Mental health, wellbeing and resilience after the 2019–20 bushfires

THE AUSTRALIAN NATIONAL BUSHFIRE HEALTH AND WELLBEING SURVEY – A PRELIMINARY REPORT

Australian National University

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Advice

This report contains descriptions and imagery of bushfires that may be distressing. Mental health resources and support can be found at lifeline.org.au or by calling the 24/7 crisis line on 13 11 14.

Suggested citation

Heffernan, T., Macleod, E., Greenwood, L-M., Walker, I., Lane, J., Stanley, S. K., Evans, O., Calear, A. L. & Cruwys, T. (2022). Mental health, wellbeing and resilience after the 2019–20 bushfires: The Australian national bushfire health and wellbeing survey – A preliminary report. Australian National University, Canberra. https://dx.doi.org/10.25911/AG7D-7574

http://hdl.handle.net/1885/281404

The authors thank their colleagues on this project: Bruce Christensen, Tim Kurz, Emily Lancsar, Julia Reynolds, Rachael Rodney Harris, and Stewart Sutherland.

Funding

This research was supported by the Australian Government's Medical Research Future Fund (MRFF), National Health and Medical Research Council (NHMRC), Stream 2: Mental health impacts of bushfires on affected communities (Grant ID: APP1201732).

Ethics

ANU Protocol No. 2020/591

Study partners

- Australian National University
- University of Wollongong
- Illawarra Health and Medical Research Institute
- HealthANSWERS

Collaborative support

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Abbreviations

ABS	Australian Bureau of Statistics
ACT	Australian Capital Territory
ANU	Australian National University
ATO	Australian Taxation Office
IHMHS	Intergenerational Health and Mental Health Study
LGA	Local Government Area
NGO	Non-Government Organisation
NSW	New South Wales
PHN	Primary Health Network
PTG	Posttraumatic Growth
PTSD	Posttraumatic Stress Disorder
SE	Standard error, indicating data variability in each scale response
WWF	World Wide Fund for Nature

Mental health standard measures

BRCS-4	Brief Resilience Coping Scale (4-items)
EXITS	Exeter Identity Transitions Scales (3-items)
FTS-5	Financial Threat Scale (5-items)
GAD-7	General Anxiety Diagnosis (7-items)
PHQ-9	Patient Health Questionnaire (9-items)
PSC-17	Paediatric Symptom Checklist (17-items)
PSS-4	Perceived Stress Scale (4-items)
PTGI-10	Posttraumatic Growth Inventory (10-items)
PTSDI-8	Posttraumatic Stress Disorder Index (8-items)
UCLA-3	Loneliness Scale, UCLA (3-Items)
WHO-5	WHO Wellbeing Index (5-items)

Summary

This report provides an overview of the mental health and wellbeing of people affected by the 2019-20 bushfires, with data recorded 12–18 months after the end of the bushfire season.

The bushfire season in Australia between July 2019 and March 2020 was the most severe on record. Fires across every state and territory devasted the natural and built environment, tragically resulting in 33 deaths and many more injuries, and killing or displacing billions of animals. Australia has always been fire-prone, and climate change is expected to increase the frequency and intensity of fires. Improved understanding of the relationship between bushfire, psychological distress, and strategies for maintaining resilience is vital to ensuring better preparedness, coping strategies and responses to future bushfires.

International research shows that people affected by disasters are at increased risk of ongoing mental health challenges that can greatly affect daily functioning and quality of life. However, negative outcomes are not inevitable. Research also shows around two-thirds of people exhibit mental resilience and return to pre-disaster levels of wellbeing and functioning, even reporting journeys of growth.

Understanding rates and patterns of psychological distress after bushfires, as well as the indicators of positive psychological outcomes in the months and years afterwards, is important for designing and implementing effective public health policy and ensuring the provision of appropriate and timely support.

Report findings are based on a nation-wide survey of adults that examined standard measures of psychological distress, including symptoms of depression, anxiety, stress, posttraumatic stress disorder (PTSD), financial security, as well as psychological resilience, including resilient coping, posttraumatic growth (PTG) and psychological wellbeing. While an individual's psychological resilience is often defined by an absence of poor mental health, a key objective of this report is to examine individuals' mental health and wellbeing and their positive psychological outcomes after bushfire.

Residential postcode is a common method for determining disaster affectedness. Around 20% of survey respondents lived in a postcode deemed by the Australian Government to be bushfire impacted. We developed a novel framework for classifying respondents' severity of bushfire exposure based on their range of experiences during the 2019–20 fires. This includes people who were directly affected (e.g., resided in a bushfire-impacted area or fought the fires), indirectly affected (e.g., lived outside bushfire affected areas but who were impacted financially), and people who were non-affected.

Psychological distress

12–18 months after the end of the 2019–20 bushfire season, we found high levels of depression, anxiety and stress across the entire sample. Severity of bushfire exposure was associated with severity of psychological distress: those with the highest exposure reported higher levels of anxiety and depressive symptoms. Those indirectly affected also showed higher psychological distress than the wider sample–with almost three-quarters experiencing anxiety symptoms up to two years after the fires.

Among people who reported being directly affected by bushfire, the rates of men experiencing PTSD symptoms were double the national population rates. For both men and women who experienced high bushfire exposure, one in five reported symptoms that met the clinical cut-off for PTSD.

Psychological distress was higher for bushfire-affected parents with children under 18 years than for respondents without dependent children. Compared to non-affected parents, bushfire-affected parents reported their children as having more behavioural and emotional challenges.

Among Aboriginal and Torres Strait Islander respondents, the rates of depression, anxiety, and stress were notably higher than relevant population rates, especially for Indigenous women.

Psychological resilience

Psychological resilience in the context of disaster refers to the ability of a person to bounce back, or return quickly to usual levels of functioning, after the disaster. Psychological resilience can be seen in levels of general wellbeing, resilient coping, and psychological growth. In our survey, we measured three positive psychological outcomes to capture signs of resilience, including wellbeing, resilient coping, and psychological growth. Wellbeing describes feelings of vitality, tranquillity and fulfilment. Resilient coping describes tendencies to cope adaptively with stress. Psychological growth refers to positive changes in one's sense of self, community and the world following adversity, or the ability to take away positive 'lessons' or make meaning from bushfire experiences.

The whole sample showed markers of positive psychological health. Notably, bushfire affected, Indigenous, and parent respondents all reported higher levels of wellbeing and growth than non-affected, non-Indigenous, and non-parent responders, respectively.

Conclusions

High levels of psychological distress were reported across the entire sample 12–18 months after the 2019–20 bushfires. Symptoms of stress, anxiety and depression were higher for people affected by bushfire, with distress directly related to the severity of bushfire exposure. These findings are consistent with international reporting that people affected by disaster are at increased risk of ongoing mental health issues. However, this report also describes respondents' adaptive responses to disaster, including their capacities to cope after bushfire, and rates of personal growth and wellbeing. Those directly affected by the fires showed greater psychological wellbeing and growth at the same time as reporting greater psychological distress.

This report details the nature of psychological distress and markers of psychological resilience from respondents across different levels of bushfire exposure. Government and policymakers designate bushfire affectedness by residential postcode. By developing a severity of exposure framework, this report found significant distress beyond what was initially evident using postcodes alone. Our measure is a simple and effective alternative to postcodes to capture bushfire exposure.

Finally, by highlighting the characteristics of psychological resilience respondents described after bushfires, our results can guide the approach of local councils, NGOs and primary health networks (PHN) to promote mental health as a preventative strategy essential to disaster preparedness. This might include targeted mental health promotion and delivery that emphasises community connection and considers local disaster risk factors. Improving people's mental health and wellbeing, however, will depend on the quality and quantity of short- and long-term support provided after disasters.

Six recommendations are identified below to meet the needs of individuals and communities affected by bushfire, based on survey results and projected trends in Australia of increased environmental disaster.

2019–20 Australian Bushfire Experiences

The psychological health and wellbeing of people affected by the 2019–20 bushfires 12–18 months later.

Widespread Impact

Almost 3 times more people were affected by bushfire than captured by the ATO's classification of bushfire-affected postcodes

Social Connection

Being socially connected supported resilience

Extreme Distress

There were extremely high rates of depression, anxiety, stress and PTSD in bushfire-affected people.

Vulnerable Populations

Women, Aborigial and Torres Strait Islander peoples, parents and children were especially vulnerable to mental health impacts after bushfire

Psychological Distress

Higher bushfire exposure was associated with higher psychological distress, and more distress about the environment.

Covid-19 Impact

People in non-affected areas also had high psychological distress, likely due to Covid-19.

Higher Resilience

Bushfire-affected Aboriginal and Torres Strait Islander peoples and parents had higher psychological distress, but also higher resilience.

Recommendations

1. Provide immediate, long-term, and more accessible mental health support after bushfires

- Provide timely and adequate funding and resources for continuity in mental health provision and support, especially for communities without permanent mental health services and/or staff.
- Improve mental health support through the ongoing monitoring of people's needs after disaster:
  - In the short-term, support should be offered with greater consistency – people seek support at different times and for different reasons.
  - In the longer-term, mental health and wellbeing support needs to be offered to communities at regular stages (e.g., six, 12 and 18 months following) to ensure continuity of care and to prevent people from feeling abandoned during their recovery. This is especially important for communities without permanent mental health services and/or staff.
- Prevent barriers to accessing services by ensuring that mental health support reflects local needs, especially when support staff visit bushfire-affected areas to provide assistance.
- Continue monitoring the mental health outcomes of bushfire-impacted communities and identifying signs of recovery and positive psychological pathways:
  - Fund targeted research or use national survey tools, such as the Australian Bureau of Statistics (ABS) Intergenerational Health and Mental Health Study (IHMHS).

2. Establish a more accurate means to determine bushfire affectedness

- A broader, more inclusive definition and criteria beyond postcode of residence for categorising communities as bushfire affected should be implemented to better target support and resources:
  - Postcode of residence should only be indicative of the likely areas where support and resources are needed and then combined with information from Local Government Areas (LGAs) and NGOs.
  - Government and emergency agencies should work with communities, LGAs, NGOs and mental health practitioners to assess bushfire affectedness based on local conditions.

3. Embed mental health and wellbeing into preparedness, mitigation and response planning—not just disaster recovery

- Government, local PHNs and NGOs should develop mental health and preparedness packages in consultation with communities in areas of high bushfire risk. Priority should be given to developing and funding locally oriented and locally led measures for enhancing resilience.
  - This is a practical step towards improving immediate and longer-term mental health support and removing barriers to accessing services by ensuring that support reflects local needs, especially when support staff visit bushfire-affected areas to provide assistance.

4. Implement longer-term monitoring of mental health and wellbeing outcomes linked with bushfires, recognising that these challenges will remain for many years

- Monitor the ongoing impact of the bushfires, especially on people's mental health and wellbeing, using the IHMHS or similar surveys. This is particularly important given the projected increase in severity and intensity of Australia's bushfires due to human-induced climate change.
- Evaluate and expand current and future mental health needs, resources, and support services required to address ongoing mental health challenges in bushfire-affected communities.

5. Recognise compounding vulnerability due to pre-existing disadvantage and/or marginalisation

- Aboriginal and Torres Strait Islander peoples' mental health and wellbeing needs to be better supported given historic marginalisation and their residential proximity to bushfire-prone areas.
  - Directly involve Aboriginal and Torres Strait Islander peoples and Aboriginal Community Controlled Health Services in decisions about mental health promotion and delivery.
  - Focus on trauma-sensitive and culturally appropriate methods known to work well in health promotion and delivery for supporting psychological wellbeing and resilience.
  - Ensure equity in mental health promotion and delivery for women in particular, given high levels of mental health symptoms among this group. This could be achieved by recognising and minimising barriers to accessing supports and providing accessible, flexible and culturally appropriate services.
  - Use culturally safe and respectful communication to boost awareness of health and wellbeing challenges and response strategies before, during and after bushfires.
- Feelings of financial insecurity and high rates of psychological distress after bushfire show a need to provide ongoing and appropriately designed and targeted mental health supports. This is especially relevant for less visible survivor groups, including people indirectly affected but financially impacted.
  - People not directly affected by fire but who were impacted financially should be seen as fire-impacted, and appropriate measures introduced to understand and respond to their needs.
- The mental health needs of parents with dependents during and after disaster need to be acknowledged and understood to provide appropriately targeted mental health support.
  - Provide appropriate mental health support to parents and carers, especially given that dependent children's wellbeing can be influenced by their parents' mental health.
  - Recognise that preparing for disasters, deciding whether or not to remain at home, and the process of returning home are stressful and can exacerbate mental health symptoms.
  - Provide access to timely information and resources for responding to disaster as this may help to equip parents and carers with emotional coping and response behaviours.
- Children's mental health should be a priority during and after bushfires to ensure their unique needs are met.
  - Provide appropriate funding and resources for child mental health practitioners to support young people's needs, ensuring continuity in care and support.

6. Resource community-based initiatives to enhance social connectedness before and after bushfire

- All levels of government, local NGOs and PHNs fund and resource initiatives that enhance social connectedness before and after bushfire, acknowledging the critical role of the community, in tandem with mental health services, in mounting preventative mental health measures.

Impact of the 2019–20 Australian bushfires

33
DEATHS

$$$$$$$$$$$$$
Australia's costliest natural disaster, APPROACHING $100 BILLION

3,094
HOUSES DESTROYED

$2 BILLION
National Bushfire Recovery Fund

$$$$$

At least $4–5 billion worth of **economic losses to the Australian food system**

$2–3 BILLION
worth of direct fire damage to farm property, infrastructure and land

Over 100,000 livestock deaths

38,181
insurance claims for over $2.3 billion worth of losses

Over 17 million hectares burned

Largest area burned in a single recorded fire season for eastern Australia

3 billion native animals
gravely affected by smoke inhalation, dehydration, heat stress and habitat loss, leading in some cases to population decrease and species endangerment.

Estimated 480 million mammals, birds, and reptiles lost

Introduction

This report summarises preliminary results from The Australian National Bushfire Health and Wellbeing Survey. It describes people's experiences of the 2019–20 bushfires and the impact of this event on mental health and wellbeing up to 12–18 months later. The Australian National University (ANU) led the survey, working with health agencies in New South Wales (NSW) and the Australian Capital Territory (ACT).

July 2019 to March 2020 represents one of the most severe bushfire seasons in Australia's history, affecting urban and regional communities across several states and territories. Over 17 million hectares of land burned across the ACT, NSW, Victoria, Queensland, South Australia and Western Australia, and there was significant fire damage in Tasmania and the Northern Territory.[1] These bushfires caused considerable environmental and infrastructural damage and affected Australians' lives in countless ways.

Tragically, 33 people, including nine firefighters, lost their lives. More than 3,000 dwellings were destroyed, including 2,439 in NSW alone.[1] By May 2020, 38,181 insurance claims had been made, showing the scale of destruction to towns and people's way of living.[2] The World Wide Fund for Nature (WWF) estimates 3 billion native animals were gravely affected by smoke inhalation, dehydration, heat stress and habitat loss,[3] leading in some cases to population decrease and species endangerment.[4]

Australia has a history of large scale bushfires, but there is relatively little Australian research on psychological distress and resilience after bushfires.[5,6] Understanding the ongoing effects of bushfire exposure on people's mental health and wellbeing is important. This report uses survey data to describe such effects on people's mental health and identifies characteristics of psychological resilience – that is, the ability to bounce back and exhibit adaptive coping.

The survey is part of wider research at ANU on the effects of the 2019–20 fires on mental and physical health. Our research team has previously reported on the physical effects of smoke, including the effects on respiratory and cardiac function.[7] In this report, we describe the psychological distress outcomes of people affected by the 2019–20 bushfires up to 12–18 months afterwards, and highlight the attributes of psychological resilience that respondents described to support their overall wellbeing.

Filling knowledge gaps: Why we conducted the research

This section describes why we conducted the research, and the evidence gaps our data address. To understand people's experience of the bushfires and their impact on health and wellbeing, we asked about respondents' mental health, social connectedness, financial stability, wellbeing and resilience.

The 2019–20 bushfires were exceptional due to their scale and intensity across almost all Australian states and territories simultaneously. Subsequently, state and territory leaders, the Australian Government, Primary Health Networks (PHNs) and non-government organisations (NGOs) responded through mass recovery operations and increases to support services, including funding for improved access to mental health services.

Australia's *National Disaster Risk Reduction Framework*, for instance, supports investment in resilience initiatives across all levels of government.[8] Due to the scale of the 2019–20 bushfires, it is important to understand how an individual's experience of bushfire relates to their mental health and wellbeing, especially seeing as best practice is locally targeted recovery.[9] Further, given the emphasis by government and NGOs for communities to 'build back better,'[10] there is a need to understand the characteristics of resilience expressed by different people. Resilience is not the same as the absence of psychological distress – the two co-occur.

Mental health and bushfire

Research establishes that individuals affected by bushfire and other disasters are at increased risk of ongoing mental health challenges, including psychological distress, PTSD, depression and anxiety.[5,11,12] However, negative mental health outcomes after disaster are not inevitable. Around two-thirds of people affected by disaster show psychological resilience and return to pre-disaster levels of wellbeing and functioning, or even report personal growth from their experience.[13, 14,15,16]

In January 2020, the Australian Government announced $76 million for distress counselling and mental health services to support bushfire recovery. Financial announcements such as this are welcome. However, understanding the circumstances that detract from or promote psychological wellbeing and resilience have important implications for managing mental health service provision following a disaster, including for clinical support, trauma-informed care, and resilience-building.

Reports following the 2019–20 bushfires highlight capacity issues and challenges in the delivery of mental health services. Mental health services need to be readily accessible to people living rurally;[6] support is poorer in areas without adequate staffing and in places with visiting mental health practitioners.[17]

The bulk of announced funding was allocated to local PHNs and the public health system for immediate counsellinvvg and ongoing support via telehealth, with funding estimated to end in 2022. This report uses data collected 12–18 months after the end of the 2019–20 bushfire season to describe those who remain most and least at risk of psychological distress and to identify the contexts in which people demonstrated psychological strength.

Community and social connection after bushfire

Following a bushfire, changes to the environment and community life can lead to psychological distress and changes to people's social identities.[18,19] When community connectedness and social identities change, people can lose important supports for dealing with disasters, meaning they are at increased risk of disaster-related stressors affecting their mental health.[20] Further, international research suggests disasters can facilitate shared identity with survivors, making psychological growth likely.[21,22]

Enhanced wellbeing should be encompassed in the support provided by local government and NGOs responding to disasters, contributing to reducing psychological harm and enhancing psychological resilience. Indeed, responses to bushfires can highlight a community's strengths and their unique characteristics, which can be mobilised as part of the disaster recovery.[23] Hence, social connectedness is an important factor for facilitating psychological resilience,[24] as it provides a protective 'buffering' from the effects of disaster through people regrouping and processing what happened.[25]

There is a critical need, therefore, for effective, scalable, community-informed interventions for promoting psychological wellbeing before, during and after bushfires. Examples include preparedness initiatives and targeted health promotion in consultation with communities. Effective locally targeted recovery requires ongoing community consultation. This report outlines the factors that enhance social identities and group ties, which are essential to understanding the utility of community after bushfire.

Financial and livelihood stability in the aftermath of bushfires

Many people rely on the land for their livelihoods, so bushfires can harm financial stability and employment. As well as destroying critical infrastructure, homes, businesses and community hubs, bushfires can damage livestock, food production and agricultural equipment. When examining ways of alleviating or preventing psychological distress after bushfires, it is important to consider the impacts to individual and household finances. The costs associated with rebuilding and the psychological impacts of the loss of employment and access to work can harm people's mental health and overall wellbeing.[26]

One-quarter of the area affected by the 2019–20 bushfires was agricultural or farming land.[3] People in the food production, service and tourism sectors were badly impacted. Many employed in these sectors reported financial and livelihood hardship and claimed government disaster recovery payments. Agriculturalists estimated up to $5 billion in economic damage from the bushfires. [3] The tourism industry reported $4.5 billion in losses in 2020 following bushfires and COVID-19.[27] The pandemic compounded financial distress in these two sectors, especially for casual and seasonal staff.

Australians and the international community raised $640 million to support survivors of bushfire,[28] with 53% of donations going directly to a bushfire appeal.[29] Australian, state, and territory governments promised funding and resources for community and infrastructure recovery, pledging to combat the extensive and widespread impacts to land, livelihoods, the environment and health.[30] Financial support is important for mental health recovery in regional and remote areas, as seen through the work of rural financial counsellors, primary producer advocacy networks and local council recovery staff. This report includes consideration of the impact of financial stress to understand people's bushfire experiences and their recovery journey.

Bushfire and the impact of COVID-19

The COVID-19 pandemic immediately followed the 2019–20 bushfires, with many communities unable to participate in regular social networks, planned activities, and events due to lockdown restrictions or concerns over local outbreaks. The pandemic represented an additional strain on the resources required to recover. The pandemic affected people's income, employment, everyday behaviour, and mental health, in ways influenced by personal circumstances and location. The effects of the pandemic on community mental health and resilience-building remain a pressing concern. Furthermore, the effects of bushfires on community mental health have been compounded by lockdown measures and disruptions to supply chains for regional and remote towns seeking to rebuild homes and community assets.

This report aims to disentangle the effects of the fires from the effects of the pandemic by comparing the psychological distress and resilience of people who were and were not bushfire affected. For people who were not affected by the bushfires, elevated distress levels are likely attributable to the pandemic. Those who experienced both bushfires and the pandemic showed effects on mental health and wellbeing exceeding those who had experienced only the pandemic. The difference is reasonably attributable to the effects of the bushfires directly and to the compounding effects of a disaster followed by a pandemic.

How we conducted the research

The survey included 3,083 people aged 18 years or older who resided in Australia at the time of the 2019–20 bushfires. The online survey was open between late January and early July 2021, and was available to people across Australia, regardless of how close they lived to bushfires.

The online survey was publicly accessible through the ANU Research School of Psychology website or by paper on request. Respondents were recruited through a paid online sample via Qualtrics Research Services and through targeted advertisements on social media, local news stories and radio. Postal invitations to complete the online survey were sent in equal parts to 8,000 randomly selected households in fire-affected, smoke-affected and non-affected areas of eastern Australia (using the OpenAddresses database; *n*=106, recruitment rate of 1.2%).

Compared to national statistics (3.2%), we recorded a high percentage of total postal and online respondents (10.6%) identifying as Aboriginal (*n*=237), Torres Strait Islander (*n*=60) or both (*n*=29). This likely reflects the high prevalence of Aboriginal and Torres Strait Islanders peoples living near fire prone areas.[31,32] Additionally, 800 respondents (26%) were parents of children under 18. Parent reports on the impact of the bushfires on 1,207 children represent important information about child mental health.

Table 1 shows participants' bushfire affectedness, location, remoteness, occupation, age, income, and education. Relative to census data, respondents were disproportionately older, female, and more educated than the general population over 18.[33] The sample was representative of state and territory residence, except for an overrepresentation from the ACT and an underrepresentation from Queensland.

Partial and inconsistent responses were removed. Variables were created based on respondents' demographic information, bushfire experience, psychological distress and resilience symptoms, and responses to the threat of bushfire (e.g., if they chose to evacuate their property and when they returned).

Table 1. Demographic information of survey respondents. (SD standard deviation; Employment based on Australian and New Zealand Standard Classification of Occupations; remoteness based on ARIA+16)

DEMOGRAPHICS	TOTAL	BUSHFIRE-AFFECTED
GENDER		
Male	33%	38%
Female	66%	61%
Other	1%	1%
AGE		
Mean age	39.1 (SD 17.2)	39.8 (SD 16.1)
Age range	18–99	18–99
STATE		
ACT	8%	8%
NSW	30%	41%
NT	1%	1%
QLD	16%	11%
SA	7%	8%
TAS	3%	3%
VIC	23%	22%
WA	12%	6%
REMOTENESS		
Major cities	59%	49%
Regional	37%	47%
Remote and very remote	4%	4%
HOUSEHOLD INCOME (2019–20)		
<$25,999	17%	17%
$26,000–$41,599	8%	8%
$41,600–$64,999	15%	14%
$65,000–$90,999	17%	21%
$91,000–$155,999	20%	23%
$156,000 or more	10%	9%
Prefer not to say	13%	8%
EDUCATION		
High school or less	32%	27%
Trade, certificate or diploma	20%	20%
Some university	12%	14%
Tertiary	35%	38%
Other	1%	1%
RELATIONSHIP		
Single	32%	27%
Partnered or de facto	27%	27%
Married	35%	40%
Separated	2.5%	2%
Widowed	2.5%	3%
Other	1%	1%
PARENT		
Yes	63%	39%
No	37%	28%
INDIGENOUS		
Aboriginal	9.5%	13%
Torres Strait Islander	2.5%	4%
Both	1%	2%
No	87%	81%

Research findings

Who was bushfire impacted?

Residential postcode is a common method for determining disaster affectedness in Australia. About 20% of survey respondents lived in a postcode deemed by the Australian Government to be bushfire impacted. In this report, we develop an alternative framework for classifying respondents' bushfire affectedness and exposure severity based on respondents' range of experiences during the 2019–20 bushfire season.

Using ATO bushfire impacted postcodes: Respondents' postcodes during the bushfires were initially used to determine residence in a bushfire impacted area, per the Australian Taxation Office (ATO) sanctioned list of bushfire impacted postcodes.[34] The ATO identified nearly 500 postal code areas as being impacted by bushfire. This includes areas of the NSW Mid North Coast, Blue Mountains, Shoalhaven, Eurobodalla, Bega Valley and Snowy Valleys regions, the Alpine and East Gippsland regions of Victoria, Kangaroo Island and the Adelaide Hills in South Australia, and Far North Queensland communities.

Expanding this approach: To understand the nuances of people's experiences, we then classified people as either directly affected or non-affected. Respondents were categorised as directly affected if they resided in an ATO bushfire impacted area or indicated they fought fires. We categorised respondents as non-affected if they lived outside the ATO postcodes and did not fight fires. Within this category, we identified a subset of people who were indirectly affected to capture the experience of people who lived outside impacted postcodes, stated they did not fight the fires, but who lost income due to bushfires. Throughout this report, data is presented using the classifications of 'directly affected' and 'non-affected'.

Why this is necessary: Our research shows that definitions of 'directly affected' and 'non-affected' are broader than place of residence. They also include place of work, education, community, and connection to the environment, all of which contribute to people's psychological identity, behaviours and wellbeing. For this reason, the impacts of bushfire on mental health are not determined by locality alone. Nuanced understandings of bushfire experience can improve knowledge about disaster exposure and recovery.

> **Recommendation:** Government should implement a broader and more inclusive definition and criteria for categorising communities as bushfire affected to better target resources and support.

With the intensity and frequency of bushfire in Australia increasing,[35] and as Australia becomes more interconnected and state and federal policies drive increased resource sharing, people's experiences of disasters, such as bushfires and their impacts, are likely to become more widespread. This makes it necessary to understand diverse bushfire experiences and their bearing on mental health and wellbeing.

Severity of bushfire exposure: 569 respondents lived in 170 of the ATO postcodes. ATO postcodes capture most people who were adversely affected by bushfires. However, we developed a means of determining people's affectedness to understand bushfire exposure based on lived experiences, thereby increasing the number of respondents deemed directly affected. We grouped people who were directly affected as having high, medium or low severity of bushfire exposure (Table 2). These groupings are in line with previous research on bushfire exposure severity in Australia.[5] Our framework expands upon this research to also include those people who were indirectly affected (Figure 1). Throughout this report, data is presented using the subcategories of high, medium or low bushfire severity exposure.

> **Recommendation:** Postcode of residence should only be indicative of the likely areas where support and resources are needed, and then combined with information from LGAs and NGOs.

> **Recommendation:** Government and emergency agencies should work with communities, LGAs, NGOs and mental health practitioners to assess bushfire affectedness based on local conditions.

Table 2. Bushfire impact categories and descriptions

AFFECTEDNESS	DESCRIPTION	
Directly affected	High exposure	Displacement, injury/illness, life threatened, death of a loved one, and/or loss of house
	Medium exposure	Evacuation, injury/illness among loved ones, loss of pets and/or livestock, and/or lost income
	Low exposure	High fire alert level, loss of community buildings, and/or participated in formal bushfire response
Non-affected	Non- affected	Lived outside the ATO bushfire-impacted postcode list, was not personally involved in fire response
	Indirectly affected	Lived outside the ATO bushfire-impacted postcode and lost income due to fires but did not state being directly affected

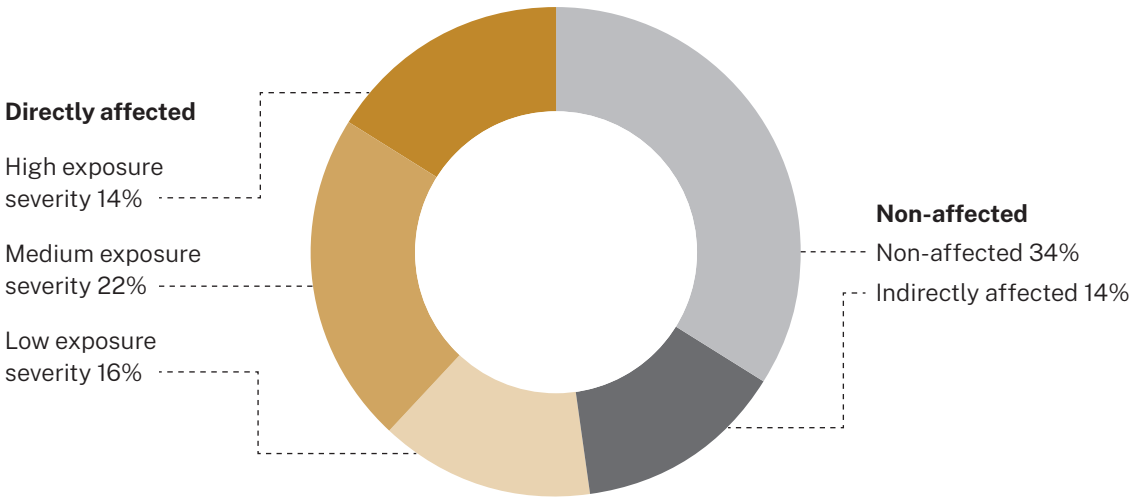

Figure 1. Percentage of respondents by bushfire affectedness and exposure severity

Mental health

This section reports on prevalence rates of mental health outcomes for people surveyed. There were high levels of psychological distress, including symptoms of a) perceived stress, b) anxiety and c) depression, among the non-affected (indirectly and non-affected) and directly affected categories (Figure 2). High levels of psychological distress were consistent with national data[36] and may reflect the cumulative effects of the pandemic and enforced lockdowns on population mental health.

Within the directly affected category, increased bushfire exposure was associated with greater symptoms of (a) stress, (b) anxiety, (c) depression, and (d) PTSD (Figure 3). People indirectly affected, who attributed income loss to the fires, reported higher symptoms of stress than people who were directly affected by fires, and greater anxiety and depression than the medium and low severity exposure groups.

The cut-off lines in Figure 3 show that respondents' mean scores in the directly affected category (high and medium severity exposure groups) and the indirectly affected category met the clinical cut-off for a probable generalised anxiety disorder diagnosis (i.e., total score of ≥8). They also met or encroached on the cut-off for a probable major depression disorder diagnosis (i.e., total score of ≥10). By comparison, the national means for anxiety is 13% and depression is 10%.[37]

The high bushfire exposure group reported the highest scores for PTSD symptoms: 37% of respondents reported scores above the cut-off for a probable PTSD diagnosis (≥19). The incidence of probable PTSD in this study was substantially higher than the 6.45% typically reported in the general population.[37]

Reported rates of psychological distress show the need for ongoing mental health provision and support. This is especially critical for people in regional and remote areas with limited mental health services, which could pose an additional barrier to people easily accessing the support they require.

Recommendation: Provide timely and adequate funding and resources for continuity in mental health provision and support, especially for communities without permanent services and/or staff.

Recommendation: Prevent barriers to accessing services by ensuring that mental health support reflects local needs, especially when support staff visit affected areas to provide assistance.

Recommendation: Improve mental health support through the ongoing monitoring of people's needs after disaster:

- In the short-term, support should be offered with greater consistency—people seek support at different times and for different reasons.
- In the longer-term, mental health and wellbeing support needs to be offered to communities at regular stages (e.g., six, 12 and 18 months following) to ensure continuity of care and to prevent people from feeling abandoned during their recovery. This is especially important for communities without permanent mental health services and/or staff.

Recommendation: Continue monitoring mental health outcomes of bushfire-affected communities and identifying signs of recovery and positive psychological pathways post bushfire.

- Fund targeted research or use national survey tools, such as the Australian Bureau of Statistics (ABS) Intergenerational Health and Mental Health Study (IHMHS).

Recommendation: Government, PHNs, LGAs and NGOs develop mental health and preparedness packages in consultation with communities in areas of high bushfire risk. Priority should be given to developing and funding locally oriented and locally led measures for enhancing resilience.

- This is a practical step towards improving immediate and longer-term mental health support and removing barriers to accessing services by ensuring that support reflects local needs, especially when support staff visit bushfire-affected areas to provide assistance.

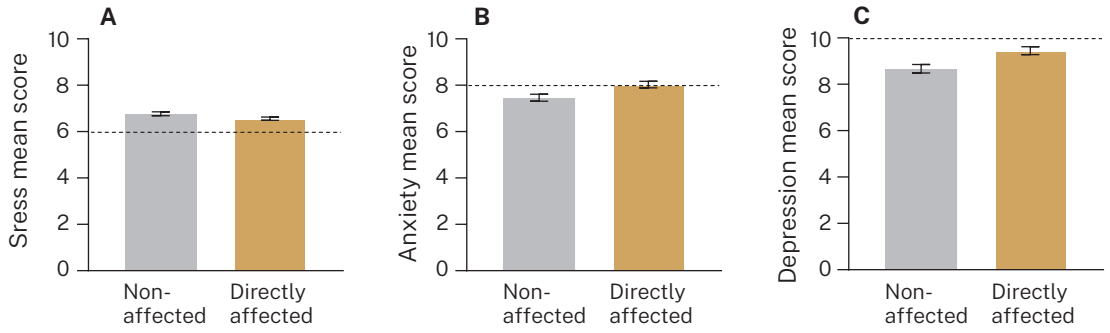

Figure 2. (a) Stress, (b) anxiety and (c) depression mean scores for non-affected and directly affected (dotted lines indicate clinical cut-offs). Standard error bars indicate variability in respondents' answers. Stress measured by 4-item Perceived Stress Scale (PSS-4, score range=0-16), non-affected mean score: 6.77, SE: 0.08, directly affected mean score: 6.56, SE: 0.07. Anxiety measured by 7-item General Anxiety Disorder scale (GAD-7, score range=0-21), non-affected mean: 7.46, SE: 0.14, directly affected mean: 8.03, SE: 0.14. Depression measured by 9-item Patient Health Questionnaire (PHQ-9, score range=0-27), non-affected mean: 8.67, SE: 0.18, directly affected mean: 9.45, SE: 0.17.

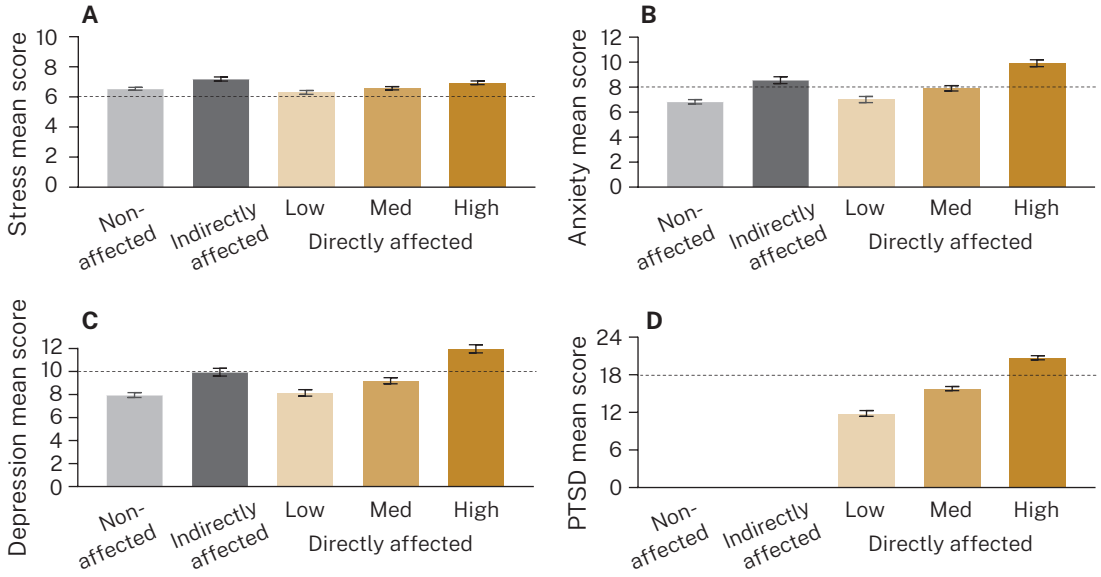

Figure 3. (a) Stress, (b) anxiety, (c) depression and (d) PTSD mean scores for each exposure group (dotted lines indicate clinical cut-offs). Standard error bars indicate variability in respondents' answers. The highest levels of stress, anxiety and depression occurred in the high severity of bushfire exposure category: stress mean score=6.94, SE=0.11; anxiety mean score=9.92, SE=0.27; and depression mean score=11.97, SE=0.34. PTSD was measured using the 8-item PTSD Index (PTSD1-8, score range 0-40). Highest mean PTSD scores occurred in the high exposure group: PTSD mean score=20.72, SE=0.32. The non-affected and indirectly affected groups were not asked about PTSD.

Financial instability

Financial instability caused by income loss following a disaster can affect mental health and wellbeing. On our measure of financial insecurity 12–18 months post-bushfire (Figure 4), almost 50% of people directly affected reported scores higher than the scale midpoint (2.5) on questions such as "How much do you feel threatened" financially. Previous studies on financial threats suggest that the higher a respondent's score, the more likely it is they are experiencing a deteriorated economic situation, express personality traits correlated with worry and concern, and report higher rates of psychological distress.[38]

Scores reported by the indirectly affected group were greater than the low severity exposure group. This may be because people directly affected by bushfires had greater eligibility for financial support, potentially increasing their perceived financial security. Further research is required, however.

Results highlight the importance of expanding the definitions used to determine bushfire affectedness beyond postcode of residence. Our more expansive definition of bushfire affectedness, which reveals a greater severity of bushfire exposure overall, highlights the perceived financial insecurity of people whose indirect bushfire experience and its financial impacts has commonly been overlooked.

> **Recommendation:** The high rates of psychological distress show a need to provide ongoing and appropriately designed and targeted mental health supports, recognising higher levels of mental health symptoms and experiences of distress after bushfires, including for people indirectly affected but financially impacted.

> **Recommendation:** People not directly affected by fire but impacted financially should be considered as a discrete exposure category, and appropriate measures introduced to understand and respond to their needs.

Social connectedness and loneliness

Loneliness refers to the experience of being surrounded by too few people or not having social access to the people we wish to be connected with. We explored respondents' feelings of loneliness by asking how often they lacked companionship, felt left out, or felt isolated after the bushfires (Figure 5). People who were directly affected (high to low exposure) reported scores on or at the same level as people in the non-affected category, with people in the indirectly affected category reporting the highest loneliness scores. Across each category, however, respondents reported scores below the clinical cut-off for loneliness (6.0).

Social connection is important for maintaining strong social networks. The quantity and quality of a person's social networks can play an important role in protecting against the negative effects of changes encountered in life,[39] including by disaster. We asked respondents about the degree to which their social group memberships and group participation changed following bushfire (Figure 6).

Among directly affected respondents, the more social group memberships people had prior to bushfire, the more they were able to maintain these groups, build new ones, and felt a strong sense of identification with their local community after the fires. Notably, while scores in the high bushfire exposure group remained fairly constant before and after the fires, the low and medium severity exposure group scores point to an increase in group membership and participation 12–18 months post-bushfires.

New and existing group memberships and patterns of participation were likely formed and maintained by necessity, especially for those who were forced to relocate or lacked access to the resources and facilities they required for recovery. Importantly, strong groups are only possible where communities support one another and advocate for their needs, creating a platform from which it is possible to recover. Social group connections, therefore, are found to be uniquely protective of mental health and wellbeing.

> **Recommendation:** Recognise that the challenges associated with bushfires remain for many years after their occurrence, and that longer-term monitoring of mental health and wellbeing outcomes needs to be implemented:
>
> - Monitor the ongoing impact of the bushfires, especially on people's mental health, using the IHMHS or similar surveys. This is particularly important given the projected increase in severity and intensity of Australia's bushfires due to human-induced climate change.
> - Evaluate current and future mental health needs, resources, and support services required to address ongoing mental health challenges in bushfire-affected communities.

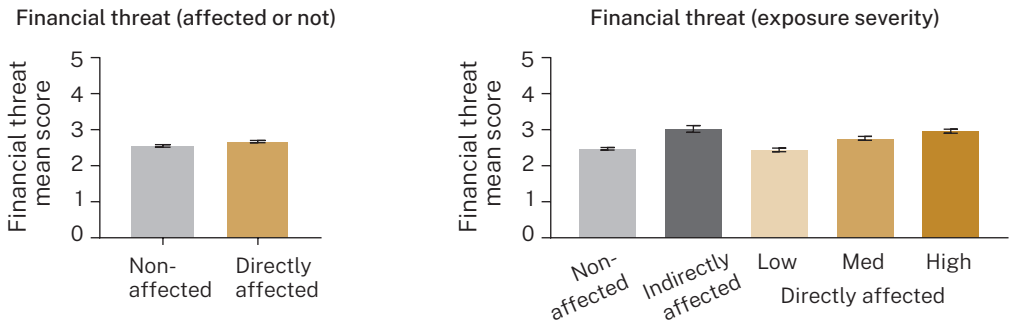

Figure 4. Mean financial threat scores by affectedness and severity exposure categories. Standard error bars indicate the variability in respondents' answers. Financial insecurity was measured by the 5-item Financial Threat Scale (FTS-5). Directly affected group mean=2.67, SE=0.03; high group mean=2.96, SE=0.06.

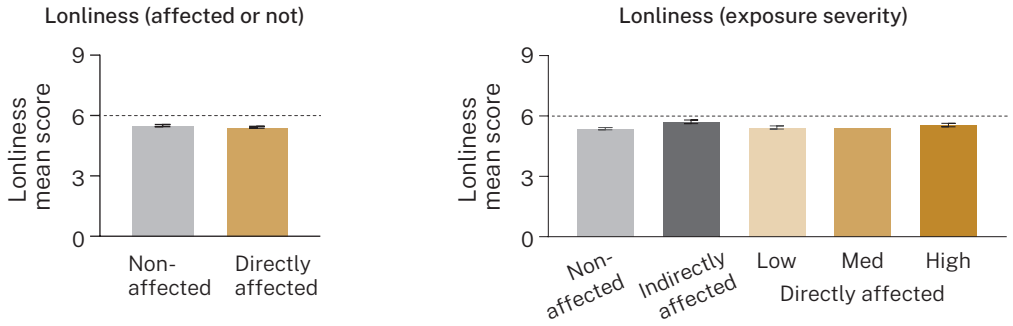

Figure 5. Mean loneliness scores by affectedness and severity exposure group (clinical cut-off score indicated by the dotted line). Standard error bars indicate the variability in respondents' answers. Loneliness was measured using the 3-item UCLA scale (UCLA-3). Directly affected group mean=5.42, SE: 0.04; high exposure group mean=5.55, SE=0.84.

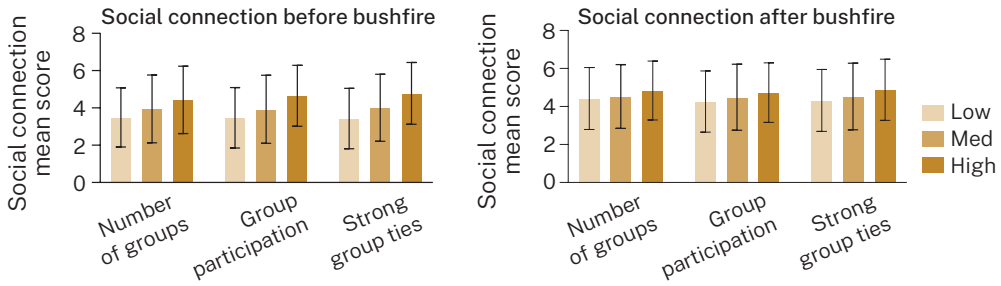

Figure 6. Mean scores before and after bushfire of social group connection and group membership by severity exposure group. Standard error bars indicate the variability in respondents' answers. Social group membership was measured using an altered version (3-item) of the Exeter Identity Transitions Scales (EXITS). Before bushfire high severity of exposure group mean for number of groups=4.43, SE=1.81, group participation=4.65, SE=1.63, and strong group ties=4.78, SE=1.66; after bushfire high severity of exposure group mean for quantity of groups=4.84, SE=1.55, group participation=4.73, SE=1.56, and strong group ties=4.88, SE=1.61. The non-affected and indirectly affected groups were not asked this question. Response options ranged from 1 ("strongly disagree") to 7 ("strongly agree") for questions such as "I belong to lots of different groups" or I joined in the activities of lots of groups" before or after.

Resilient coping, psychological wellbeing and posttraumatic growth

Moving from measures indicative of psychological distress to measures of psychological resilience, we considered factors predicting (a) resilient coping, (b) wellbeing and (c) posttraumatic growth (PTG) (Figure 7).

Resilient coping

The mental health literature often regards resilience as the absence of psychological distress after a disruptive event.[13] Our data shows resilience is not simply the opposite of poor mental health – and a lack of psychological distress does not equate to thriving.[40,41] Almost 80% of our respondents reported medium resilient coping scores (between 14–16), with as many people in the high severity exposure group scoring above medium coping scores as those in the non-affected category. Strategies described by the directly affected group (high to low exposure) included creative and positive approaches to absorb the shocks from bushfire, a growth mindset, and awareness of the ability to control emotional responses.

Posttraumatic growth

PTG refers to the ways people adjust and develop additional strengths following disaster. This occurs through a capacity to 're-evaluate their lives and develop new competencies, for multiple reasons, including that they managed to survive.'[42] Our data showed that of the people directly affected by bushfire, the high exposure group received the highest PTG scores. While this group reported higher rates of psychological distress, including stress, anxiety, and depression, than other groups, they reported higher levels of psychological growth. In turn, despite the challenges many faced post-bushfires, the high exposure group reported experiences of growth and transformation as part of their recovery journey.

Psychological wellbeing

In addition to coping mechanisms and experiences of growth, we also inquired about respondents' wellbeing by asking questions about positively framed wellbeing symptoms in the past two weeks, using the 5-item WHO Wellbeing Index (WHO-5). Mean wellbeing scores across all directly affected and non-affected categories were above the midpoint, which indicates the cut-off for increased risk of mortality. Notably, women indirectly affected by bushfire scored just below the cut-off for increased risk of mortality. In each severity category, men reported higher scores, suggesting gender is a factor in psychological wellbeing. Many people surveyed reported good psychological wellbeing 12–18 months after the bushfire season ended, though more research is needed to understand respondents' experiences.

Distress about the environment

Given widespread destruction of the natural environment during the 2019–20 bushfires, with 17 million hectares of land burned across six Australian states and territories and 3 billion animals killed or displaced, our survey explored the relationship between a person's connection to the environment and their mental health.

Internationally, there are reports in the literature of people and their communities feeling distress because of environmental change, known as solastalgia. This term encapsulates feelings of 'melancholia' as well as the lack of 'solace' a person feels due to the change in their home landscape.[19] Respondents' mean scores show that environmental distress corresponded with bushfire severity exposure (Figure 8).

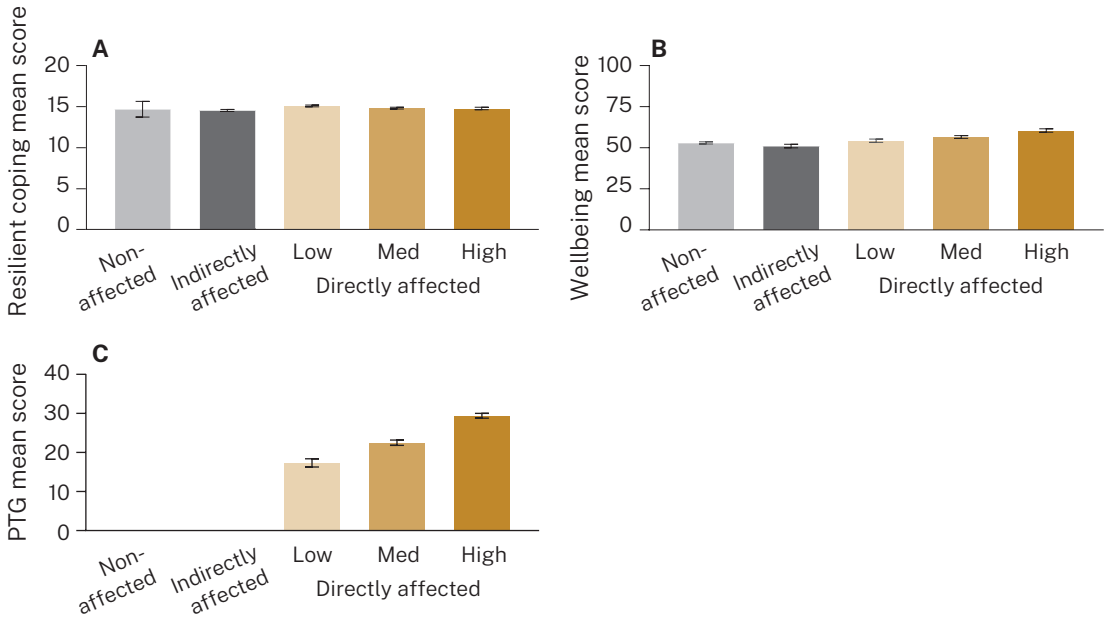

Figure 7. Mean scores of (a) resilient coping, (b) wellbeing and (c) posttraumatic growth by severity exposure. Standard error bars indicate the variability in respondents' answers. Resilient coping measured by the 4-item Brief Resilience Coping Scale (BRCS-4), psychological wellbeing measured by the 5-item WHO Wellbeing Index (WHO-5), and posttraumatic growth measured by the 10-item Posttraumatic Growth Inventory (PTGI-10, not asked of the non-affected group). Resilient coping high group mean=14.76, SE=0.15; Psychological wellbeing high group mean=60.49, SE=1.05; Posttraumatic growth high group mean=29.40, SE=0.61.

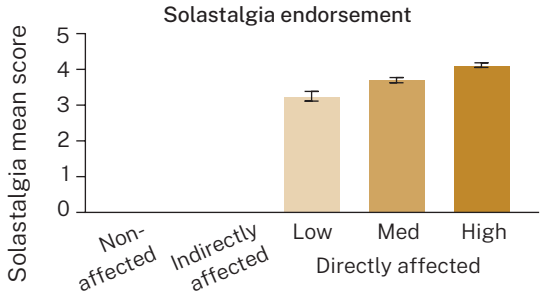

Figure 8. Mean solastalgia scores by severity exposure category. Standard error bars indicate the variability in respondents' answers. This measurement uses the 8-item Solastalgia subscale of the Environmental Distress Scale (EDS-8, not asked of the non-affected group). High group mean=4.12, SE=0.07.

The impact on children and families

Young people and their caregivers are often identified as being vulnerable to the effects of disaster.[43,44,45] One reason is that these populations tend to encounter barriers to accessing timely information and resources for managing the onset, severity and aftermath of disasters.[46] Social connection and community cohesiveness can help overcome these challenges, with community embeddedness increasing people's disaster preparedness and decision-making abilities.[43,47]

Children are particularly vulnerable to the effects of disaster because they are reliant on caregivers during response and recovery phases.[48] Child wellbeing is also influenced by parents' mental health.[49,50]

After the 2019–20 Australian bushfires, of the 5.5 million Australians under 18 years of age, two in five were personally affected by the bushfires.[51] This rate is concerning given that young people are at increased risk of mental health issues after disasters, compared with the general population.[24,52]

The 2019–20 bushfires particularly affected regional and remote locations. Many bushfire-affected regions were under-resourced in health, educational and social services prior to the fires, with bushfires adding strain to these essential services. It is important to understand the impacts of bushfire on vulnerable groups, such as parents and dependent children, including levels of distress and wellbeing.

Our data showed that all parents with dependent children under 18 (n=800) had similar rates of (a) stress than respondents without dependents but higher rates of (b) anxiety, (c) depression and (d) PTSD (Figure 9), highlighting increased risk factors for psychological distress that parents face during disaster. This includes distress associated with undertaking caring duties amid home disaster preparation, evacuation, relocation and return; and in some cases, it also includes the challenges experienced with prolonged displacement from one's home and family, school, and community networks.

Importantly, respondents with dependents had higher levels of (a) resilient coping, (b) wellbeing and c) posttraumatic growth than those without (Figure 10), indicating that parenting is a protective factor for promoting psychological wellbeing within parents; this is consistent with international findings.

> **Recommendation:** The mental health needs of parents with dependents during and after disaster need to be acknowledged and understood to provide appropriately targeted mental health support.

> **Recommendation:** Recognise that preparing for disasters, deciding whether or not to remain at home, and the process of returning after home are stressful and can exacerbate mental health symptoms.

> **Recommendation:** Provide appropriate mental health support to people with dependents, especially given that children's wellbeing can be influenced by their parents' mental health.

> **Recommendation:** Provide timely information and resources for responding to disaster as this helps to equip people with dependents with positive emotional coping and response behaviours.

As well as asking about bushfire experience and mental health, we asked parents about their children's (n=1,207) emotions and behaviours. Directly affected parents perceived their children as having more behavioural and emotional challenges, compared to non-bushfire-affected parents (Figure 11).

> **Recommendation:** Children's mental health should be a priority during and after bushfires to ensure their unique needs are met.

> **Recommendation:** Provide appropriate funding and resources for child mental health practitioners to support young people's needs, ensuring continuity in care and support.

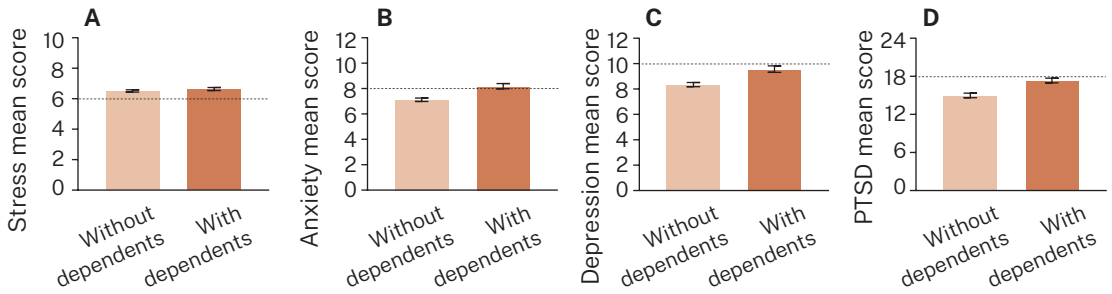

Figure 9. Psychological distress mean scores by parent category (stress, anxiety, depression and posttraumatic stress, cut-off scores indicated by dotted line). Standard error bars indicate the variability respondents' answers. Non-parent stress mean score=6.51, SE=0.08, parent mean score=6.64, SE=0.10; non-parent anxiety mean score= 7.12, SE=0.14, parent mean score=8.19, SE=0.20; non-parent depression mean score=8.35, SE=0.17, parent mean score=9.57, SE=0.26; and PTSD non-parent mean score=15.57, SE=0.31, parent mean score=18.07, SE=0.40.

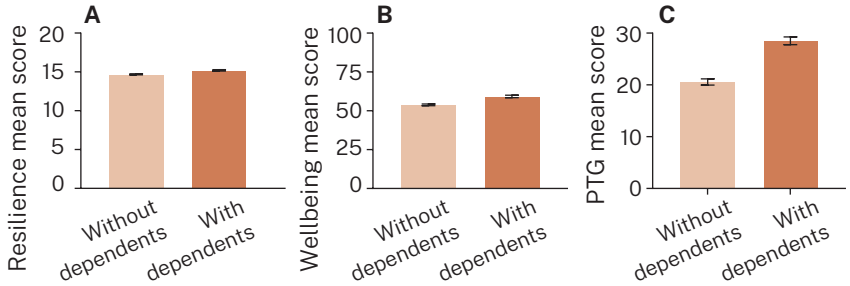

Figure 10. Resilient coping, wellbeing and PTG mean scores by parent category. Standard error bars indicate the variability in respondents' answers. Non-parent resilient coping mean score=14.69, SE=0.06, parent mean score=15.20, SE=0.09; non-parent wellbeing mean score=53.81, SE=0.55, parent mean score=59.24, SE=0.81; and non-parent PTG mean score=20.56, SE=0.60, parent mean score=28.51, SE=0.76.

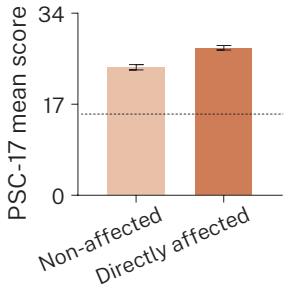

Figure 11. Mean scores reported by parents for children's emotions and behaviours (aged 3-17), measured using the Paediatric Symptom Checklist (PSC-17, cut-off scores indicated by dotted line). Standard error bars indicate the variability in the data based on each respondent group's answers. Non-affected parent-reported mean score=24.00, SE=0.44, directly affected parent-report mean score=28.14, SE=0.36. Clinical cut-offs indicated by the dotted line.

The impact on Indigenous Australians

Aboriginal and Torres Strait Islander peoples comprise 3.2% of Australia's population[53] but make up 5.4% of the 1.55 million people living in bushfire affected areas of NSW and Victoria.[33] Within these two states, a quarter of Aboriginal and Torres Strait Islander peoples live in areas prone to bushfire,[33] underscoring the need to focus on their mental health outcomes after disaster.

Aboriginal and Torres Strait Islander peoples have deep and continuing connections to fire, land and water, reflected in caring for Country. Bhiamie Williamson, a Euahlayi man from north-west NSW and south-west Queensland, highlighted the depth of Indigenous knowledges in an article in *The Conversation*:

Indigenous peoples have been leading Australia's response to the climate crisis, such as by harbouring deep-time knowledge of the land and water, and managing the land through cultural burning. Yet climate change continues to erode [Indigenous peoples'] cultural heritage and threatens ongoing connection to Country.[54]

12–18 months after the 2019–20 bushfires, our data (Figure 12) showed high levels of (a) depression and (b) anxiety among Indigenous respondents, compared to non-Indigenous Australians. Notably, (C) stress was lower among Aboriginal and Torres Strait Islander peoples than the remaining survey sample, which requires further analysis to understand why this is the case. Mean scores for (d) PTSD were higher among Aboriginal and Torres Strait Islander respondents. Where the mental health outcomes of these groups differ even more, though, is with regards to gender, with Indigenous women reporting higher psychological distress than Indigenous men and non-Indigenous respondents, except for symptoms of PTSD. Ongoing research is needed to understand the effects these differences have on mental health.

Aboriginal and Torres Strait Islander peoples are uniquely affected by natural disasters due to ongoing impacts of colonisation and direct engagement with the environment through connection to Country. Communities and individuals have reported poor and sometimes traumatising experiences with the support provided during the bushfires, exposing demographic 'fault lines'.[55] The additional historical risks experienced by Aboriginal and Torres Strait Islander peoples have led to 'a distinct Aboriginal experience within the larger bushfire catastrophe – a disaster within a disaster.'[55] Stigma, racism and ostracisms towards minority groups can affect their uptake of planning, preparedness and recovery initiatives,[48] showing that, for many communities, response and recovery journeys are rarely equal.

Aboriginal and Torres Strait Islander peoples' rates of bushfire exposure, the propensity for vulnerability to the extremes of disaster, and issues around disaster preparedness and response mean culturally competent research needs to be conducted. It is important that Indigenous peoples' experience of natural hazards (especially as they continue to increase) and their coping styles are examined. Aboriginal and Torres Strait Islander peoples and organisations assisted with evacuating communities, providing needed information, and strategising to protect communities' cultural and heritage values.[55] This shows how group ties and membership become mobilised in times of disaster to mount community-driven responses.

Aboriginal and Torres Strait Islander peoples reported higher scores for resilient coping, PTG and wellbeing than non-Indigenous respondents, highlighting the degree to which Aboriginal and Torres Strait Islander peoples use strategies to manage their psychological wellbeing (Figure 13).

Recommendation: Aboriginal and Torres Strait Islander peoples' mental health and wellbeing needs to be better supported given historic marginalisation and their proximity to bushfire-prone areas.

- Directly involve Aboriginal Community Controlled Health Services and people who identify as Aboriginal and Torres Strait Islander in decisions about mental health promotion and delivery.
- Focus on trauma-sensitive and culturally appropriate methods known to work well in health promotion and delivery for supporting psychological wellbeing and resilience.
- Ensure equity in mental health promotion and delivery for women in particular, given high levels of mental health symptoms among this group. This could be achieved by recognising and minimising barriers to accessing supports and providing accessible, flexible and culturally appropriate services.
- Use culturally safe and respectful communication to boost awareness of health and wellbeing challenges related and response strategies before, during and after bushfires.

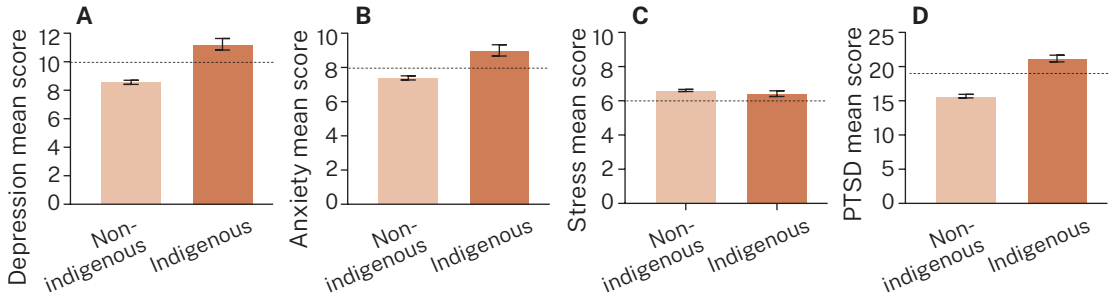

Figure 12. Psychological distress mean scores by Indigenous identification (depression, anxiety, stress and PTSD, clinical cut-offs indicated by the dotted line). Standard error bars indicate the variability in respondent's answers. Non-Indigenous mean depression score=8.56, SE=0.15, Indigenous mean depression score=11.23, SE=0.41; non-Indigenous mean anxiety score=7.39, SE=0.12, Indigenous mean anxiety score=9.00, SE=0.33; non-Indigenous mean stress score=6.61, SE=0.06, Indigenous mean stress score=6.42, SE=0.17; non-Indigenous mean PTSD score=15.68, SE=0.26, Indigenous mean PTSD score=21.19, SE=0.48.

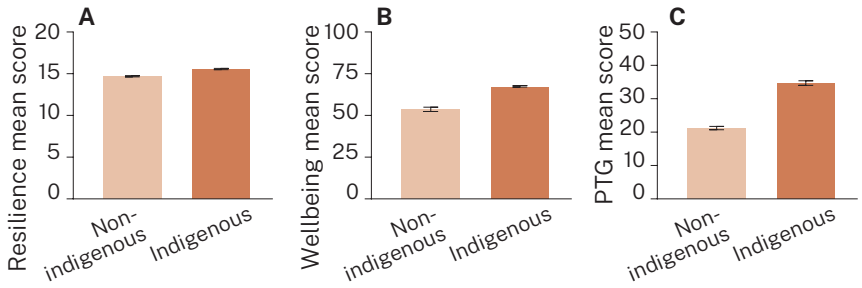

Figure 13. Indigenous identified mean scores for resilient coping, wellbeing and PTG. Standard error bars indicate the variability in the data based on each respondent group's answers. Non-Indigenous resilient coping mean score=14.70, SE=0.08, Indigenous mean score=15.57, SE=0.07; non-Indigenous wellbeing mean score=53.67, SE=1.30, Indigenous mean score=67.53, SE=0.0.46; non-Indigenous PTG mean score=21.23, SE=0.50, Indigenous mean score=34.72, SE=0.69.

Conclusion

Data from The Australian National Bushfire Health and Wellbeing Survey, conducted 18 to 24 months after the 2019–20 bushfires, support international findings that people affected by disaster are at increased risk of ongoing mental health challenges. This report details the elevated mental health symptoms experienced across people who were directly affected, indirectly affected, or non-affected by bushfire, as well as strong indicators of resilience, growth and wellbeing.

The effects of disasters are long-lasting and, in our sample, continue to be pronounced 18 to 24 months after bushfire. This highlights the need for greater and more effective support for communities, encompassing support from government, local primary health networks, NGOs, local council and community. Results from our survey suggest the importance of maintaining social networks and community ties for enhancing coping strategies and promoting psychological wellbeing after bushfire.

Our results imply a vitally important role for government (at all levels) and policymakers to improve the capacities of the health system to deliver much needed mental health support. It is important to build preventative strategies that enhance resilience and coping among individuals, families and whole community groups, particularly those who are more vulnerable and most impacted by bushfire.

Given more respondents were identified as 'bushfire affected' using our framework designed to understand bushfire severity, this report highlights the need to go beyond using postcodes when examining mental health effects after disaster. This can ensure adequate supports are directed to those most at risk and assist policymakers and health practitioners to represent the experiences of people who are affected by bushfire and other disasters. A more inclusive definition of bushfire affectedness based on data reported here can better describe the experience of different groups of people exposed to fire, the coping strategies they draw upon afterward, and their ongoing needs for mental health support.

Key findings

- High rates of depression, anxiety and stress were recorded across the whole sample, with severity of bushfire exposure associated with a greater severity of distress, particularly among women, parents, Aboriginal and Torres Strait Islander peoples, and those affected financially.
- For people directly affected by bushfire, the rates of men who experienced PTSD symptoms were double the national population rates. For both men and women in the high severity exposure category, one in five people reported symptoms that met the clinical cut-off for PTSD.
- Parents of children under 18 years who were impacted by the bushfires reported their children as having more behavioural and emotional challenges than was the case for children in communities not impacted by bushfire.
- Psychological distress among Aboriginal and Torres Strait Islander peoples were especially high among women impacted by bushfire, compared to Indigenous men and non-Indigenous people.
- Markers of psychological resilience across the whole sample included endorsement of resilient coping, personal growth and psychological wellbeing. Notably, those who reported higher levels of wellbeing and growth were bushfire affected, Indigenous, and parent respondents.

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