need to be explored in scenarios incorporating projected climatic changes.

2. Implications for different types of work and workers

Further research is needed into the implications of climate change for different types of work to help identify which characteristics of work, other than location and workers' non-climatic vulnerabilities, are most significant when it comes to understanding climate change risk. This is about understanding the adaptation needs of all jobs, not only the emergence of specialist adaptation jobs. There is a particular gap in understanding how climate change is affecting those in management and leadership roles, and how these impacts relate to their rising responsibility for leading climate change adaptation. Also demanding particular attention is the impacts of climate change on the self-employed, unemployed and volunteers.

There is also a need to understand the intersection between the Just Transitions imperatives for fairer work in a decarbonised economy (e.g. Curtis et al. 2018; Jackson & Ibrahim 2022) and workforce adaptations. While both are responses to the climate emergency, to date Just

Transitions has predominantly focused on mitigation without considering the need for adapting work and workplaces to the now unavoidable impacts of climate change. However, the Just Transitions movement and climate adaptation of work share an understanding of the importance of better work in achieving their shared goals of transitioning the economy and workforce in response to climate change.

3. Practical adaptations of work

Urgent research is needed to help develop a suite of adaptation options for workplaces and workers, and to integrate comprehensive work-centric adaptation into existing approaches to organisational adaptation. To date, virtually all research on the topic focuses on heat exposure, while existing adaptation proposals – e.g. to shift work away from the hottest part of the day (Parsons et al. 2021) - are not adequate and do not accommodate other hazards and types of impact. A more comprehensive approach is needed, building on promising practical examples such as the recent Climate Ready Hume adaptation plan that aims to help sectors in the region become climate ready (DELWP 2021).

4. Higher level implications and responses

How teams, workplaces, organisations, households and communities are affected by impacts on individual workers, and how responses among these groups (e.g. restructuring, relocation) in turn affect worker experiences, also requires extensive empirical study. Such responses include those performed in the name of adaptation (e.g. an accelerated shift to automation in mining to avoid the need to manage heat stress in workers (Mason & Giurco 2013); e.g. new crops, techniques and locations in agriculture (Fleming et al. 2015; Linnenluecke et al. 2011). While a substantial literature exists on organisational adaptation to climate change, it does not explicitly examine the implications of climate change for all the work involved in the functioning of an organisation, or how organisations and thus roles may change substantially (e.g. an accelerated shift to flexible organisation modes), or implications of all this for workers. Also requiring research is what a changing climate means for workplace policies, laws and regulations.

Figure 11. *People commuting by train in Melbourne by train in Melbourne by T. Denham, 2019.*



5. Worker training and careers

The final significant research gap is the implications of climate change and adaptation for workers' careers. This includes intangible but essential elements such as the meaning workers gain from their work and how their satisfaction of certain jobs may alter over time due to climate-related factors and their organisations' responses. Analysis is needed of how workers, especially the younger generation, can cultivate climate ready careers. Analysis is also needed of how climate change adaptation can be built into existing education and training options, what new offerings are needed on adaptation, who will need to retrain, and what this means for the work of training. In turn, research is needed into how climate change may shape workers' interests, needs, and choices and what this means for different organisations' capacity to attract and retain staff, and national level and industry specific workforce planning.

5 Recommendations



The evidence provided by the climate change at work survey informs the following recommendations to improve the health, safety and productivity of workers as the climate changes and disruptive climatic events become more extreme and more frequent. The recommendations are organised into five broad categories of action: adaptation planning; occupational health and safety; vulnerable workers; action, education and training; and, continued research. As the research shows that climate change is affecting a broad spectrum of workers, these recommendations should be considered as applicable across the board.

1: Rapidly advance climate change adaptation planning and action for workers, organisations, industries and workforces

There is a need for long-term, strategic responses to climate change across the multiple scales shaping worker experiences if we are to transition to systems, processes and environments better suited to future climates. Adaptation planning is complex and needs to start now. The survey results indicate that organisational planning has either not been occurring or communicated to workers. In addition, adaptation action is needed at industry, sector, union and state and national levels.

Recommendation 1a:

Outline an agenda for coherent, worker-centred strategic planning for climate change adaptation across organisations, industry and employer groups.

Recommendation 1b:

Identify the changes to organisational and government policy that can most effectively advance positive adaptation outcomes.

Recommendation 1c:

Identify, assess, promote and guide emergent approaches to worker-centred adaptation and climate-ready workforces.

2: In particular, adapt Occupational Health and Safety standards and practices to suit current and future climates

Improving OH&S to protect workers from new threats is a key part of adapting work and organisations to climate change. As the climate changes and the frequency and severity of extreme weather events increases, OH&S measures based on past experiences are no longer fit for purpose. References to how PPE use becomes more onerous in extreme weather events and uniforms not suited to heat are obvious examples of how current practice needs to be reviewed. The impacts included in this report also indicate the need for OH&S inspectors to be provided training to better identify and respond to climate risks in the workplace.

An outcome of the pandemic is that more workers are now able and prepared to work from home, providing an impact mitigation option in the advent of extreme weather events. With early warning and communications strategies as suggested by the IPCC, notifying workers of workplace closures may prevent and reduce some mental and physical health effects of extreme weather events. However, this also raises the need to understand how working from home is accounted for within current OH&S policies and procedures, as well as the implications for those workers whose homes provide less respite from extreme weather events than workplaces.

In addition to working from home, other prospects for reducing the impact of extreme weather through workplace flexibility were identified through the survey. This includes shifting working times, changing the scheduling of tasks, and allowances for leave to respond to events.

Recommendation 2a:

Undertake reviews of OH&S within organisations to improve the health and safety of workers, including better management of

already hot working environments and where appropriate, establish clear guidelines for working from home that reflect both risks and vulnerabilities.

Recommendation 2b

Develop improved climate impact training for OH&S inspectors, to support identification of climate risks in workplaces.

3: In particular, address work arrangements and conditions to improve outcomes for vulnerable groups

Another aspect of adaptation that demands particular attention is to identify and support those already at risk because of existing vulnerabilities, and those who are placed more at risk because impacts today generate vulnerabilities tomorrow. Climate change impacts are partly the result of other stresses and disruptions in people's situations. As seen above, casual and part-time workers were the most likely to report losing hours or their jobs as a result of climatic events. As climate change worsens, there is an intensifying need to help workers improve their work situation. Better work will increase workers' capacity to cope with climate change and disruptions,

through the security of tenure, workplace flexibility and better pay and conditions.

Recommendation 3a:

Ensure that insecure workers are supported and their situations specifically addressed in workplace responses to climate change.

Recommendation 3b:

Help workers reduce their risk to climate change by addressing other existing vulnerabilities such as reliance on poor quality management systems in the workplace, as well as taking into account housing and commuting circumstances.

4: Advocate for action, education and training on climate change adaptation and mitigation

The impacts of climate change on workers included in this report and the low levels of training provided to or undertaken by workers provide the basis for this recommendation. Although the cause of the low level of training is not clear from the survey, it is possible that there is a need for both training for workers and also education programs to increase the understanding in both workers and management

of the implications of climate change and appropriate actions and responses. Including management will increase the probability that the understanding of climatic impacts on work is understood by decisions makers and those with the authority to address this issue. These recommendations align with those made in an earlier report by VCOSS, which highlighted the need for training and public education (Latham 2021).

Recommendation 4a:

Undertake a public education campaign to raise awareness of the impact of climatic and

weather events on work and workers.

Recommendation 4b:

Develop climate education and training programs for workers and employers.

5: Undertake further research to build the empirical base and advance adaptation understanding and options

This report is the first survey of its kind, addressing the impact of climate change broadly defined on workers from a cross-section of industry and occupations. It

Figure 12. *Factory worker.* From “Pexels” by Elevate, 2018, (<https://www.pexels.com/photo/person-using-forklift-1267338/>). Copyright 2018 by Elevate. CC0.



Figure 13. Health worker using a full personal protective equipment. From "Pexels" by A. Pham, 2021, (<https://www.pexels.com/photo/a-man-getting-a-nasal-swab-test-8833355/>). Copyright 2021 by A. Pham. CC0.



provides a baseline for further research into the risks and impacts of escalating climate change for work, industry, and most importantly, people. Continued research is important because:

1. A wider and more representative sample would provide more evidence of the impact of climate change on work across a greater range of industry, occupations and workers, as well as increase the confidence of the results of the survey.
2. The observations and impacts will likely change dramatically over time.
3. There is a need to address the research gaps set out in the Conclusions above.

In addition to providing a baseline for future assessments, the survey responses also suggest the benefits of further studies of the impact of climate change on work, such as detailed understanding of the costs of missed work days and lost hours to both industry and workers. Much more could be learned about the physical and mental health impacts on workers, such as the specific situations that they occurred in and the severity of

the effects, which would inform OH&S responses. It is also vital that a prospective approach is taken that incorporates future changes and helps plan for them.

Recommendation 5a:

Continue to survey and research the impact of climate change on workers, examining the specific issues and trends identified in this survey and expanding the sample to other groups.

Recommendation 5b:

Undertake specific research projects designed to support the development of positive adaptation outcomes.

Recommendation 5c:

Outline and prioritise a coherent research agenda on the adaptation of work and refine the conceptual framework to help guide policy.

6 Appendix: Survey in Detail



This report and its recommendations are based on survey data provided by more than 1,000 workers over the first half of 2022. The first section of this appendix to the report provides a detailed description of how the survey was administered and a summary of the survey respondents. The second section provides the survey results, which includes statistical analysis as well as extended comments from participants on their experiences of and views on climate change in the workplace.

6.1 Survey Method

This report is based on a survey distributed by six Victorian unions:

- Australian Services Union
- Community and Public Sector Union
- Health and Community Services Union
- Hospo Voice
- Rail, Tram and Bus Union
- Retail and Fast Food Workers Union

Each of the unions ran the survey independently, at different times across the first six months of 2022, with all but one complete in April, and the other in June.

6.1.1 Survey instrument

The survey was developed by RMIT and Friends of the Earth. The survey questions asked the following of the respondents:

- Demographics – age and gender
- Work details – job location, industry sector, occupation, job status, travel to and during work, outdoor work
- General understanding of climate change and its impacts
- Experience of climate impacts on physical and mental health

- Impacts of climate events on productivity and working time

Once complete, the survey was sent to each of the unions to individually enter the questions into their survey platform as unions preferred to directly correspond with their members. This approach led to variations in timing and some discrepancies in the question formatting. These issues have been taken into account in the analysis.

6.1.2 Sample

In total, 1,165 workers completed the survey from across the six participating unions, with the

Australian Services Union and The Community and Public Sector Union providing the majority of responses, as shown in Table 1 on the following page. More than 60% of respondents worked in Greater Melbourne, and more than 30% worked either in Regional Victoria, or were in jobs that required them to work across the state. The *Other* responses were from those who worked interstate.

There were 3,535,600 people employed in Victoria in May 2022 (ABS 2022), which means that the Victorian-only sample of 1,076 provides a margin of error

Table 1. Survey respondents per union.

Union	Greater Melbourne	Regional/ Victoria	Other	Total
ASU	240	137	26	403
CPSU	246	106	10	362
HACSU	107	83	2	192
Hospo Voice	32	2	18	52
RAFFWU	17	3	31	51
RTBU	77	26	2	105
Total	719	357	89	1165

of 3% for a confidence interval of 95%. However, the mix of workers that have participated are not representative of the workforce, which means that the results are merely indicative of how climate change is affecting work and further research is required.

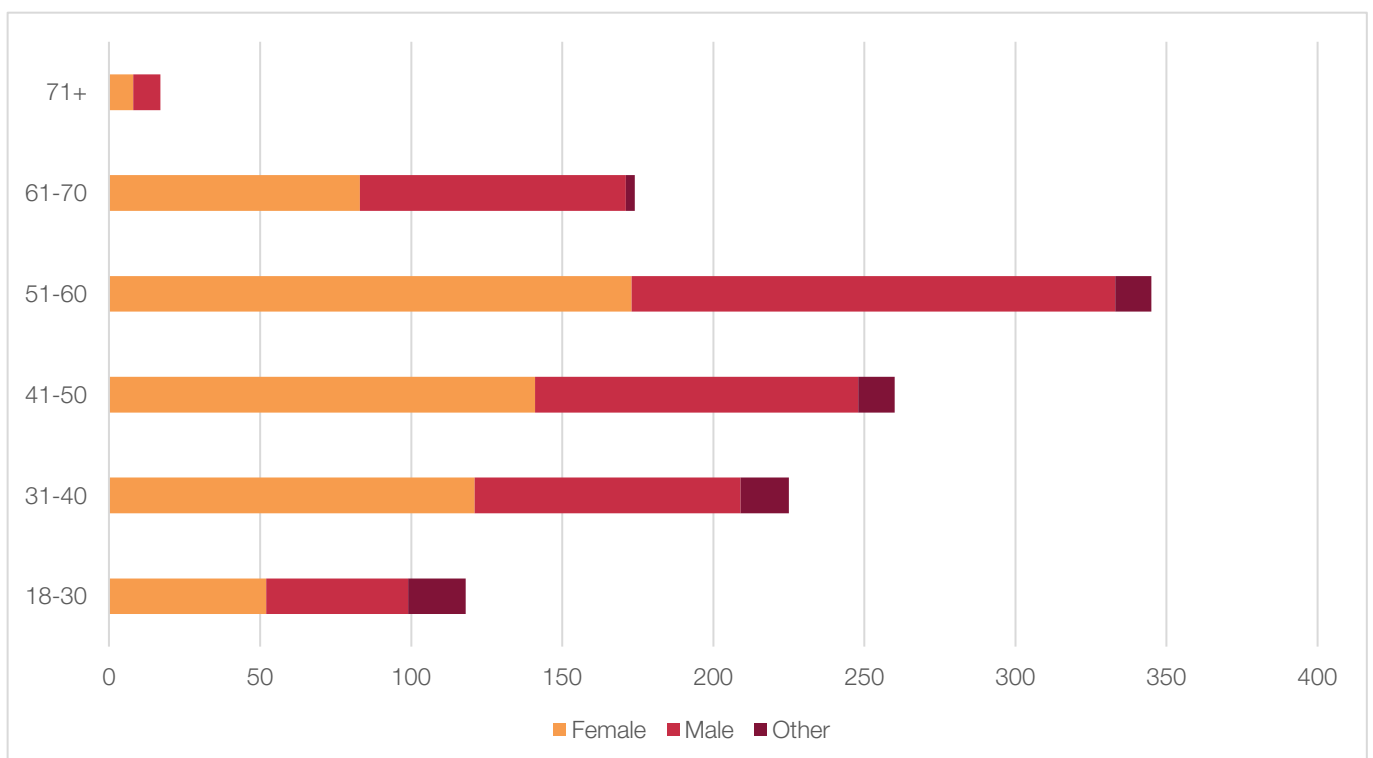
Half of the survey respondents were female, 43% were male and the remaining 7% were either non-binary, preferred not to say or indicated *Other* in response to the survey question. The highest number of survey responses were in aged between 51 and 60 years, as shown in Figure

14, which is a result of the skew towards that age group in the three largest respondent Unions: ASU, CPSU and HACSU.

The survey respondents' employment terms were broadly in line with Victorian workers, with 61% of respondents employed fulltime for both Victorian workers and the sample. The 33% of Victorian workers employed part time is also equivalent to the respondents who indicated that they work part time or in casual roles.

As a result of the participating unions' industry focus and the

Figure 14. Survey sample demographics.



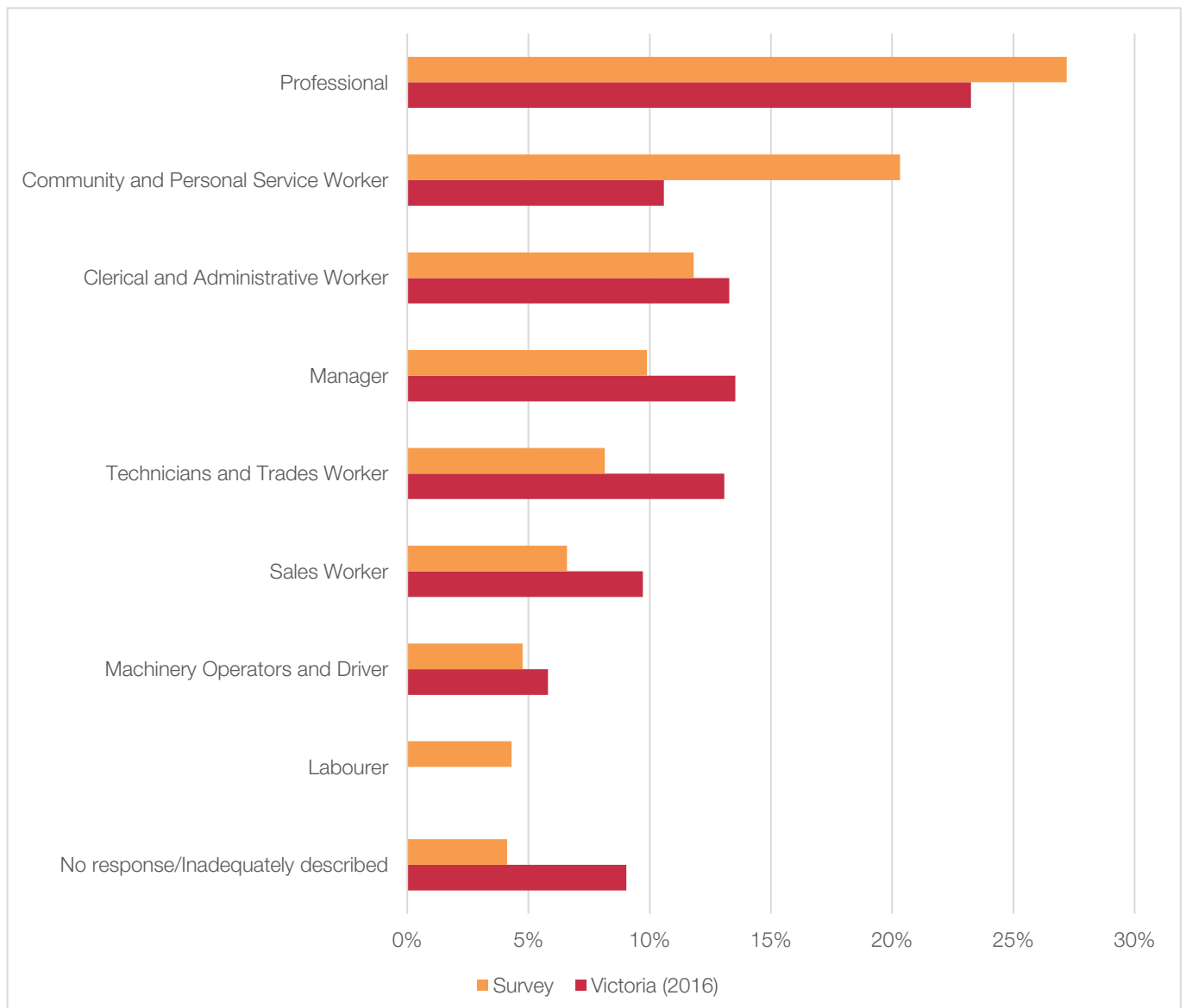
responses, there are skews in the data in terms of the occupations of the survey respondents. As shown in Figure 15, there are higher proportions of *Professionals*, and *Community and Personal Service Workers* in the sample, and lower proportions of *Managers*,

Technicians and Trades Workers, *Sales Workers* and an absence of *Labourers*.

6.1.3 A brief comment on sample bias

As the survey was distributed by unions to their members, who were free to make their own decisions regarding participation,

Figure 15. Occupation of survey respondents.

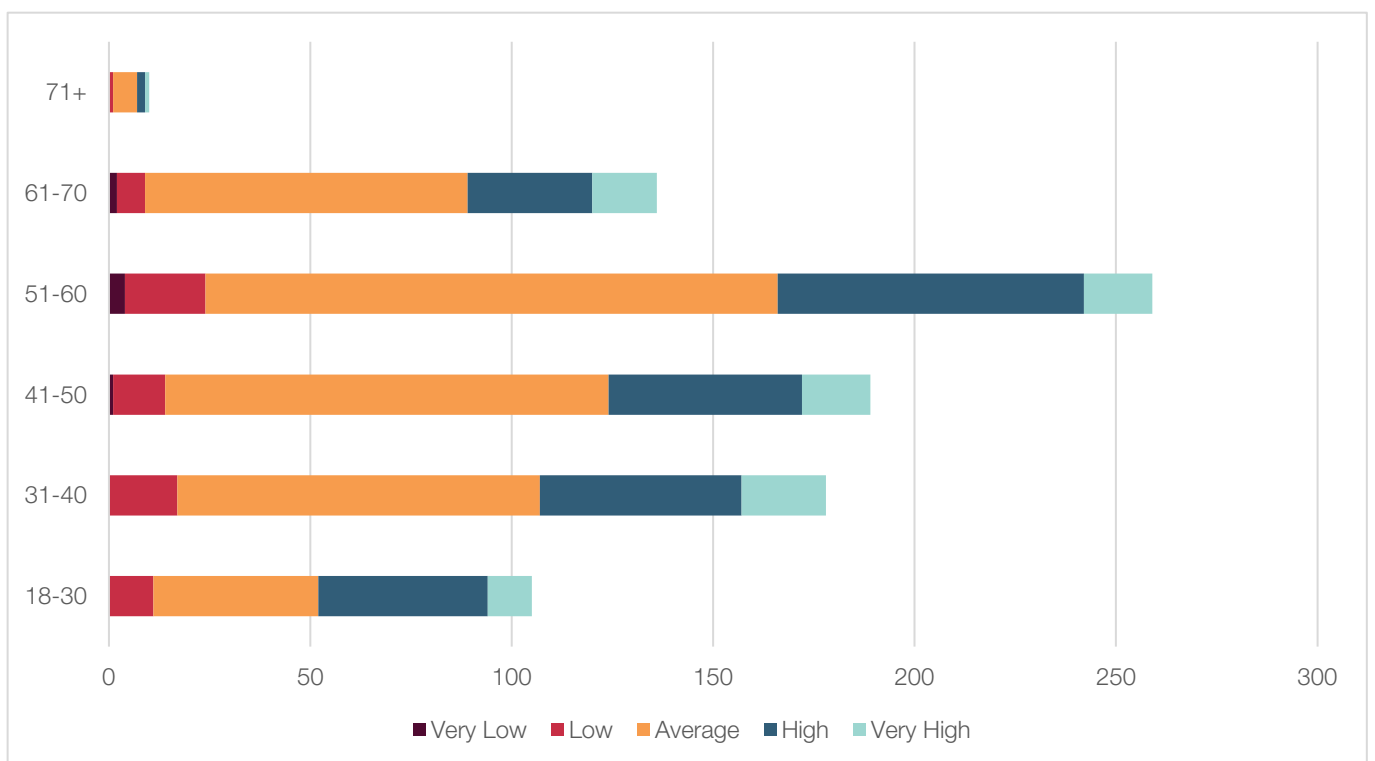


there is the prospect that the sample is biased towards those who are more concerned about climate change, or who are more likely to have been impacted on by weather events. In the main, the respondents reported at least an average knowledge of climate change, as shown in Figure 16, with less than 9% indicated a low or very low knowledge. The prospect of skew is evident in the majority of respondents indicating an average knowledge, at 58%, while the remaining third indicated high or very high.

Equally, it is important to note that those workers already particularly

impacted by climate change-related stresses (e.g. the loss of jobs in communities hit by the Black Summer fires (Filkov et al. 2020) are likely to be disengaged from emails, surveys and unions. Thus, the results here likely miss the worst impacts. This is especially the case when it is recognised that many of those who have died from climate change related impacts (e.g. the approximately 450 people who died in the Black Summer bushfires and related smoke (Borchers Arriagada et al. 2020) were “workers”, whether or not they were “at work” at the time of their death.

Figure 16. Self-reported knowledge of climate change, by age group.



Knowledge is not always associated with positive bias, and there were 37 responses to an open question on climate change concerns that explicitly expressed denial or scepticism towards climate change.

Results from other recent surveys,¹ and the success of independent candidates with climate policies in the 2022 federal election, indicate that Australians are increasingly concerned about climate change. Therefore, a sample with a bias towards accepting climate change and the need for action broadly reflects contemporary Australia, as does a small proportion of ‘enthusiastic deniers’, approximately 3% of the survey sample.

It is also likely that the workers that are most affected by and vulnerable to climate change impacts are less likely to have responded to the survey. This includes workers:

- Who were directly impacted by climatic events at the time the survey was distributed
- With limited internet access
- Who speak English as a second language

- Whose workplace and employment circumstances may have reduced their willingness to participate in this research or become union members.

This indicates the climate impacts at work on the most vulnerable workers, therefore future research into climate impacts at work will consider how to enable more of these workers to participate.

6.2 Results

The survey responses provide a range of insights from workers into the impact of climate and weather events on organisations, workplaces, their work and their health, as well as their views on how to address these concerns.

6.2.1 Concerns and perspectives

To provide an understanding of how workers are sensing and responding to climate change, this section summarises workers’ concerns and perspectives, including some of their extended text responses.

Climatic changes

The respondents were asked which climatic changes concern them the most, with the top 3 concerns summarised in

Figure 17.² More than half of the respondents indicated that *More frequent and intense extreme heat* and *Increased bushfires and grassfires* are of concern, and a further 40% included intense weather events such as storms in their Top 3. More than a third are also concerned by

extreme weather events and the increasing severity of droughts, and a quarter by rising sea levels and coastal erosion.

The results demonstrate regional variations in concerns. Figure 18 shows respondents' climatic concerns by region of Victoria.³

Figure 17. Climatic concerns - Top 3.

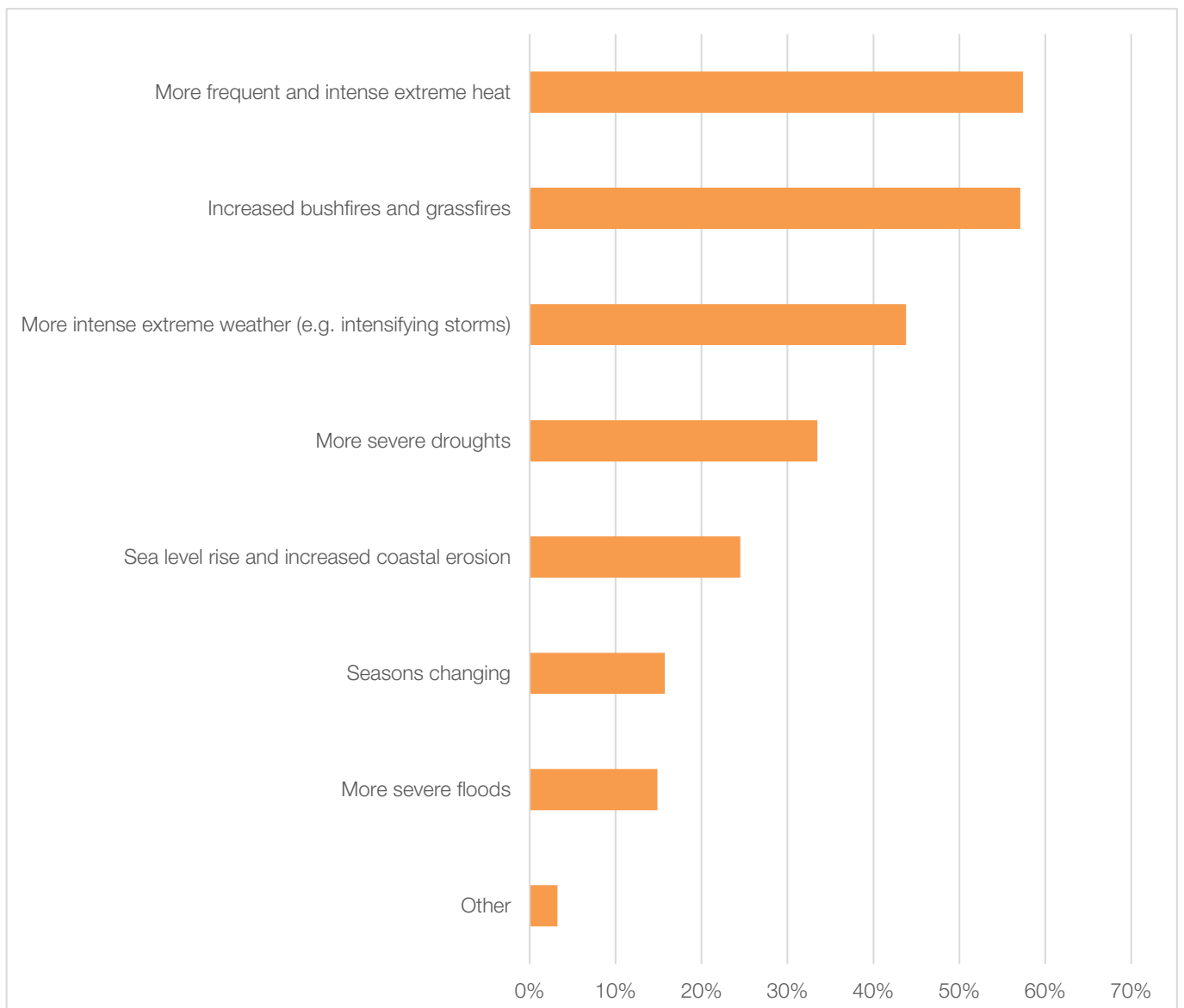
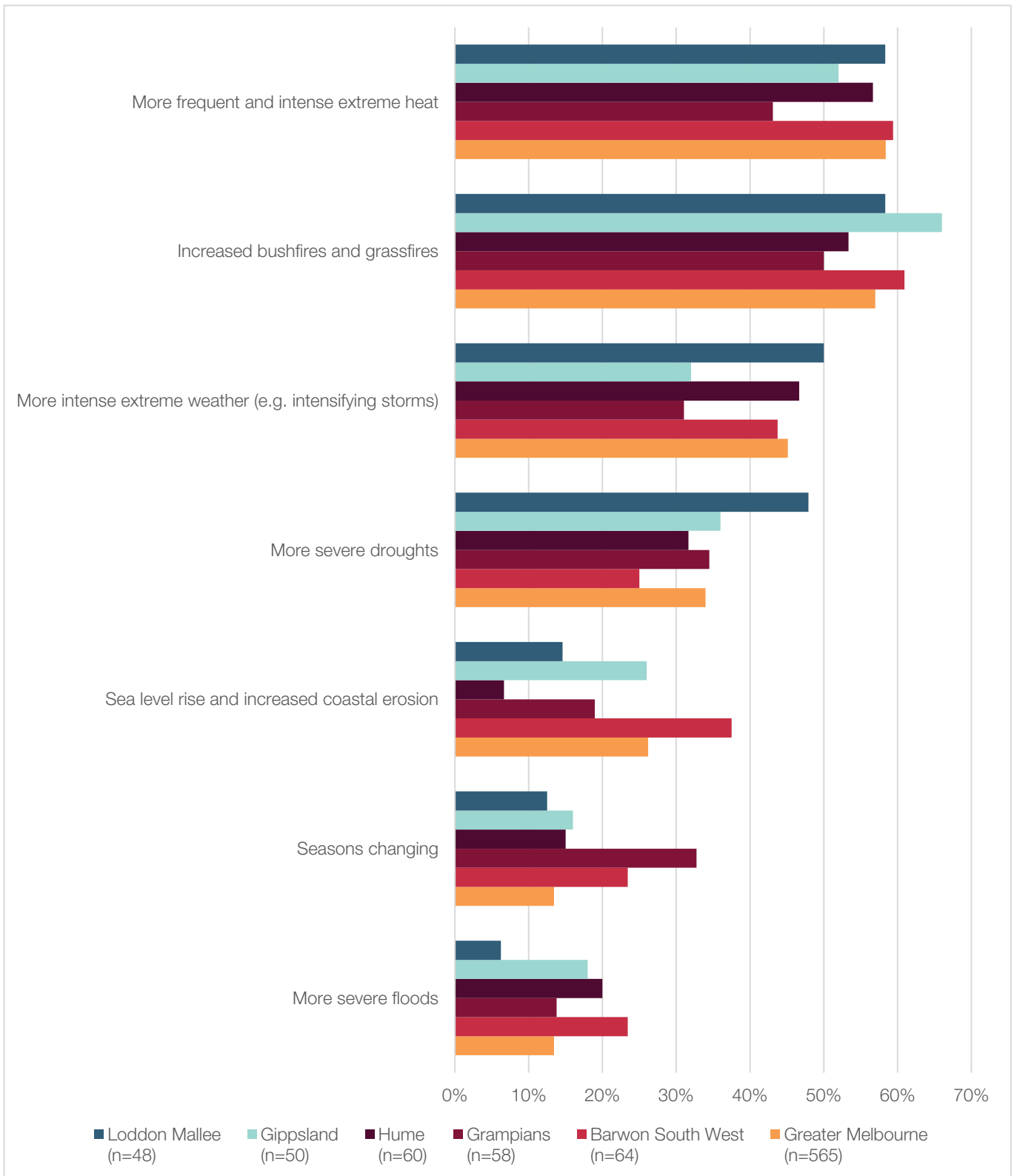


Figure 18. Climatic concerns by region.



More frequent and intense extreme heat is the only category where Greater Melbourne respondents indicated a similar level of concern to other regions of Victoria, with the exception of the lower rate of response for the Hume region. Other results reflect the issues and environments of the regions: higher bushfire concern in Gippsland, more severe droughts in the Loddon-Mallee, coastal erosion in the Barwon South West and changes to seasons in the Hume region.

Further analysis of the results indicates minimal differences by gender, with females more

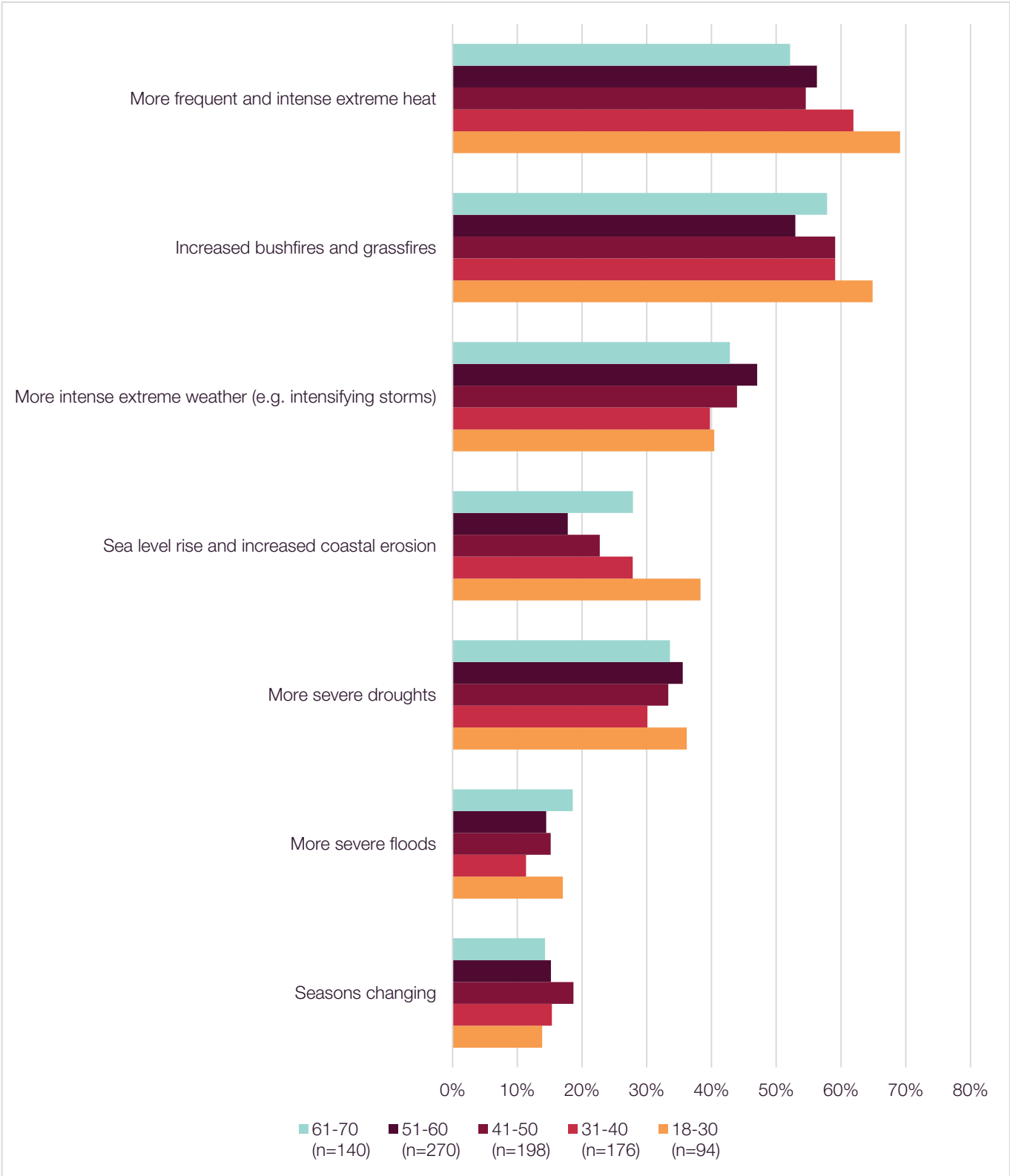
concerned by bushfires, extreme heat and storms, while males more concerned with flooding and season changes, as shown in Table 2.

Climatic concerns vary somewhat by age group, with younger people more concerned in general, and particularly concerned about heat, bushfires, coastal erosion and sea level rise, as shown in Figure 19. Extreme weather and intensifying storms are more of a concern for workers aged between 51 and 60, and changing seasons for workers aged between 41 and 50. As there were only 14 responses

Table 2. Climatic concerns by gender.

	Female	Male	Non-Binary	Other	Total
Sample (n)	449	399	30	8	886
More severe floods	14%	17%	10%	13%	15%
Seasons changing	14%	18%	0%	0%	16%
Sea level rise and increased coastal erosion	26%	22%	40%	13%	25%
More severe droughts	36%	32%	37%	13%	33%
More intense extreme weather (e.g. intensifying storms)	49%	40%	27%	13%	44%
More frequent and intense extreme heat	61%	53%	70%	50%	57%
Increased bushfires and grassfires	65%	49%	67%	50%	57%

Figure 19. Climatic concerns by age.



from people aged 71 and over they have been excluded from this figure.

Social, environmental and political considerations

In addition to identifying climatic events of concern, respondents provided extended responses regarding what concerns them about climate change. Words such as *community*, *ecosystems*, *natural* and *environment* were prominent, pointing to workers' concerns about more than just themselves.

Indeed, workers' written responses highlighted a wide range of environmental, social, economic and political concerns around climate change. One respondent noted that they work in emergency management and are experiencing direct climate change impacts. Nevertheless, they noted that they are:

“...more concerned for the community and my family - how we deal with and respond to emergencies. Are we prepared for increasing severe weather events as a community? And how do we reduce our reliance on uniformed emergency services and the military to step in to

deal with emergencies? I fear that leaves communities more vulnerable as we become less resilient and less able to be prepared and to act. I am very concerned with the impact on ecosystems and extinctions - not just the big news issues like koalas becoming endangered, but the many extinctions we are not hearing about. And I'm concerned that we are trying to go ahead with business as usual - logging, clearing habitat, coal fired power plants, not investing in renewable energy, more roads to keep up with sprawling cities, and housing that is not up to the standards we will need for increasing temperatures, severe storms, and rising seas. I'm concerned especially for what the influence of the carbon industries have on our politicians, our government, our democracy.”

Male, aged 51-60,
Clerical and Administrative Worker

Others similarly reported that their concerns are exacerbated by a sense that personal action is not enough to reduce the risks:

“Meanwhile, within my community physical health conditions are getting worse as a direct result of climate change. And it isn’t an issue we can just solve on a personal level – government and businesses are where the most change needs to be made, and it’s not happening. This has also led to mental health and climate anxieties getting worse. All this is without even touching on the concerns for the environment and wildlife.”

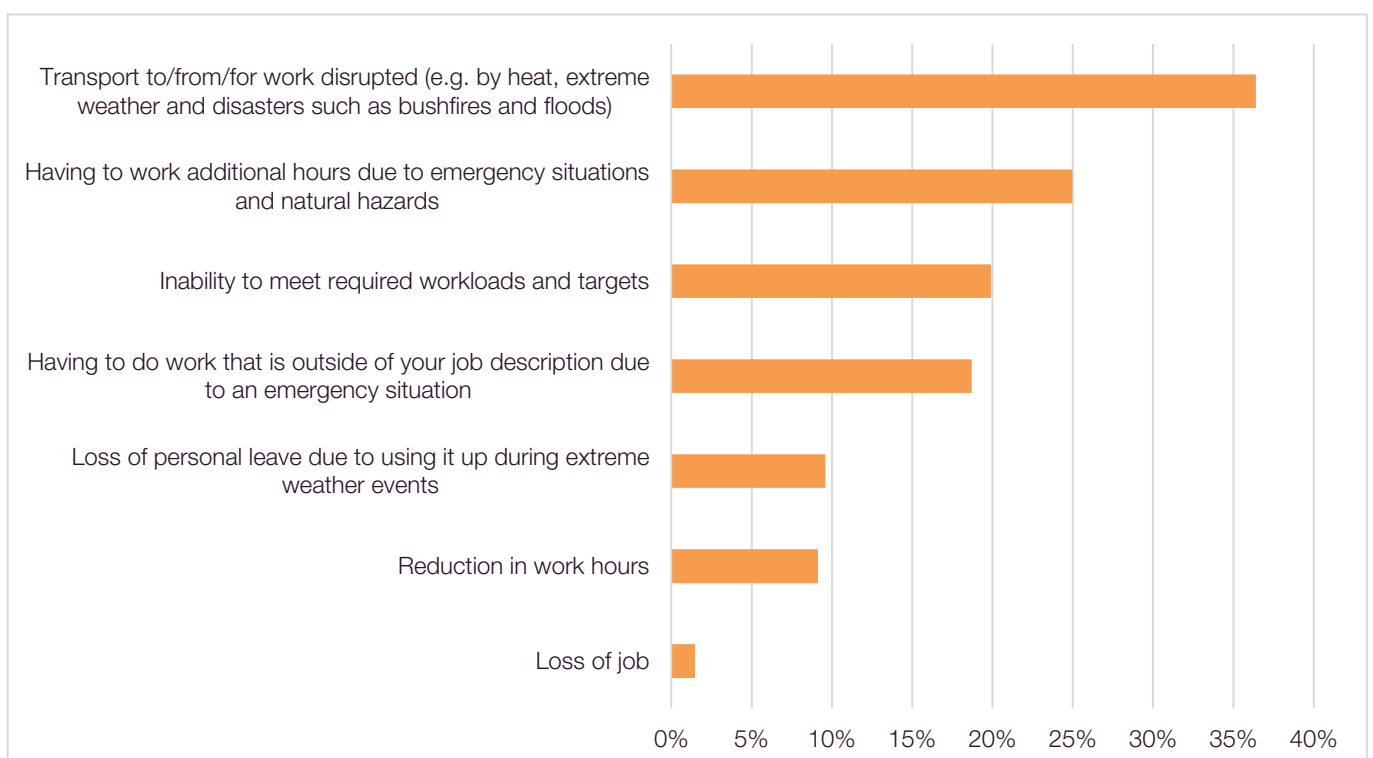
Non-binary, aged 18-30,
Sales Worker

These examples are longer and more detailed than most responses, but typify workers’ concerns for self, community and environment, and frustration with lack of action by business and government.

6.2.2 Impacts on work and organisations

The second tranche of responses provides insights into workers’ views of how climatic events are impacting and may impact their work and organisations. Its primary focus is the direct impact on productivity and work.

Figure 20. Climatic impacts on work.



Direct impacts on work

Of 1,093 responses, 626 indicated at least one of the impacts included in Figure 20, and an additional 54 listed a range of other ways climate had affected their work. More than a third had at some time been unable to travel to or from work due to extreme weather and disasters, and a quarter had worked additional hours in these situations.

Almost 10% of workers reported having to use personal leave to respond to extreme weather events and another 10% had lost wages. Even more concerning, given the likely ongoing impact

on wages, is that 2% had lost their job due to climate-related stresses or disruptions to their organisation.

Those most likely to lose hours or their job as a result of extreme weather events are casual and part-time fixed-term workers, as set out in Table 3.

Figure 21 sets out climatic impacts by occupation and indicates variation in impacts between types of work. *Managers and Professionals* are the most likely to have had transport to and from work disrupted by climatic events, both at approximately 40%.

Table 3. Climate-related job loss and reduced hours by employment status.

Employment Status	Sample	Reduced Hours	Job Loss
Full time permanent	653	7%	1%
Full time fixed term	64	5%	5%
Part time permanent	256	10%	1%
Part time fixed term	26	15%	4%
Casual	74	19%	4%
Total	1073	18%	3%

Figure 21. Climatic impacts on work by occupation.

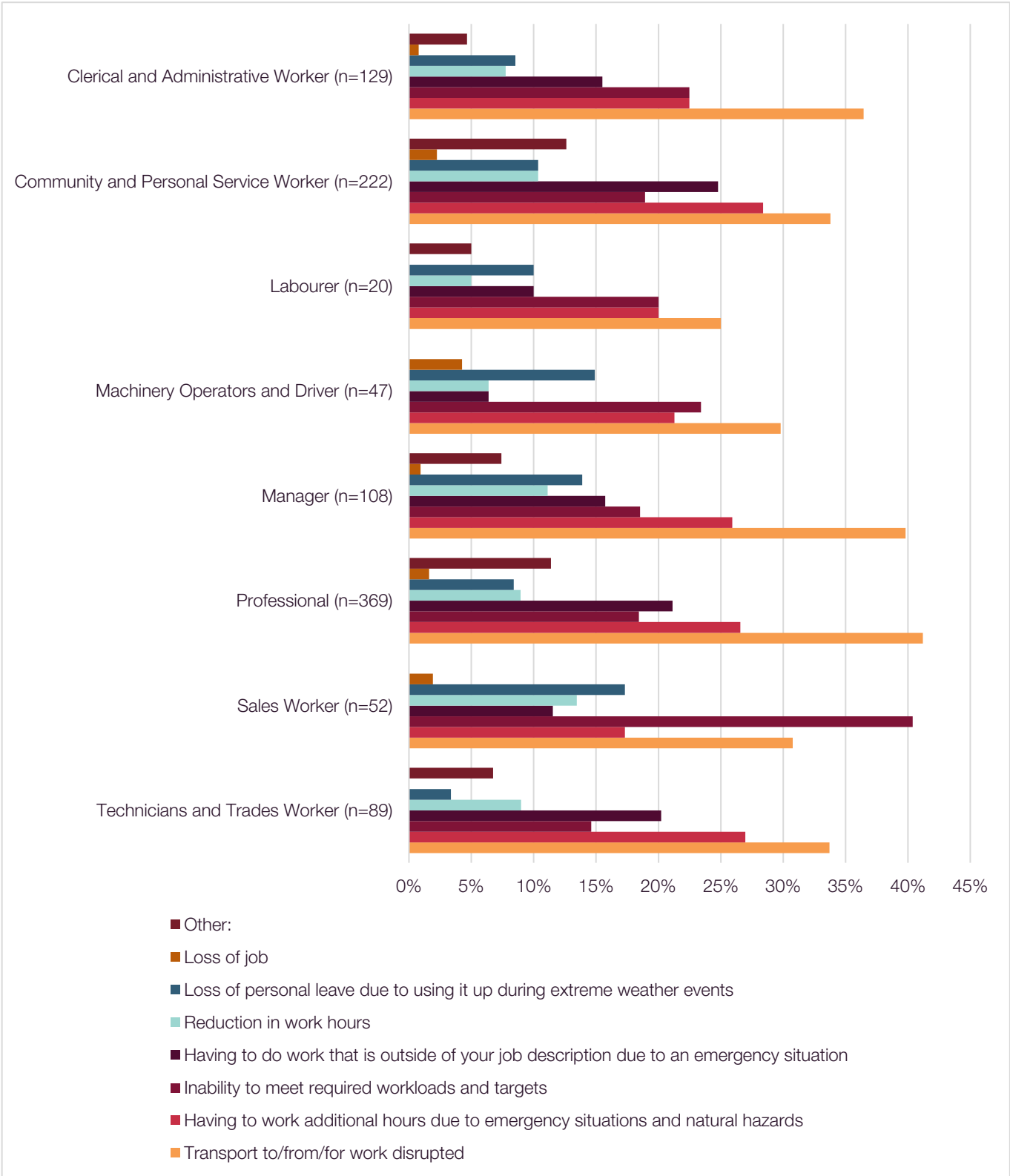
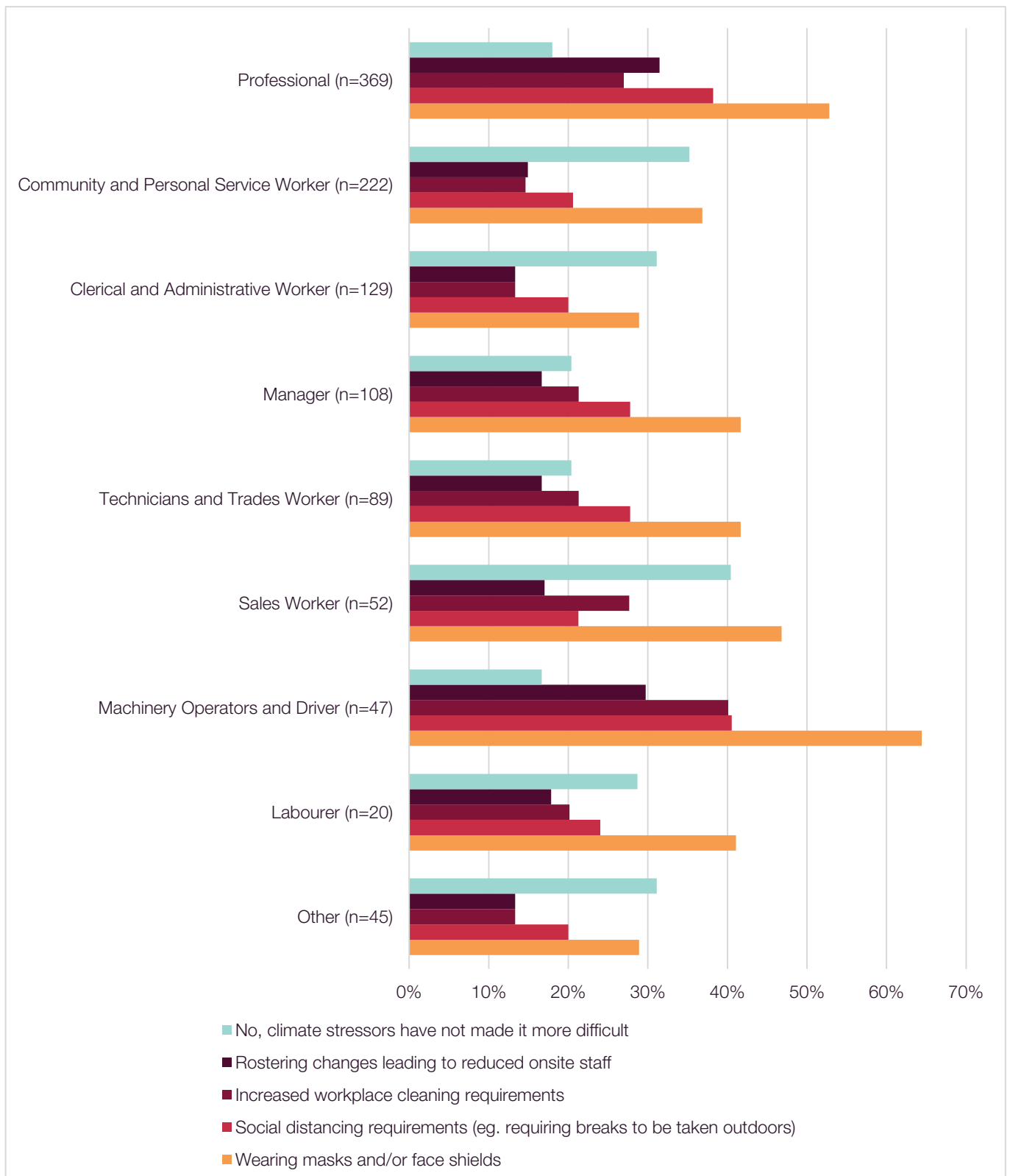


Figure 22. Climatic stressors impact on OH&S measures.



Sales Workers reported much higher rates of inability to meet required workloads and targets, also at 40%, but from a much lower number of responses. Also of note is that *Sales workers* is the only occupation that reported less than 20% had been required to work additional hours in response to emergency situations and natural hazards.

The evidence presented in this section of the report underscores that climatic events do not just reduce the capacity of directly affected outdoor workers to do and maintain their job. The data indicates that all forms of work are impacted, most prominently through transport disruptions, but also through loss of hours, personal leave and jobs. One respondent reported that:

“There were days where I simply had to use up sick leave because it was too hot to get safely to work with my predisposition to low blood pressure and migraines.”

Female, aged 41 to 50,
Professional

Workers were also asked whether climatic stressors had made it more difficult to comply with OH&S requirements. In total, 26% indicated that climate stressors had not made it more difficult to comply with OH&S, which implies that 74% had found it more difficult. At the time of the survey, public health measures such as mask wearing, social distancing and increased cleaning were in place. 47% of respondents indicating mask wearing was made more difficult on hot days, while about a quarter indicated the other measures and related rostering changes were also more difficult (Figure 22). Notably, approximately 80% of professionals and managers indicated that climate stresses had made it more difficult to comply with masks.

In the extended comments, some workers discussed the difficulty of wearing personal safety equipment during hot weather. As one put it:

“With the current climate of COVID and the heat associated with climate change, full PPE in full uniform in non-air-conditioned areas presents a significant OH&S issue. This has been raised

with OH&S staff, however has not been addressed as yet as it is not an immediate concern.”

Female, aged 41 to 50,
Community and Personal Service Worker

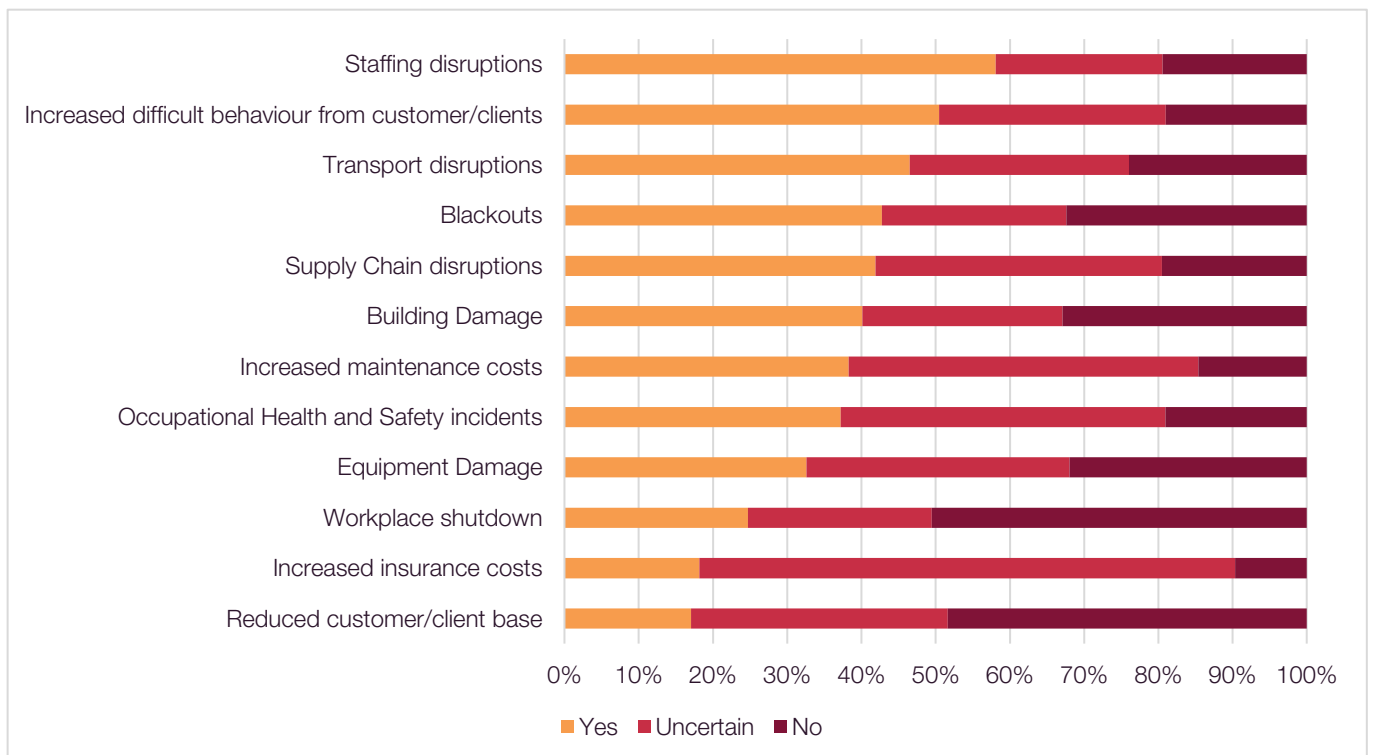
Others noted they have to take breaks indoors during extreme weather, rather than being able to go outside for fresh air, and that working from home in extreme weather can also be difficult, given poor quality domestic air conditioning.

Direct impacts on organisations
Respondents were asked if they

have observed disruptions or stressors in their organisations as a result of weather or climate in the last 5 years. The results are shown in Figure 23.⁴ Staffing disruptions are the most common impact, at 58% of respondents, while half have seen an increase in difficult behaviour from people they deal with in their work.

Other effects drew a lower proportion of positive responses, such as supply chain disruptions, maintenance costs, occupational health and safety incidents and insurance costs, but there was also a greater amount of uncertainty, a likely result of

Figure 23. Climate effects on organisations



the limited exposure of union members to these aspects of organisations. For effects such as workplace shutdown and equipment damage, the observation may be lower, but the costs of the impacts may also be higher due to loss of work time.

- Supply chain disruptions in the food industry
- The disruption caused by bushfires
- Staff absenteeism on hot days and through bushfires
- Increased demands from clients.

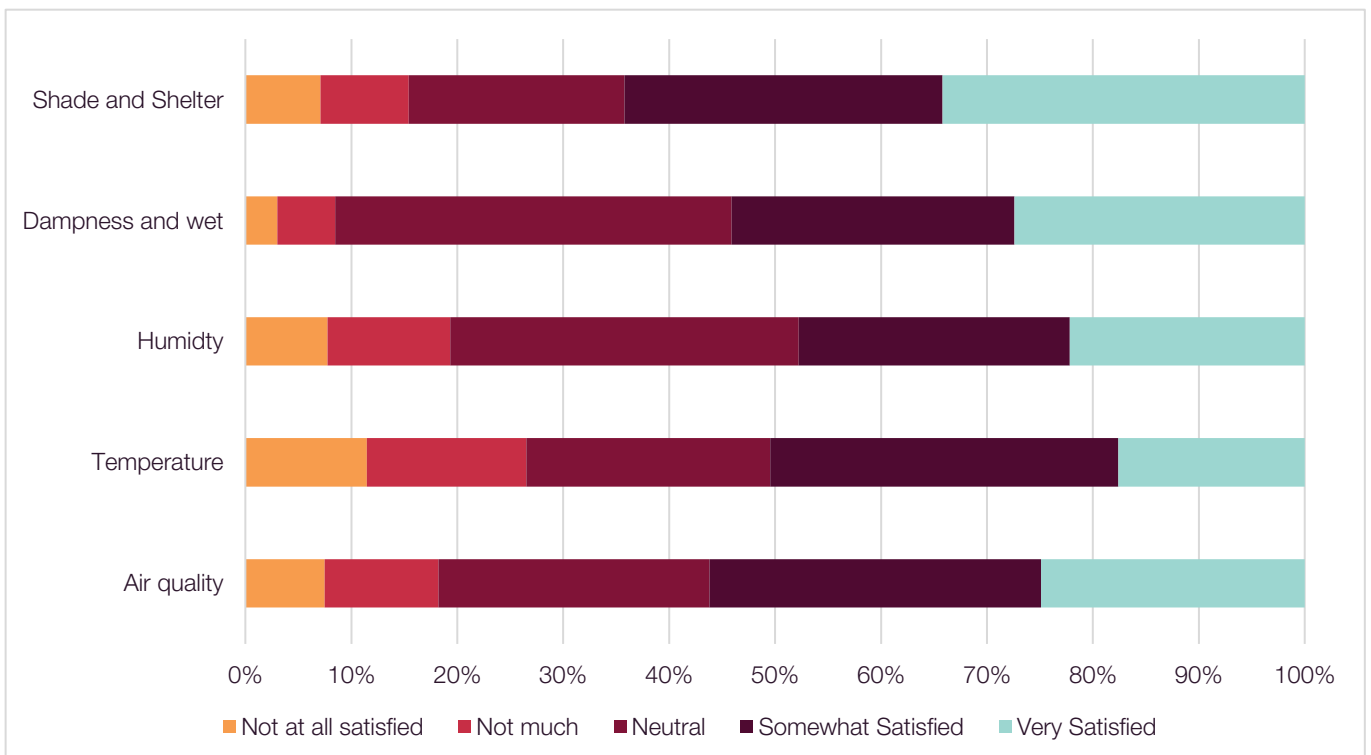
Additional comments provided by respondents add further insights to these effects. This includes:

- Relocating workspaces to shaded areas, further from customers.
- Impact of heat on equipment functions and materials handling

Workplace conditions

The majority of respondents are generally satisfied with their working conditions, with only temperature receiving more than 20% of responses of *Not much* or *Not at all satisfied*, as shown in Figure 24.

Figure 24. Satisfaction with workplace conditions.



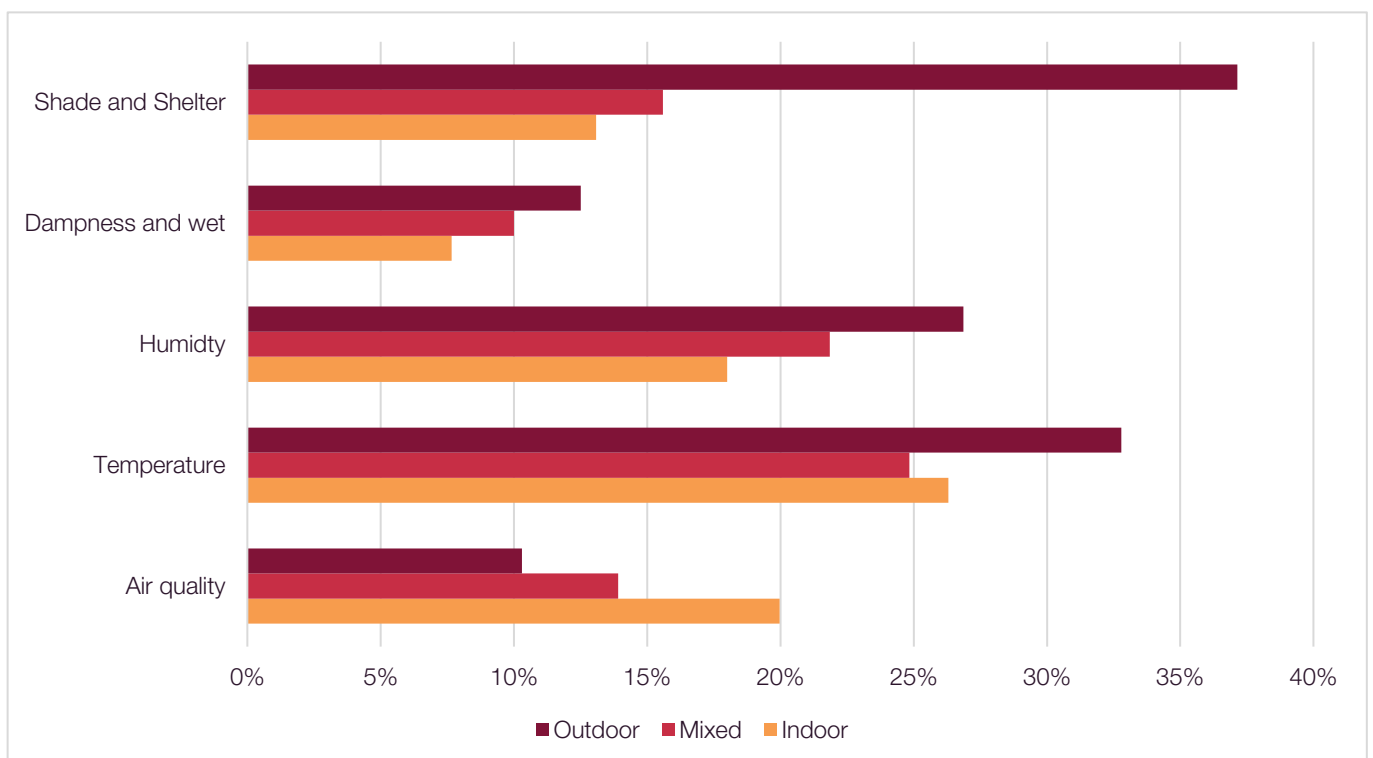
While the overall reporting of poor conditions was low, Figure 25 indicates that for most aspects of working condition, dissatisfaction with workplace was higher for outdoor workers. (In this figure, *Outdoor* refers to more than 75% of working time spent outdoors, *Indoor* refers to less than 25% outdoors and mixed is between those two groups). For *Outdoor* workers, 37% indicated that they were to some degree not satisfied with shade and shelter, and a further third with the temperature of their workspace. In comparison, *Air quality* is the only workplace aspect with higher rates of dissatisfaction for *Indoor*

workers, at 20%. The distinct differences between *Outdoor* and *Indoor* workers in this data is expected, given greater exposure to weather outdoors and the reliance on air conditioning systems in office work.

Open ended responses on current and future climate change impacts on work

More than 900 open ended responses detailed some of the direct impacts that workers have experienced. A small selection is presented here to demonstrate the range of issues.

Figure 25. Dissatisfaction with workplace conditions by outdoor working time.



Some described how power shortages, floods, fire and extreme heat have disrupted public transport services and other ways people commute to work. As one respondent reported:

“Some team members have long commutes to work via public transport. When train services are disrupted by extreme weather it means staff are delayed coming to work or going home. This lengthens their working day and leaves people feeling tired, stressed, and angry before they get to work, or on their way home.”

Female, aged 51 to 60,
Professional

“Working in a kitchen any day over about 20°C is pretty uncomfortable, but 30°C and up is very, very difficult, because the heated surfaces already raise the temperature inside by up to 10°C, and our air conditioning isn’t always reliable. Sometimes it turns off when it’s supposed to be on because it’s on a timer.”

Non-binary, aged 18-30,
Sales Worker

While working from home can avoid exposure to extreme weather events, it is also exacerbating other impacts. Thirty respondents stated that working from home had resulted in increased household costs, as a result of their housing not suitably equipped to cope in hot weather. People living in rental housing were particularly impacted, as the cost of improving their heating and cooling would be lost at the end of what are mostly temporary living arrangements. As one respondent reported:

“Climate change has greatly increased anxiety for me. I rent, and that means I have no secure, guaranteed home. This is a problem because I currently work from home. My home is my workplace. What if I have to move? Will I find another place that I can afford that has insulation and cooling? The place I rent now had no insulation and no cooling, I spent over \$4000 of my own money to have all that installed – money I’ll never get back because I don’t own this place. What if I have to pay for all of that again in another place if I have to move? It’s very expensive to be poor, and that financial stress is a

direct result of climate change. These costs are ridiculous. The increased energy costs are ridiculous too, but what can I do? There's a pandemic and I need to safely work from home. I'd rather work from home and be poor because of climate change than work in the office and be dead because of COVID. Honestly, I just feel trapped and like climate change will be an expense I can't afford alongside covid. Both are here to stay, so what can I do but keep struggling? This hasn't been good for my mental health. I can handle one, but not both."

Female, aged 41 to 50,
Professional

Some workers need to visit others in their homes as part of their job. Doing so exposes them not only to hot houses, but also forces them to spend a lot of time in their car. As one explained, this also creates difficulties:

"On really hot days it is impossible to adequately cool some spaces, especially my car ... Extreme weather and fire smoke make community access with many clients

nearly impossible at times and it feels like the most vulnerable miss out on the most."

Female, aged 18-30,
Community and Personal Service Worker

Another community worker observed that, while she is not a librarian, she has seen libraries (and their workers) struggling to accommodate the large numbers of people seeking them out as a refuge during extreme heat and other conditions:

"During extreme weather, libraries are often a place of refuge for people who do not have safe shelter at their homes, or access to air conditioning, as you can spend the entire day without having to pay anything. This is not something that libraries have the infrastructure for, specifically in extreme conditions that are gradually becoming more common."

Female, 18-30,
Community and Personal Service Worker

Workers in hospitality also reported on the impacts of heat, including workers tending hot ovens, and for one respondent:

“The roastery gets really, really hot (no AC there). One day I got really hot and then had weird headaches for a few days - doctor was concerned but had no answers.”

Male, aged 31-40,
Technicians and Trades Worker

Offices are meant to have appropriate infrastructure, but working in an office does not make workers immune to extreme heat, particularly when the air conditioning systems fail to function:

“When working at the office there are times when the air conditioning has not been available (due to equipment failure, bushfire smoke or other hazards). During extreme heat events this can be very uncomfortable. Office management have done their best to support staff, providing fans, drink bottles, etc. During such times I have been physically uncomfortable, found it difficult to concentrate and be productive, and experienced significant swelling in my feet and ankles (not usual for me in hot weather).”

Female, aged 41 to 50,
Professional

Heat is not the only hazard respondents discussed. For example, an outdoor worker described how storm events had led to more frequent shutting down of their worksite, creating tension between the desire for safety and profit:

“... The frequency of storm events has noticeably increased, and these storms are often more severe with higher wind speeds and rates of precipitation than in the past. ... Our workload has increased accordingly and risk to people and property has also increased. Management are struggling to come to terms with the frequency and severity of storm events and this is leading to anxiety and conflict with management in relation to the perceived need to close the site, or part of it, during severe weather events. Site closure protects individuals from harm ... but is bad for revenue raising for the many businesses that operate on our site.”

Male, aged 61 to 70,
Professional

In another example, a regional worker reported how climatic

events had affected their capacity to provide services:

“Bush fire issues have resulted in cancellations of planned visits - location in unsafe or closed down area, or route to location is through unsafe area. Floods can also have the same effect. Longer travelling times can occur due to driving around the problem area. Office closures or advisory to go home early when there is a storm on the way - otherwise caught out in the storm.”

Female, aged 51 to 60,
Professional

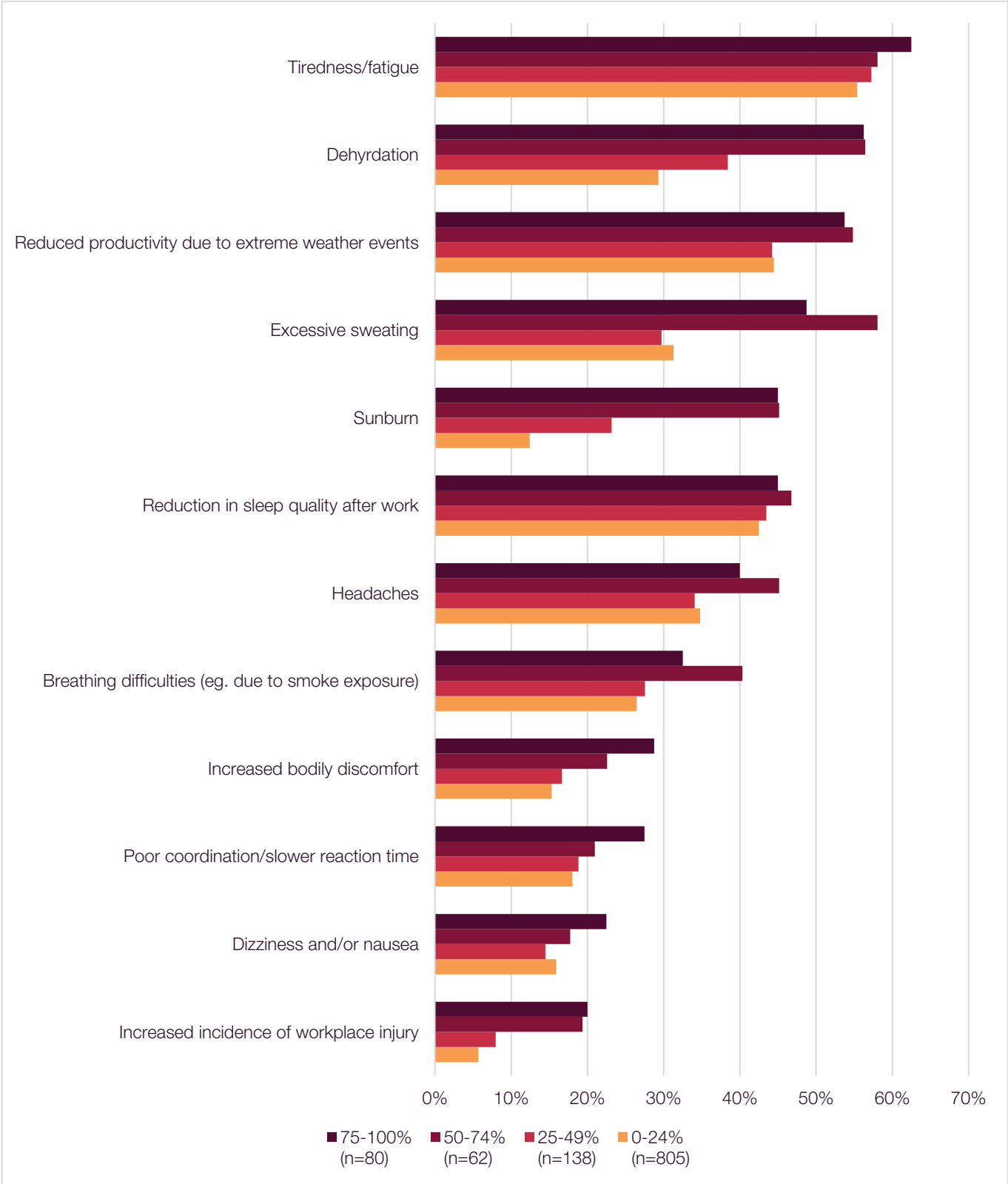
6.2.3 Health impacts

Respondents were asked explicitly if they had experienced any physical effects as a result of extreme weather at work. As indicated above and seen in Figure 26, approximately 75% of respondents indicated they have experienced the physical effects listed in the survey⁵. Given that exposure to physical hazards varies according to percentage of work time spent outdoors (among other things), results were sorted along this dimension. Results indicate that workers who spend more than half their outdoors were more likely to report physical

effects across all categories in comparison to those who spend less than half of their time outdoors. Dehydration, excessive sweating, sunburn and workplace injury were especially pronounced for outdoor versus indoor work. A striking 20% of those who work outdoors have seen an increase in physical injuries due to climate conditions. Tiredness and fatigue, and reduction in sleep quality after work, are issues for approximately 55% and 45% of workers respectively, regardless of place of work.

The occupations that reported the most types of physical impacts were *Machinery Operators and Drivers* and *Labourers*, as shown in Figure 27, who are also workers more exposed to climate due to the nature of their jobs. Unexpectedly, *Technicians and Trade Workers* responded with the fewest effects, followed by *Managers and Professionals*. The result for *Technicians and Trade Workers* is due to substantially lower reporting of tiredness and fatigue, 24% lower than other categories, and both reduction in productivity and headaches at 21% lower. It is important to note that some may have experienced a narrower range but more intense impacts.

Figure 26. *Physical effects of extreme weather events on workers, by proportion of work time spent outdoors.*

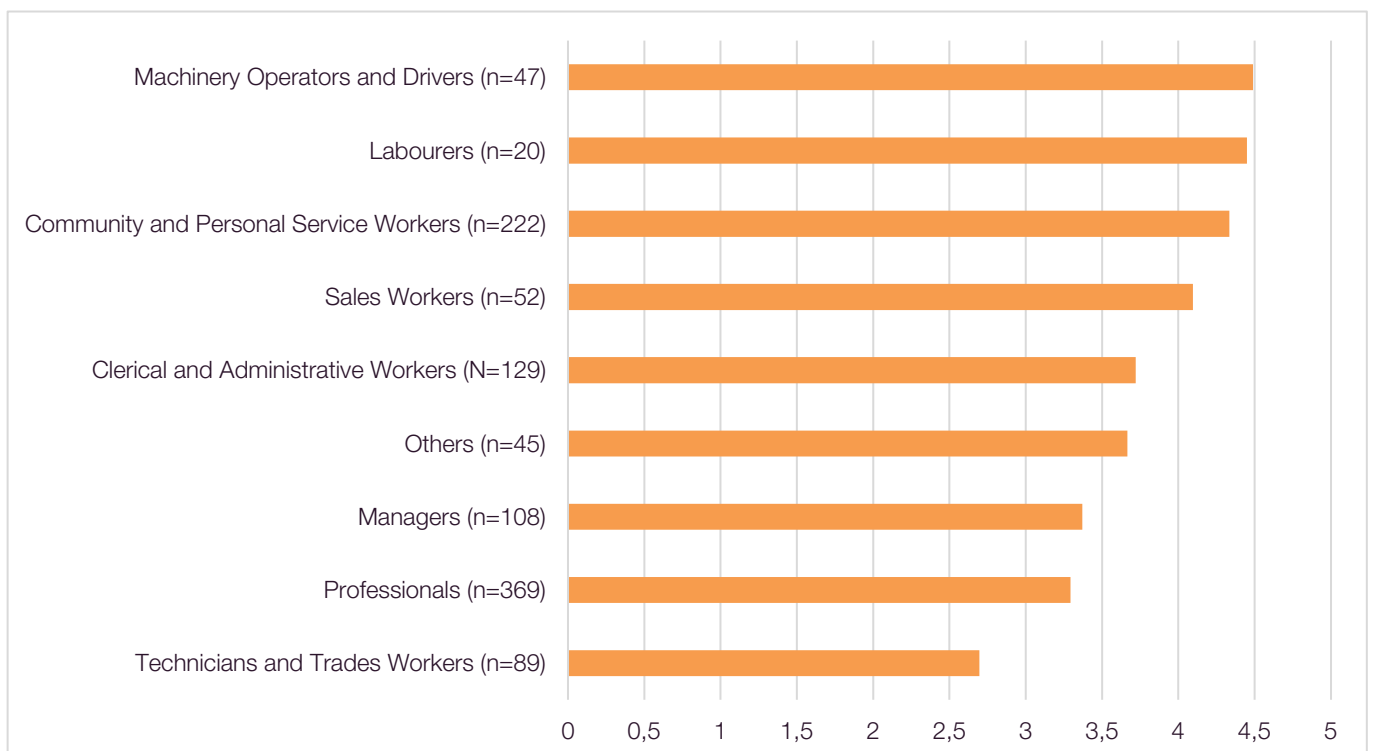


Bushfire smoke was especially mentioned as a problem by workers from Greater Melbourne, reflecting the widespread impacts of the extreme bushfires of the 2019-20 summer. As with other impacts, in some cases the effects of smoke were exacerbated by management responses:

“Bushfire smoke in 2019 across Melbourne led to my suffering from [at the workplace] fainting, dizziness and a dangerous increase in blood pressure and therefore being admitted into hospital. I was harassed

by management on three concurrent days; demanding my GP provide more detail on each subsequent medical certificate; about the effects of the bushfire smoke and the timeframe when I could return to work in future. They refused to provide me with other work duties that were not ‘outdoors’, and I felt discriminated against. They also demanded my GP provide details of levels of air quality [via the EPA website]; and future scenarios of air quality whereby I would need to not work outdoors; due to the risk to my health. N.B. I am a non-

Figure 27. Average number of climate-related physical effects reported by occupation.



smoker; do not suffer from any asthma nor lung conditions or similar.”

Female, aged 51-60,
Sales worker

Another worker had to provide their own masks during the smoke events from bushfires:

“Smoke from bushfires two years ago was intolerable. The heat also was horrific at times. During the smokiest days temperatures often shot up to over 40 degrees. It was like the planet Venus. My employer, [retail], provided

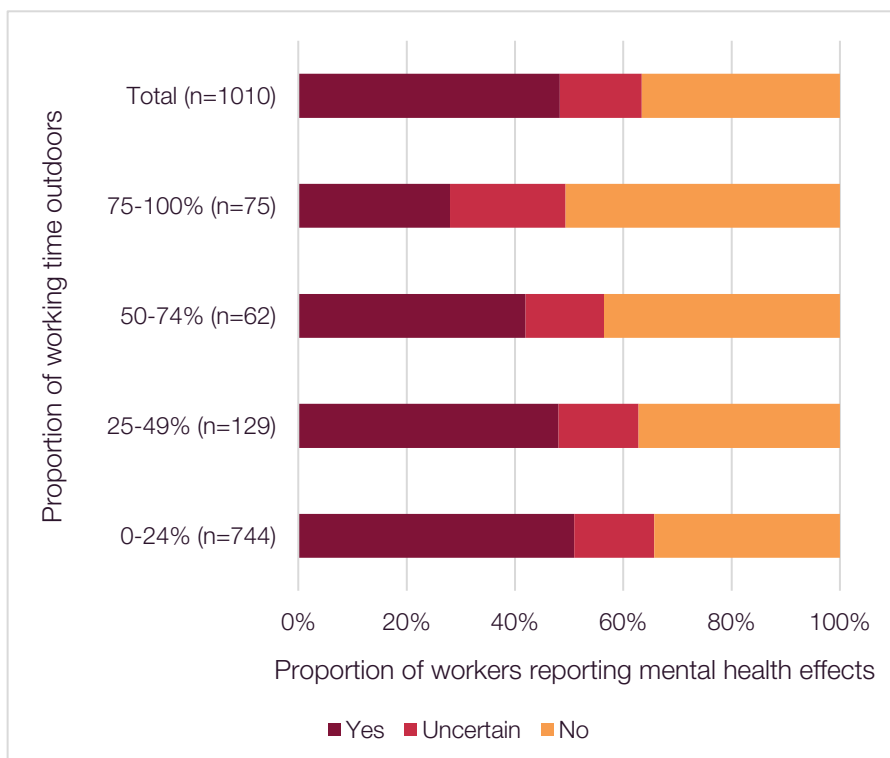
no masks at all at that time, despite numerous requests, even pleadings. They said they couldn’t source any and I should find my own and they would reimburse me. I found one pack. I was never reimbursed. This is a period of months we’re talking about. Eventually, about a year later, a pack appeared in our service cupboard, but they’re gone now.”

Male, aged 61 to 70,
Sales worker

Other respondents referred to their asthma and thunderstorm asthma, heart conditions and other existing health concerns that were exacerbated during extreme weather.

Workers also noted mental health effects in the *Other* responses to the physical health impacts, such as stress, concerns for themselves and their family’s wellbeing. These concerns were addressed in a subsequent question on climate impacts on mental health. As shown in Figure 28, 48% of respondents indicated some impact on their mental health as a result of climate change. However, in contrast to the physical impacts,

Figure 28. Mental health effects of climate change by outdoor work.



a higher percentage of indoor workers reported mental health impacts than outdoor workers. In particular, 28% of the workers who spent more than 75% of their working time outdoors reported mental health effects due to climate change, compared to 51% of those who spend less than 25% of their time outdoors.

Female and non-binary workers were also more likely to report mental health effects, as shown in Figure 29. In comparison to 34% of males, 49% of females and 60% of non-binary respondents reported mental health effects of climate change, albeit with a low sample for non-binary responses.

Respondents were also given the opportunity to describe the impacts on their mental health. The number of times key words from the 496 text responses are set out in Figure 30. The most frequently cited impacts were anxiety, fire, concern for children and future generations and stress and distress. People aged between 18 and 30 were much less likely to be concerned by fire than other age groups, but more likely to mention depression. Within the fire and smoke categories, the 2019-20 summer bushfires were also a recurring

topic, with 21 respondents referring to it, with many reporting ongoing fear as a result. This was most apparent in respondents working in firefighting, with references to issues arising from being involved in emergency responses.

6.2.4 Responding to the Climate Crisis

The final results section provides workers' suggestions for how to respond to the need for climate action. This includes a range of recommendations for employers and government to address the issues.

Figure 29. Mental health effects of climate change by gender.

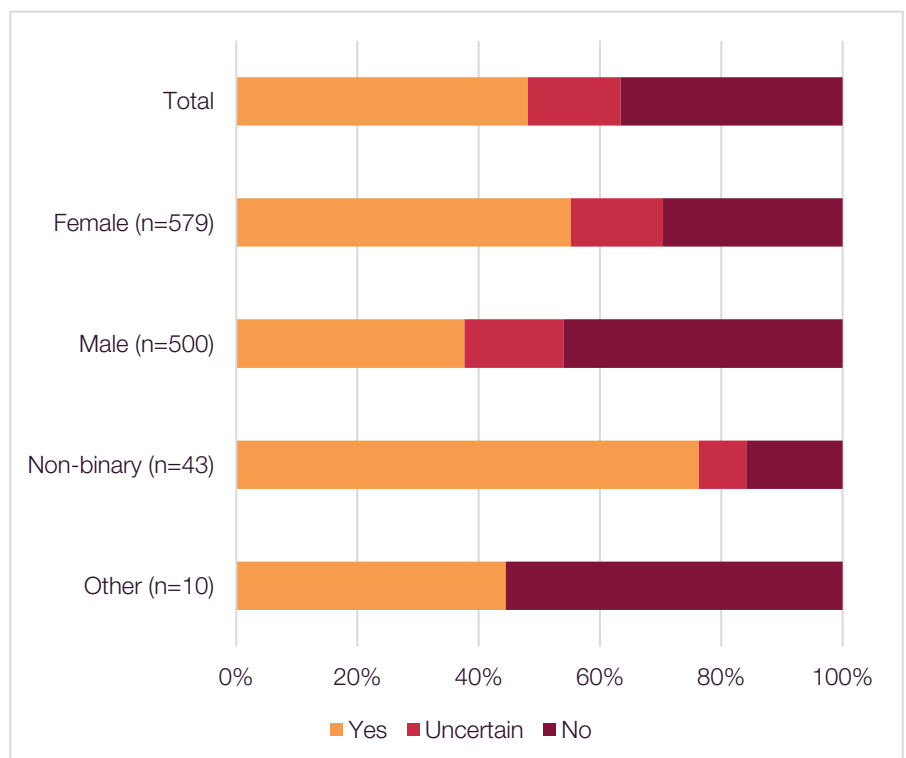
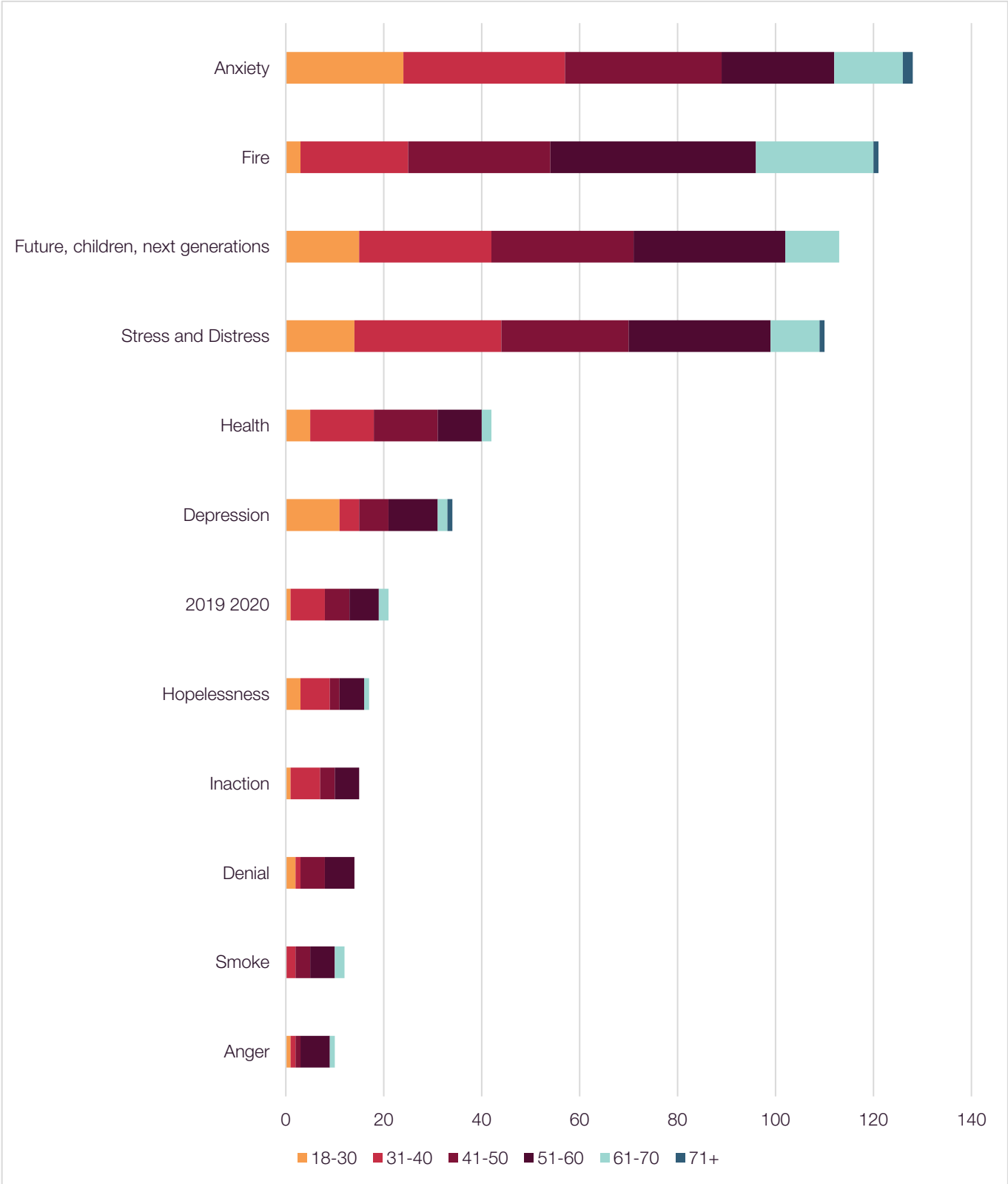


Figure 30. Main words used in workers' descriptions of their mental health impacts, by age group.



Organisations

To begin with, respondents were asked if their organisation has a climate change adaptation plan. As shown in Figure 31, more than half were uncertain, and only 14% indicated that they were aware of a climate change adaptation plan in their organisation. While these levels of awareness do not necessarily equate to levels of adaptation planning among employers, effective adaptation needs to engage staff.

One way to engage staff is to ask them what they think is needed. The survey posed this question and the most frequent recommendation was to increase workplace flexibility to enable workers to change their working and commuting times and patterns in order to respond to climatic conditions as well as extreme events. References to the lessons from pandemic-enforced working from home were seen as a providing a basis for possibilities in this area. Flexible work arrangements noted by workers include:

- Flexible starting, ending and break times.
- Leave arrangements for staff impacted by climate events

- Working from home as a response to climate events.

As some explained:

“... Provide flexible working arrangements, e.g., allowing staff to work from home, take leave or work flexible hours. This is both to reduce transport impacts on climate and to allow individuals to adapt to changes in weather patterns and stay home if required by extreme weather events.”

Female, aged 41 to 50,
Professional

“Capture all of the benefits and best things that we have re-discovered / confirmed is possible during the pandemic.”

Male, aged 31 to 40,
Professional

Other common recommendations from workers for their organisations include:

- The need for training to cope with and adjust to climate change impacts
- The need for better design or choice of uniforms and PPE during hot and extreme weather

Examples of responses that include these points are:

“Educate staff about it; implement policies and regulations; encourage change where possible and enforce change when not. Everyone in the organisation needs to be really clear about what they can personally do to contribute to making a difference.”

Female, aged 51 to 60,
Professional

“Make an effort to look like they care and have real discussion and begin real dialogue to make real change

and improvements regarding the effects of climate change in our workplace. People are tired, burnout and exhausted. Change uniform to help assist and reduce the discomfort of heat exhaustion. Staff are running around all day in full PPE and full uniform. Time to make a change!!”

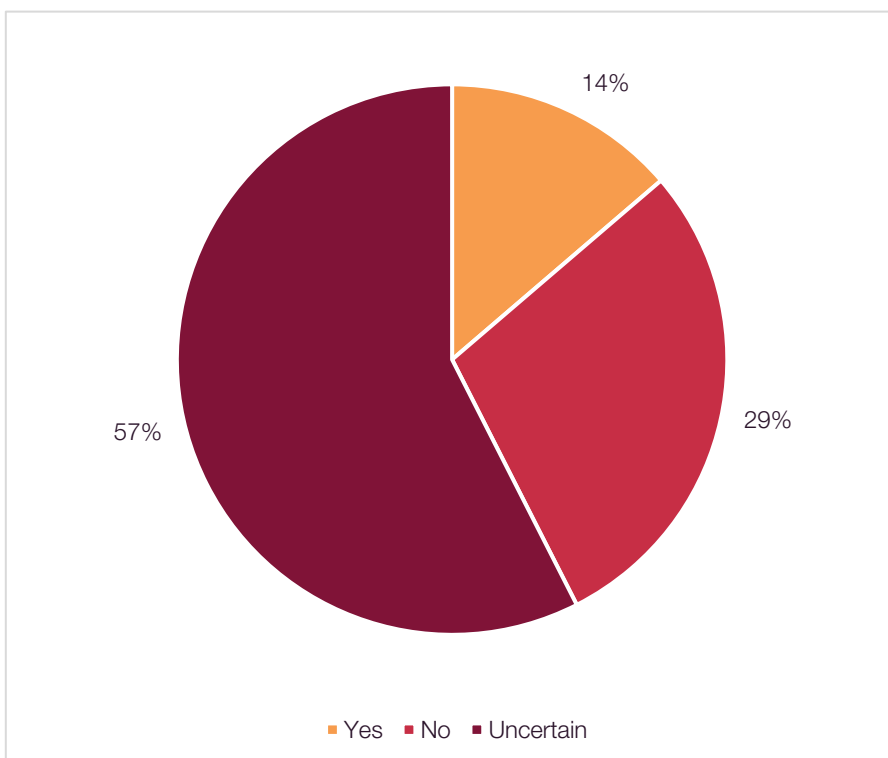
Female, aged 41 to 50,
Community and Personal Service Worker

“... provide more support, increased staff, when having breaks increased food and drink due to exhaustion and dehydration. Offer private areas where staff can go off the ward to relax and rest if doing a longer day. Staff lounge ...”

Male, aged 41-50
Professional

Calls for training reflect the fact that only 12% of respondents have received training in managing climate related risks. Figure 32 indicates variation between occupations. Most training was reported by *Machinery operators and drivers* but this was still less than a quarter, while only 4% of sales workers have had training. Given the survey focus on

Figure 31. Awareness of organisational climate change adaptation planning.



climate change, and the synergies between adaptation and mitigation, some workers also provided greenhouse gas mitigation recommendations, such as better building design, lowering consumption of workplace materials, reducing the need for travel and switching to electric fleets.

Government

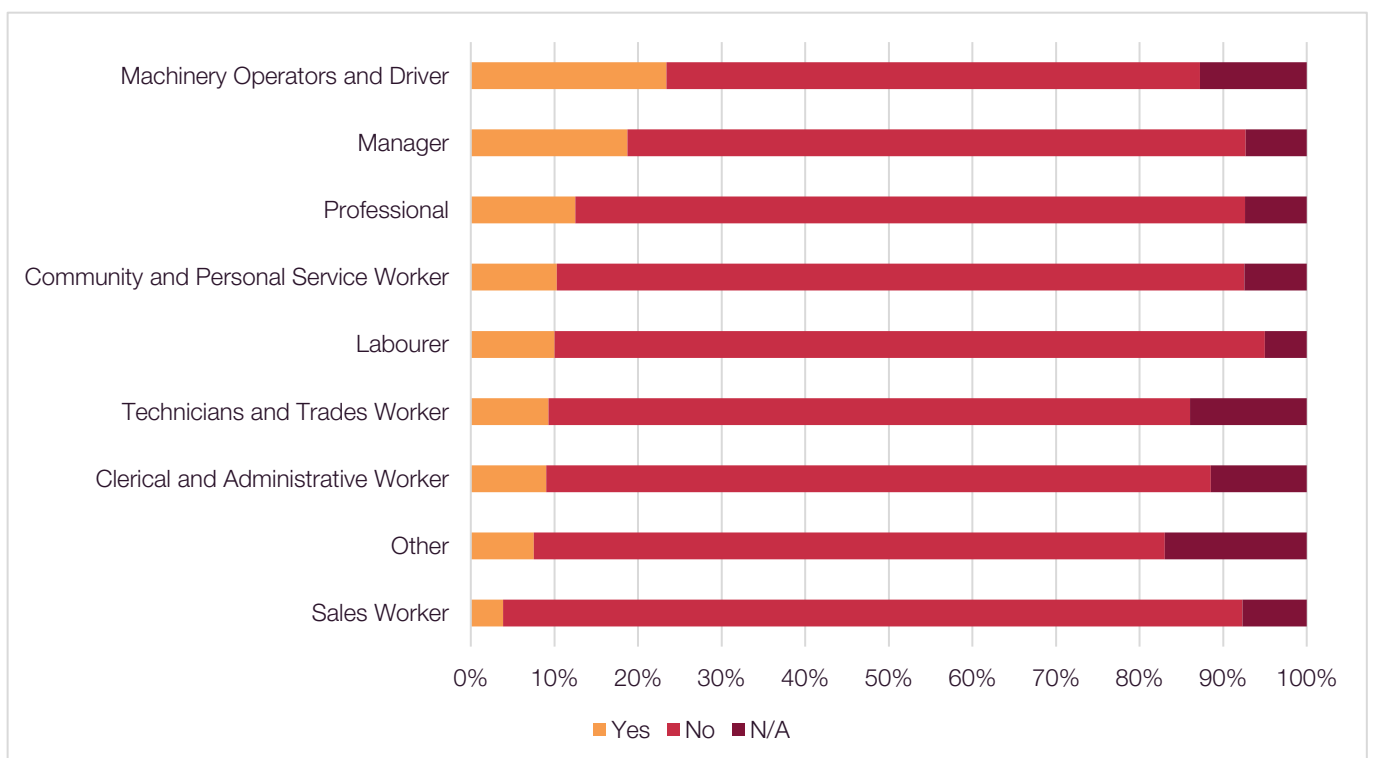
The survey asked whether governments should increase climate targets and 86% of respondents called for more government action on climate change. As shown in Figure 33, the lowest proportions of yes

responses were for those who self-reported either *Very high* or *Very low* knowledge of climate change, indicating a proportion of respondents who are interested in climate change but are not necessarily of the view action is required.

The extended responses on government action included items that extend the recommendations for workplaces, including:

- The need to enforce OH&S legislation
- Legislated work from home, or be sent home, in adverse weather conditions. This included references to the

Figure 32. Workplace training in weather events and climatic impacts by occupation.



- need to provide infrastructure to support working from home, such as energy.
- Better design of buildings, including residential and for workers, to make them more efficient and also provide better protection from climatic events.

“... workers need to be afforded the right to have a safe working environment that includes temperatures, shade etc. that allow for both collective and individual comfort and health needs.”

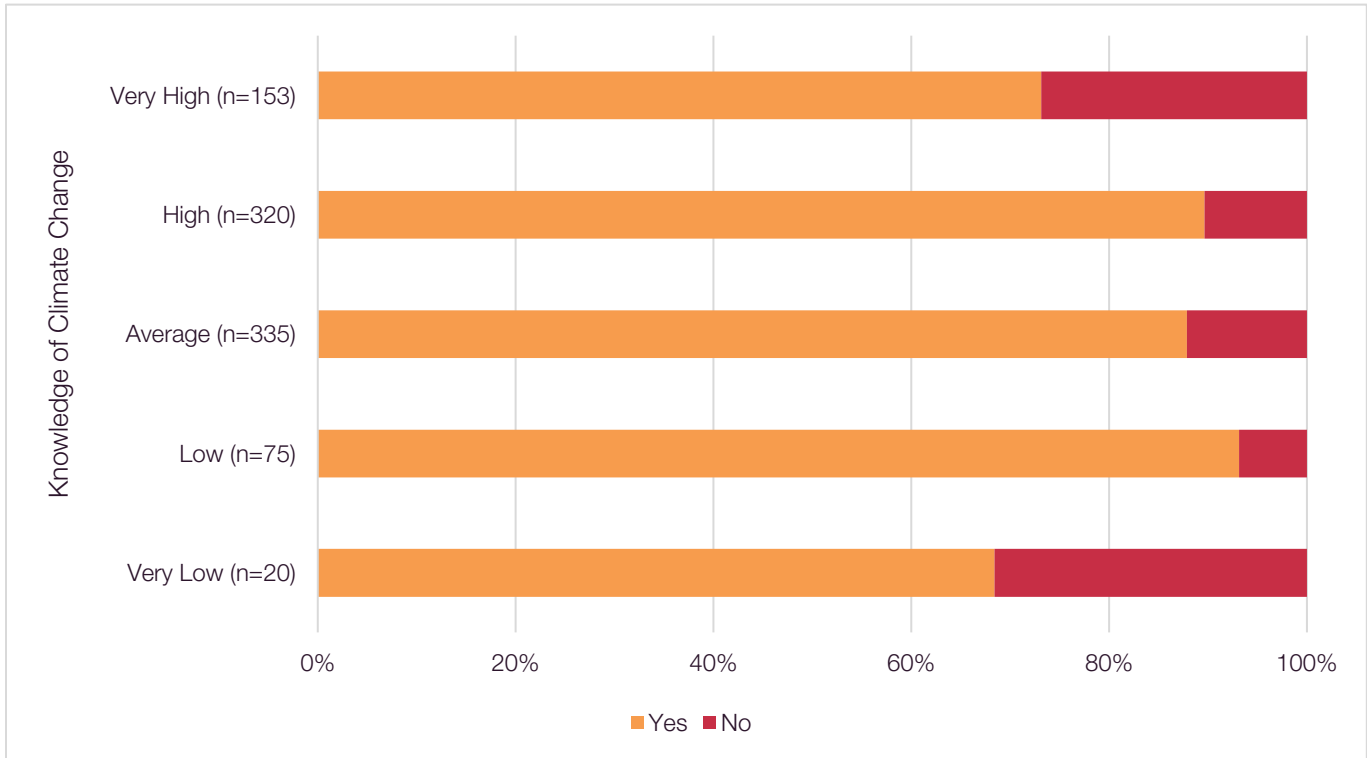
Female, aged 41-50, Professional

There was also a strong focus in the responses on the need for government leadership in climate change mitigation, including the ending of fossil fuel usage. For OH&S legislation, one respondent provided a succinct statement:

Another noted the specific needs of those particularly at risk due to climatic events:

“... efforts are needed to start protecting workers who mainly work outside or who work in roles that support our

Figure 33. Views on whether governments should take more action on climate change.



economy or that protect us when we face climate-based emergencies (e.g., agricultural workers or fire-fighters, etc)”

Male, aged 51 to 60,
Professional

There were others who mentioned the need for government promotions and guidance materials to help workplaces respond to climate change. One called for improved messaging, and scheduling changes:

“Scheduling work around hot days and being flexible about some days being spent in the office would be a good idea. Governments could use public health messaging to support these changes.”

Female, aged 41 to 50,
Professional

Overall, workers indicated they want rapid action. This is not just about protecting their ability to do their work well or safely. It is about tackling climate change as the urgent and all-encompassing issue it is:

“I am worried that we are going to get to a point where impacts are unmanageable and we see frequent injury, crises and deaths

from climate impacts. With increasing frequency of floods, heat waves, fires, heavy storms - there comes a point where you cannot adapt to these impacts, where even good government and good public/community services will not be able to respond to the level of need. We are close to that point. At a personal level, I am considering not having kids because I feel guilty and pessimistic about the world they would have to make their way in. This breaks my heart. The grief from these types of personal losses as well as grieving for the damage done to this beautiful world is frequently overwhelming. I live in a fairly constant state of climate anxiety and grief. I completely understand why people switch into denial and stop thinking about it. But this is our challenge to overcome, whether we recognise it or not.”

Female, aged 31-40,
Professional

Figure 34. *Mechanic working in a garage.*
From "Pexels" by A. Piacquadio, 2020,
(<https://www.pexels.com/photo/self-employed-male-mechanic-working-in-garage-3822900/>). Copyright 2020 by A. Piacquadio. CC0.



Endnotes



1 For example, the 2021 Lowy Institute Climate Poll - [link](#)

2 Due to variations across the union surveys, rankings have been converted to top 3s, which is the minimum level of detail for analysis from the results. However, some respondents did not provide answers that enabled identification of a Top 3 and were removed from the analysis. For the ASU, only concerns ranked '3: Greatest concern' were included, as other options indicated not of concern.

3 Other results, for Victoria in general and other states have not been shown for clarity and due to low numbers of respondents.

4 In this chart 'Uncertain' includes survey responses recorded as 'I don't know', and blanks and N/A have been removed for clarity. N/A accounted for 3% of responses at most within each category and an average of 1%. As a result,

the sample size varies from 957 (Reduced customer/client base) to 1,103 (blackouts).

5 Counts of 'yes' responses only due to discrepancies in the survey instruments. Some but not all surveys distinguished between 'no' and no response.

Figure 35. *Worker cleaning a cafe.* From “Pexels” by T. Douglas, 2020, (<https://www.pexels.com/photo/busy-woman-cleaning-wooden-counter-in-cafe-6205765/>). Copyright 2020 by T. Douglas. CC0.



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