Living well in the ACT region: exploring the wellbeing of ACT residents in 2019-20

Part 1: Wellbeing indicators

December 2020

Jacki Schirmer[1,2]

[1]Health Research Institute, Faculty of Health
[2]Centre for Change Governance, Institute for Governance and Policy Analysis
University of Canberra

UNIVERSITY OF CANBERRA

Contents

Acknowledgments 5
Executive Summary 6
1.0 Introduction 1
1.1 The *Living Well in the ACT region* survey 2
1.2 What is a 'wellbeing indicator' and 'measure'? 3
1.3 Wellbeing in challenging times 3
1.4 Report structure 5
2.0 Methods 6
2.1 Living well survey – brief description of methods 6
2.2 Key considerations for producing wellbeing indicators from survey data 7
2.3 Methods used to produce indicators for this report 9
3.0 Wellbeing indicators & types of data examined 12
4.0 Personal wellbeing 16
4.1 Indicator context and purpose 16
4.2 Description of measure – Personal Wellbeing index 17
4.3 Key findings – ACT adults 17
4.4 Key findings – population groups 20
4.5 Recommendations and conclusions 21
5.0 Access and connectivity domain 24
5.1 Liveable city 24
5.2 Transport 25
6.0 Economy domain 28
6.1 Business conditions and economic diversity 28
7.0 Education and lifelong learning domain 31
7.1 Learning for life 31
8.0 Environment and climate domain 33
8.1 Connection to nature 33
8.2 Climate resilient environment and community 36
9.0 Governance and institutions domain 40
9.1 Trust in other institutions 40
9.2 Feeling that voice and perspective matter 41
9.3 Human rights 43
10.0 Health domain 45
10.1 Overall health 45
10.2 Mental health 47
10.3 Access to health services 50

10.4 Healthy lifestyle 52
11.0 Housing and home domain 55
11.1 Housing suitability 55
12.0 Identity and belonging domain 58
12.1 Sense of belonging and inclusion 58
12.2 Support for multiculturalism 61
12.3 Connection to Canberra 63
12.4 Valuing Aboriginal and Torres Strait Islander cultures and recognising our Traditional Custodians 64
13.0 Living standards domain 69
13.1 Cost of living 69
13.2 Financial position 70
14.0 Safety 72
14.1 Feeling safe 72
14.2 Community resilience to emergencies 73
15.0 Social connection 77
15.1 Sense of social connection 77
15.2 Levels of loneliness 79
15.3 Levels of volunteering 81
15.4 Participation in community events and activities 84
16.0 Time domain 86
16.1 Quality of time 86
16.2 Work-life balance 88
16.3 Time spent travelling within Canberra 90
17.0 Recommendation and conclusions 93
17.1 Wellbeing of the ACT population: what do subjective measures tell us? 93
17.2 Did wellbeing change between Nov/Dec 2019 and Apr/May 2020? 96
17.3 Methods and measures - recommendations 97
17.4 Conclusions 102
8.0 References 102
Appendix 1: Weighting methods & definitions of ACT regions 108
Weighting approach 108
Identifying benchmark characteristics for weighting 108
Method 110
Definition of ACT regions 115
Appendix 2: Cross-membership of groups compared in this report 116

Figures

Figure 1 Personal Wellbeing Index – mean score for ACT adult residents, 2019 and 2020 18

Figure 2 Personal Wellbeing Index – proportion of ACT adult residents with low, typical and high wellbeing, 2019 and 2020 19

Figure 3 Comparison of PWI scores: Regional Wellbeing Survey (2018) and Living well survey (2019, 2020) 20

Figure 4 Personal Wellbeing Index – proportion of ACT adult residents with low wellbeing, 2019 and 2020, by gender and age 21

Figure 5 Liveability of the ACT – proportion of adult residents who disagreed, were neutral/unsure, or agreed that their local area/ACT region was liveable 25

Figure 6 Ability to access transport – ACT residents, Nov/Dec 2019 26

Figure 7 Confidence in business conditions– ACT residents, 2019 and 2020 – comparison of levels of confidence 29

Figure 8 Availability of job opportunities– ACT residents, 2019 – levels of confidence 29

Figure 9 Access to opportunities to increase skills and knowledge – ACT residents, Nov/Dec 2019 32

Figure 10 Access to nature reserves and trails in the ACT region, Nov/Dec 2019 – proportion reporting poor and good access 34

Figure 11 Walking time from residence to nearest park/nature reserve – ACT residents, Nov/Dec 2019 34

Figure 12 Use of local green spaces in a usual week, ACT adults, 2019 and 2020 35

Figure 13 Heatwave resilience – mean scores, 2019 38

Figure 14 Comparing confidence in ability to cope with heatwaves – 2019 and 2020 38

Figure 15 Confidence in effectiveness of ACT community groups and organisations – proportion with low, moderate and high confidence, Nov/Dec 2019 41

Figure 16 Voice and perspective index – average score, Nov/Dec 2019 42

Figure 17 Voice and perspective index – proportion with low, moderate and high confidence in their ability to speak and be listened to, Nov/Dec 2019 43

Figure 18 Views about protection of human rights – average score, Apr/May 2020 44

Figure 19 Proportion of ACT population with low, moderate and high confidence in protection of human rights, Apr/May 2020 45

Figure 20 Self-assessed overall health, 2019 and 2020 47

Figure 21 Psychological distress (Kessler 6 psychological distress scale), 2019 and 2020 49

Figure 22 Self-assessed mental health, 2019 and 2020 49

Figure 23 Access to health services, 2019 51

Figure 24 Hours of sleep in the last month – comparison of 2019 and 2020 53

Figure 25 Self-reported quality of sleep, 2019 and 2020 53

Figure 26 Overcrowding, comparison of 2019 and 2020 56

Figure 27 Housing suitability, 2019 (n=2456) 56

Figure 28 Sense of belonging – 2019 (n=3180) 59

Figure 29 Sense of inclusion – 2019 (n=3,172) 59
Figure 30 Experience of discrimination, 2019 (n=3047) 60
Figure 31 Welcoming city measures – 2019 62
Figure 32 Connection to Canberra – proportion with different views, 2019 and 2020 64
Figure 33 Valuing Aboriginal and Torres Strait Islander cultures – 2019 66
Figure 34 Engaging with Traditional Custodians and Aboriginal and Torres Strait Islander cultures, 2019 66
Figure 35 Awareness of Traditional Custodians of the ACT region, 2019 67
Figure 36 Living costs are affordable here – categories, 2019 and 2020 69
Figure 37 Financial position, 2019 and 2020 71
Figure 38 Perceived safety of local area, proportions – 2019 72
Figure 39 Emergency preparedness, 2019 and 2020 74
Figure 40 Social connection – traditional (staying in touch with family, friends and neighbours) - proportions, 2019 (n=3098) 78
Figure 41 Social connection – phone and online – proportions, 2019 (n=3098) 78
Figure 42 Loneliness index, proportions 2019-2020 80
Figure 43 Participation in volunteering in the last 12 months, 2019 (n=3063) 81
Figure 44 Types of volunteering engaged in by volunteers, 2019 82
Figure 45 Participation in community events and activities, 2019 85
Figure 46 Quality of time use, 2019 and 2020 87
Figure 47 Work-life balance, 2019 and 2020 88
Figure 48 Proportion of people reporting a commute time of 30 minutes or less and more than 30 minutes, 2019 90
Figure 49 Satisfaction with time spent commuting, 2019 (n=1598) 91

Tables

Table 1 Topics included in the Living well survey 6
Table 2 ACT Wellbeing Framework – indicators examined in this report 13
Table 3 Groups of people compared in this report 14
Table 4 Average personal wellbeing of different groups, 2019 and 2020 22
Table 5 Valuing and recognising Traditional Custodians – population groups different to the ACT average 68
Table 6 Emergency preparedness – comparison of groups 75
Table 7 Commute time and satisfaction with time spent commuting 91
Table 8 Comparing wellbeing indicators for different groups 94
Table 9 Summary of recommendations for future use of measures examined in this report 99

Acknowledgments

We thank the many residents of the ACT who participated in the *Living well in the ACT region* survey for their patience and willingness to complete a long survey. We also thank the large range of organisations who provided input into design of the survey instrument. In addition to the authors, this report was contributed to by Dominic Peel, Helena Clayton and Melinda Mylek. Design of the survey was contributed to by several colleagues at the University of Canberra, and we thank them for their input.

This report draws on data from the *Living well in the ACT region* survey. Data collection for this survey was funded with support from the Medical Research Future Fund, and the University of Canberra.

Subsequently, the ACT Government supported the analysis of wellbeing presented in this report, contributing funding to support exploration of the measures of wellbeing presented in this report. The ACT Government also provided access to their wellbeing framework development process, and multiple opportunities to discuss measures and findings. We thank the many ACT Government representatives who provided their time and insights to both design of the questionnaire, and discussion of wellbeing measurement more broadly.

While funding was received from the Medical Research Future Fund, University of Canberra, and the ACT Government, the views and analysis presented in this report are those of the authors. The findings and measures presented in this report were produced by the authors and the findings and interpretations presented in this report do not necessarily reflect the views of the organisations that contributed funding.

Executive Summary

Introduction

This report examines the wellbeing of adults living in the Australian Capital Territory (ACT), using data from the *Living Well in the ACT region* survey (*Living well survey)*. The primary purpose of this report is to proposed and explore possible measures of different wellbeing indicators proposed in the ACT Government *ACT Wellbeing Framework,* which was released in March 2020 (ACT Government 2020). The *Framework* identified 56 indicators of wellbeing to be used to guide future evaluation of wellbeing in the ACT. It did not specify the measures to be used for each indicator – in other words, what data would be used to measure change in each of the indicator. Most wellbeing indicators can be measured in a range of ways, and those in the *ACT Wellbeing Framework* are no exception. For example, one indicator is 'mental health'. There are many available measures of mental health that could be used to measure this indicator.

When developing wellbeing measures, it is useful to explore potential measures and evaluate their utility prior to making decisions about which measures are best to use. In this report, we explore potential measures of wellbeing indicators that can use data from the *Living well* survey. This is possible for some *Framework* indicators and not others, as many wellbeing indicators require data from sources other than surveys such as the *Living well* survey. Thus the measures explored in this report are for only a subset of the indicators in the *Framework,* and represent only a small number of the options for measurement available to the ACT Government for many of these indicators. Many of the *Framework* indicators will be measured using data from sources such as administrative data sets or available data from sources such as the Australian Bureau of Statistics.

This report is intended to support development of appropriate measures for the *Framework*, by exploring whether and what measures can be developed that use data from the *Living well* survey. The measures explored in this report have been proposed by the authors, and will not necessarily be used to measure indicators in the *Framework*, or reflect views of the ACT Government about how to best measure wellbeing. This report is intended to contribute to discussion that forms part of the longer-term development of appropriate measures for indicators that form part of the *Framework.*

The *Living well survey* first collected data during November and December 2019, in the period immediately before significant and widespread bushfires during the summer of 2019-20 resulted in ongoing smoke pollution in the ACT, together with periods in which fires burned areas of land in the ACT, and many rural and suburban areas were at potential risk of being directly impacted by fire. Data collection for the first wave was completed just as smoke pollution began to affect the ACT. In January 2020, a severe hailstorm caused significant damage across multiple Canberra suburbs. This was followed by the impacts of COVID-19 as it emerged in early 2020. A second set of data were collected in April and May 2020. At the time the second survey was conducted, COVID-19 restrictions in place permitted ACT residents to leave their homes for essential purposes only, with many retail shops closed, most school students being home-schooled, and large proportions of the workforce working from home.

The events occurring between the two surveys meant that in addition to their original objective of better understanding social and place-based determinants of health and wellbeing in the ACT, the survey data also provided a means – albeit originally unintended - of examining how key aspects of wellbeing changed as residents experienced bushfire, hailstorm and restrictions related to COVID-19. Many of the measures examined in this report are examined to identify whether wellbeing and quality of life changed between Nov-Dec 2019 and Mar-Apr 2020. This data reflects the short-term changes to wellbeing associated with the challenging events of late 2019 and early 2020, but may not be indicative of longer term trends: existing research suggests that while many people successfully recover their wellbeing after challenging events, not all will. Ongoing monitoring is

needed to identify how wellbeing continues to change as the effects of COVID-19 continue to impact residents of the ACT.

Methods

The *Living well survey* is an omnibus survey that includes questions about multiple aspects of a person's life, and how they experience their life, their household and their community. To ensure adequate coverage of all adults residing in the ACT, five methods were used to recruit participants, designed to complement each other and ensure all adult residents in the ACT had opportunity to participate in the survey. Where possible, probability-based sampling was used. Some non-probability sampling was used to ensure adequate coverage of key 'hard to reach' groups, particularly younger residents: all non-probability sampling techniques were designed to ensure randomness in selection, ensuring a pseudo-probabilistic design that preserves the critical properties required in robust survey samples. The five methods were random selection from a postal database, advertising at random to Facebook users (more than 80% of the adult population in Australia uses Facebook at least once a month, making this a key way of reaching some hard to reach groups), flyers distributed randomly to letterboxes, and more targeted recruitment of younger people via media websites and mailing lists of tertiary education institutions in the ACT.

In Wave 1a (meaning data collected in Nov/Dec 2019), a total sample of 4,240 people participated in the survey. However, not all of these participants completed all survey measures: for many measures, the useable sample is around 3,800 people. As the survey included both residents living in the ACT, and people living in areas of NSW bordering the ACT, not all survey respondents are analysed in this report. In total, 3,175 respondents in Wave 1a were ACT residents who completed most questions on the survey.

In Wave 1b (data collected in Apr/May 2020), just over 1,000 new participants were recruited, while just over 1,000 participants from Wave 1a were re-surveyed, enabling identification of change between Wave 1a and Wave 1b. When only those living in the ACT are examined, there was a total of 1,630 survey participants in Wave 1b who were residents of the ACT, of which 640 were new survey participants and 991 repeat survey participants.

The data collected in Wave 1a and 1b deliberately oversampled some groups, and undersampled others. There was also unintended under- and over-representation of some groups in the sample. Both planned and unintended over- and under-sampling were corrected using statistical weighting, to ensure the data analysis could produce results for the ACT adult population that were representative of that population.

Presentation of data

This report presents a large number of measures of wellbeing indicators. For each measure, different groups in the ACT are compared, with a focus on the following groups:

- Gender (male, female: there were insufficient respondents identifying as non-binary or other gender identities to report a third group)
- Age
- Cultural and language diversity, focused on whether a person was born in Australia or in other countries, and whether English is the main language spoken at home
- LGBTIQA+
- Recent residents of the ACT
- Household composition (whether the household is a single parent with children household, couple with children at home, couple with no children at home, sole person household or group/share household)
- People living with a disability
- Carers

- Home type (e.g. freestanding house or unit/apartment) and tenure (owned outright, mortgaged, rented)
- Employment
- Region (group of suburbs within the ACT).

No data are presented in this report for Aboriginal and Torres Strait Islanders. This is because the sample achieved from this group was not large enough to present results. A key objective of subsequent waves of the survey is to address this gap and increase the sample of Aboriginal and Torres Strait Islanders living in the ACT, and enable findings for this group can be reported.

Wellbeing measures – key findings

This report examines a large number of measures of wellbeing indicators. For many of the measures, ACT adults as a whole have overall positive levels of wellbeing. On average, adults living in the ACT – where comparison data are available – have higher levels of personal wellbeing, better financial position and better access to transport than the Australian average, but higher cost of living and somewhat lower levels of social connection.

However, as with any population, examining the average for the population does not reflect the experiences of many people within that population. Different population groups in the ACT have a range of different wellbeing resources and challenges, with key findings summarised in Table E1. It is important to note that even where a group has, as a whole, higher than average wellbeing, some members of that group will be experiencing poorer than average levels of wellbeing – just fewer than is the case for other groups. Some groups had higher incidence of low wellbeing across multiple domains, particularly single parents, those with moderate or severe disability, those identifying as LGBTIQA+, carers (particularly those with higher caring obligations), and renters. To some extent, those living in Tuggeranong South were more likely to have lower/poorer wellbeing across multiple domains than those in other areas.

For most other groups, some wellbeing challenges were identified, but fewer than for the groups listed above. Young people were less likely to feel a strong sense of belonging, to have poorer mental health, to feel lonely and lack some social connection and be underemployed - but more likely to participate in community activities, use green spaces and connect socially using phone or online communication. Those aged 65 and older were more likely to have high wellbeing, find living costs affordable, volunteer and have high levels of traditional social connection - but less likely to have good job opportunities, to access nature, or use non-traditional forms of social connection.

Change over time was examined for key measures of wellbeing. Key findings were that several aspects of wellbeing worsened between 2019 and 2020, particularly personal wellbeing (the proportion of ACT adults with low wellbeing grew from 20.7% to 28.4%); confidence in business conditions; self-assessed overall health (the proportion reporting very good/excellent health declined from 48.1% to 40.2%) psychological distress; loneliness; and quality of time use. There was also slight increase in overcrowding, cost of living challenges, and worsening of financial position in some households. Use of local green spaces increased between 2019 and 2020, as did emergency preparedness.

Table E1 Comparing wellbeing indicators for different groups

Group	Categories examined	Lower/poorer than average (data based on 2020 where available, otherwise on 2019)	Higher/better than average
Gender	Female	Personal wellbeing, access to nature, heatwave resilience, feeling safe, quality of time use	Valuing and recognising Traditional Custodians, social connection (phone/online)
	Male	Valuing and recognising Traditional Custodians	Access to nature, heatwave resilience, quality of time use, work-life balance
Age	Aged 18-29	Mental health, belonging, emergency preparedness, social connection (traditional), loneliness, quality of time use, underemployment	Use of local green spaces, social connection (phone/online), community participation
	Aged 30-49	Personal wellbeing, mental health, healthy lifestyle – sleep hours, overcrowding, work-life balance	
	Aged 50-64	Cost of living	
	Aged 65+	Job opportunities, access to nature, use of local green spaces, valuing and recognising Traditional Custodians, social connection (phone/online), community participation	Personal wellbeing, cost of living, social connection (traditional), volunteering, quality of time use
Language spoken at home	Main home language not English	Heatwave resilience, mental health, discrimination, underemployment	Community participation
LGBTIQA+	LGBTIQA+	Personal wellbeing, heatwave resilience, overall health, mental health, access to some health services, belonging, inclusion, discrimination, connection to Canberra, social connection, loneliness	Use of local green spaces
Recent residents	ACT resident for 3 year or less	Heatwave resilience, belonging, discrimination, cost of living, social connection, loneliness, volunteering, underemployment	
	ACT resident for 5 year or less	Mental health, access to some health services, belonging, discrimination, social connection, quality of time use, underemployment	
Household comp-osition	Single parent	Personal wellbeing, trust in non-government institutions,, feeling that voice and perspective matter, overall health, mental health healthy lifestyle – sleep hours, overcrowding/ suitable housing, social connection, loneliness	
	Couple with children	Overcrowding	Community participation
	Couple, no children		Personal wellbeing
	Sole person household	Ability to travel easily, job opportunities, access to nature, loneliness, community participation	
	Share/group household	Opportunities to increase skills and knowledge, heatwave resilience, inclusion, connection to Canberra, loneliness, underemployment	
Children in household	No children living in household		
	Children living in household aged <17	Personal wellbeing, housing suitability, work-life balance	Social connection (phone/online), volunteering (those with children aged 5-17)
	Children living in household aged 0-4, 5-14, 15-17 and 18-24	Mental health (those with children aged 5-14) healthy lifestyle – sleep hours (children aged 0-4), cost of living (children aged 5-17), commute time (children aged 0-4)	Liveability, use of local green spaces, trust in non-government institutions, (those with children aged 0-4)
People with a disability	Disability – moderate/ severe	Personal wellbeing, ability to travel easily, job opportunities, use of local green spaces, feeling that voice and perspective matter, overall health, mental health, access to some health services, housing suitability, belonging, inclusion, discrimination, feeling	

Group	Categories examined	Lower/poorer than average (data based on 2020 where available, otherwise on 2019)	Higher/better than average
		safe, social connection (phone/online), loneliness, community participation, underemployment, commute time	
Carers	Carer <15 hours of caring /week	Personal wellbeing, ability to travel easily, overall health, mental health, access to health services, housing suitability, feeling safe, quality of time use, work-life balance, commute time	Volunteering
	Carer >15 hours of caring/ week	Personal wellbeing, ability to travel easily, job opportunities, use of local green spaces, feeling that voice and perspective matter, overall health, mental health, access to health services, healthy lifestyle – sleep hours, housing suitability, feeling safe, loneliness, community participation, work-life balance, commute time	Volunteering
Home type	House		
	Townhouse	Heatwave resilience, mental health, commute time	Community participation
	Unit/ apartment	Personal wellbeing, heatwave resilience, mental health, overcrowding, belonging, social connection, loneliness	
Home tenure	Home owned outright	Quality of time use, work-life balance	Personal wellbeing, cost of living, volunteering
	Home has mortgage	Quality of time use, work-life balance	Community participation
	Home rented	Personal wellbeing, ability to travel easily, opportunities to increase skills and knowledge, heatwave resilience, overall health, mental health healthy lifestyle – sleep hours, belonging, inclusion, discrimination, cost of living, social connection, loneliness, underemployment	
Employ-ment	Un-employed	Personal wellbeing, ability to travel easily, job opportunities, opportunities to increase skills and knowledge, access to nature, mental health, inclusion, connection to Canberra, loneliness	Use of local green spaces
Regions	Belconnen East	Job opportunities, access to nature	Cost of living
	Gungahlin	Volunteering, commute time	Trust in non-government institutions, community participation
	Inner Belco.	Job opportunities, heatwave resilience	Trust in non-government institutions
	Inner North	Heatwave resilience, social connection	Access to nature
	Inner South	Inclusion, loneliness, community participation	
	North	Ability to travel easily	Valuing and recognising Traditional Custodians, community participation
	Outer Belco.	Feeling that voice and perspective matter, commute time	Access to nature
	Tugg. North		Access to nature, emergency preparedness
	Tugg. South	Access to nature, trust in non-government institutions, feeling that voice and perspective matter, healthy lifestyle – sleep hours, feeling safe, volunteering, community participation, commute time (to limited extent)	Emergency preparedness
	Weston Creek & Molonglo	Trust in non-government institutions, overall health, cost of living, feeling safe	Liveability (WC), emergency preparedness, social connection, community participation
	Woden Valley	Trust in non-government institutions,	Personal wellbeing, liveability, access to nature

This report discusses key considerations in measuring indicators such as those in the *ACT Wellbeing Framework*, and makes some suggestions for the further development of appropriate measurement approaches. In particular, as the *Framework* needs to evaluate the wellbeing of the ACT population as a whole, and the ACT population is changing over time with both in-migration and out-migration and births and deaths, we suggest that collecting cross-sectional data over time is best suited to measuring change in the wellbeing of the ACT population. A cross-sectional approach (in which a representative sample of the population as of a given point in time is examined, without aiming to deliberately track the same people over time) or a refreshing panel (in which some people are tracked over time but new participants are recruited into each survey to ensure the sample is representative of the population) are more appropriate approaches than a longitudinal approach (in which the same people are tracked over time without adding further people into the sample as the population changes. Additionally, we recommend that the impacts of survey mode bias on different measures be carefully evaluated as measures for the *Framework* continue to be developed, as there is evidence of often consistent differences in measurement outcomes depending on whether survey data are collected by phone, or as a self-completed paper or online questionnaire.

Of the 41 measures of wellbeing indicators examined in this report, 27 appear suitable for use as a measure in their current form, with a reasonable degree of confidence: these 27 are mostly well validated (although some could benefit from additional validation work), and many have comparison data outside the ACT available, increasing their usefulness as potential measures of indicators in the *ACT Wellbeing Framework*. A further 12 may be suitable for use to measure wellbeing indicators, but require further development and investigation to confirm this: it is recommended that these measures be considered for use, but further evaluated if they are considered likely to be used as measures in the longer term. Two measures are not considered appropriate to use as wellbeing indicators.

This survey explores subjective measures of wellbeing, that examine people's self-reported experiences. Best practice approaches to the design of subjective wellbeing measures is evolving rapidly worldwide. Given this, ideally the *ACT Wellbeing Framework* measures should be designed to enable the use of improved measures as knowledge on best practice changes over time. This however needs to be placed against the need to generate comparable data over time by ensuring consistency in the measures used. Initially, it may be useful to collect data for a larger range of measures than will ultimately be reported, giving greater ability to subsequently identify those shown to be of higher validity and usefulness for the *Framework*'s needs. Attempting to narrow the set of measures used too early may result in selection of poor quality measures that are subsequently replaced by others, resulting in gaps in time series data.

Conclusions

This initial exploration of subjective wellbeing measures highlights both that on average, adults living in the ACT – where comparison data are available – have higher levels of personal wellbeing, better financial position and better access to transport than the Australian average, but also higher cost of living and somewhat lower levels of social connection. However, care is needed not to focus only on the 'average' as this hides the diversity of wellbeing amongst the ACT population. Groups at particularly high risk of experiencing low wellbeing include single parents, those with moderate or severe disability, those identifying as LGBTIQA+, carers (particularly those with higher caring obligations), and renters. For other groups, results are more complex, with different wellbeing strengths and challenges experienced by most: amongst the elderly, high wellbeing and affordable living costs are counterbalanced by lack of job opportunities and lower use of non-traditional social connection. Amongst younger adults, participation in community activities and high social connection online and by phone are counterbalanced by high rates of distress, loneliness, low sense of belonging and underemployment, amongst others. The events of 2020 appear to have led to significant short-term change in key aspects of wellbeing for some group. What is not known is whether these short-term changes will persist in the longer-term, and for which groups they will be

relatively transient versus extending for a long period. Further waves of the *Living well* survey will collect data that enables ongoing assessment of this. The measures explored in this report are useful, but several require further development. More generally, worldwide understanding of how best to measure different indicators of wellbeing is evolving rapidly, and it is recommended that the *ACT Wellbeing Framework* be designed to enable incorporation of some change in measures over time as knowledge about how to best measure different aspects of wellbeing grows.

1.0 Introduction

Worldwide, there is growing use of wellbeing indicators to measure quality of life and social progress. In March 2020, the Australian Capital Territory (ACT) Government announced the *ACT Wellbeing Framework*, which identified 56 indicators of wellbeing that will be reported on to better understand how different aspects of quality of life are changing in the ACT (ACT Government 2020).

The *Framework* identified indicators, but does not specify the specific measures to be used for each indicator. Most wellbeing indicators can be measured in a range of ways, and those in the *ACT Wellbeing Framework* are no exception. For example, one indicator is 'mental health'. There are many available measures of mental health that could be used to measure this indicator, ranging from sets of validated survey questions that measure specific aspects of mental health such as distress, optimism, or experience of symptoms of depression and anxiety, to administrative data on rates of diagnosis of specific mental health disorders.

The selection of measures was identified as a key part of next stages of development of the *Framework* (ACT Government 2020). Many measures will likely be evaluated as part of the process of selecting appropriate measures for each indicator. These are likely to include measures that use administrative data, that draw on available statistics from sources such as the Australian Bureau of Statistics, and that use data from a range of surveys. As part of developing measures for the different indicators included in the *ACT Wellbeing Framework*, it is important to explore potential measures of the indicators included in the Framework. This is particularly important for those wellbeing indicators that rely on 'subjective' data – meaning indicators that measure how people report experiencing their lives. While there are often reasonably well established precedents for measuring indicators that rely on data from administrative data sets, such as rates of labour force participation, unemployment, or household income, there are fewer for measuring indicators that explore how people are experiencing their own lives – despite growing inclusion of these indicators in wellbeing frameworks, and recognition of their central importance to understanding quality of life.

This report explores the possible use of a range of measures to examine the subjective wellbeing of adults living in the Australian Capital Territory (ACT), using data from the University of Canberra's *Living Well in the ACT region* survey (*Living well survey)*. The *Living well* survey is one potential source of data that can be used to measure some of the wellbeing indicators in the *ACT Wellbeing Framework.* In particular, it collects data that can be used to produce subjective measures for many of the indicators in the *Framework*. When developing wellbeing measures, it is useful to explore potential measures and evaluate their utility prior to making decisions about which measures are best to use. In this report, we seek to make a contribution to development of wellbeing measures through identifying exploring potential measures of wellbeing indicators that are possible to examine using data from the *Living well* survey. This is possible for some *Framework* indicators and not others, as many wellbeing indicators require data from sources other than surveys such as the *Living well* survey. Thus the measures explored in this report are for only a subset of the indicators in the *Framework,* and represent only a small number of the options for measurement available to the ACT Government for many of these indicators.

This report is intended to support development of appropriate measures for the *Framework*, by exploring whether and what measures can be developed that use data from the *Living well* survey. The measures explored in this report have been proposed by the authors, and will not necessarily be used to measure indicators in the *Framework*, or reflect views of the ACT Government about how to best measure wellbeing. This report is thus exploratory in nature: many of the measures presented have not been trialled elsewhere, and this report both presents initial findings, and proposes future directions for further development of appropriate ways to measure, analyse and report on different

indicators. This report seeks to support the ongoing development of wellbeing indicators for the ACT through this exploratory analysis and identification of future directions.

This work was originally intended to be largely developmental, focusing on initial conceptualisation and exploration of measures for several of the indicators included in the *ACT Wellbeing Framework.* However, the timing of the report means that it also provides some insight into the wellbeing of ACT residents during the unique events of 2020. The *Living well survey* first collected data during November and December 2019, in the period immediately before significant and widespread bushfires during the summer of 2019-20, which caused ongoing smoke pollution in the ACT, large areas of land being burned, and multiple suburbs experiencing bushfire risk. This first 'wave' of data was also collected before the severe hailstorm of January 2020 that caused significant damage in multiple Canberra suburbs, and before the emergence of COVID-19.

A second set of data were collected in April and May 2020. While not originally intended to collect data on how wellbeing changed as a result of bushfires, hailstorm and COVID-19, by the time the second wave of data were collected, it was apparent that these events were likely to be affecting quality of life for many people in the ACT. Given this, the second survey questionnaire included both (i) key wellbeing measures that had been asked in the first survey, enabling identification of whether wellbeing changed in the five months between the two surveys, and (ii) specific questions about how ACT residents experienced the bushfires, hailstorm, and restrictions put in place to reduce risk of spread of COVID-19. At the time of the second survey, the ACT was in COVID-19 lockdown, with residents asked to work and study from home where possible, most school students being home-schooled, and people asked to only leave their homes for essential purposes.

The timing of the survey data collection means this report provides a unique snapshot of wellbeing 'before' and 'after' the experience of bushfire, hailstorm and COVID-19. The data are a snapshot in time, and wellbeing will have continued to change since collection of data in May 2020. A third set of data will be collected in late 2020, to enable continued tracking of how wellbeing is changing for residents of the ACT.

1.1 The *Living Well in the ACT region* survey

The *Living well survey* started in 2019. It is funded principally by the following two NHMRC Medical Research Future Fund (MRFF) projects, and collects data in both the ACT and neighbouring regions of NSW (only data for adult residents of the ACT are examined in this report):

- "Environmental and social determinants of health in the Australian Capital Territory" – Chief Investigator Prof. Rachel Davey. This project involves three studies: the survey is part of Study 1 'Creating neighbourhoods that promote health and wellbeing'. This funding supported the first two sets of data collection examined in this report, and will also fund a further set of data to be collected in 2022.
- "Supporting mental health through building resilience during and after bushfires: lessons from the 2019-20 bushfires in southern NSW and the ACT" – Chief Investigator A/Prof Jacki Schirmer. This project is funding collection of data in in late 2020, and 2021.

The development of the survey content was based on both review of key literature on measurement of wellbeing internationally and in Australia, and on discussions with the ACT Government during the period when the *ACT Wellbeing Framework* was in initial stages of development.

The survey measures a range of social and place-based determinants of wellbeing, as well as key health and wellbeing outcomes. This report examines a subset of the data collected in the survey – those data that have potential for be used as measures for some of the indicators included in the

ACT Wellbeing Framework. The dataset will be used for a range of analyses and reports over time, of which this is only one.

1.2 What is a 'wellbeing indicator' and 'measure'?

This report explores potential measures that can be produced using data from the *Living well* survey, and have potential to be used to measure some of the indicators included in the *ACT Wellbeing Framework*. As noted earlier, these measures have been proposed by the authors, and will not necessarily be used in the *Framework*, but provide information that can be considered as part of the process of identifying suitable measures for the indicators included in the *Framework.*

Indicators have a specific purpose:

> *A social indicator … is defined as a direct and valid statistical measure which monitors levels and changes over time in a fundamental social concern. (OECD, 1976.)*

The purpose of an indicator is to identify the state or level of something – in this case, the state or level of different aspects of wellbeing, and how this state/level is changing over time for different people living in the ACT. A given indicator may have a single measure, or multiple measures. For example, the *ACT Wellbeing Framework* includes the indicator 'Personal wellbeing'. Worldwide, multiple approaches are used to measure personal wellbeing. Deciding which of these measures to use is an important part of ongoing development of wellbeing frameworks worldwide, with the *ACT Wellbeing Framework* being no exception.

Indicators do not explain why there are differences between groups, or why wellbeing is changing over time. Rather, they identify what the state of the indicator is at a given point in time, for given groups of people. This enables identification of areas where further investigation may be needed to better understand why some groups have poorer wellbeing than others, or why some are experiencing positive change and others negative change in an aspect of wellbeing.

1.3 Wellbeing in challenging times

This report examines the wellbeing of ACT residents during a period in which many were experiencing challenges that had potential to threaten their wellbeing. Multiple studies in the first half of 2020 showed that COVID-19 was associated with loss of quality of life, particularly mental health: for example, Pierce et al. (2020) were able to compare mental health before and after COVID-19 in a large survey of United Kingdom residents, and found both that mental health had declined since the start of the pandemic, and that younger adults, women and those with young children were particularly likely to report decline. However, some caution is needed in interpreting these results: for some people, wellbeing may readily recover when COVID-19 is no longer impacting people's health or their social and economic opportunities. For others, the impacts may result in longer-term decline. The initial change in wellbeing recorded during COVID-19 is concerning, but needs to be interpreted with caution and with an understanding of wellbeing and how it can change.

An increasingly well accepted approach to understanding wellbeing and how it changes is the homeostatic theory of wellbeing. This theory states that a person has a natural 'set point' or homeostatic level of wellbeing: simply put, under normal conditions, they will have a relatively stable level of subjective wellbeing that does not vary significantly day to day, month to month, or year to year. This 'set point' will only change significantly if major events occur that push a person out of their natural 'wellbeing homeostasis'. Day-to-day and minor events have very little effect on subjective wellbeing: while they cause small perturbations, wellbeing returns rapidly to its set point as multiple 'wellbeing buffers' enable people to maintain their wellbeing at its typical level through minor issues or challenges. This has been demonstrated in multiple studies: for example, when subjective wellbeing is measured using the Personal Wellbeing Index (PWI) (a measure used in this report), minor life events cause little to no change in a person's PWI score over several years, whereas significant life events such as unexpected loss of job, divorce, or loss of a loved one are

commonly associated with significant change in PWI levels (Diener et al. 2013; Cummins and Wooden 2014). After a significant life event, some people experience a temporary decline in wellbeing followed by recovery to their normal levels, while others experience a long-term shift to a poorer state of wellbeing – termed 'homeostatic defeat'. There is well-established evidence that ongoing, long-lasting life events can result in long-term shifts in wellbeing (Lucas 2007) – but that they do not always do so. Some people are better able to recover wellbeing than others after experiencing challenging events.

At the scale of an entire region, such as the ACT, the well-demonstrated stability of subjective wellbeing in normal times results in typically stable levels of subjective wellbeing at the population scale. In a 'normal year', some people will be experiencing challenges and experience a decline in their individual wellbeing, while most will be able to maintain their usual levels of wellbeing. This results in fairly stable levels of wellbeing across a whole population, something well demonstrated in multiple studies conducted across different countries and cultures (Eid and Diener 2004, Cummins and Wooden 2014). In fact, some have criticised the use of subjective wellbeing measures precisely because these measures often show very little change over time when measured across a whole population (e.g. Eckersley 2009). Others argue that there is evidence of longer-term gradual increase in subjective wellbeing over time in countries where infrastructure, services and more generally economic and social opportunity, are improving (Eckersley 2009).

A significant population-wide decline in wellbeing will typically only be seen if many people living in a given region are simultaneously impacted by an event, or multiple events, that threaten wellbeing. While this has been relatively rare in the fairly brief international history of wellbeing measurement, it does occur. The time series data measured in the *World Happiness Report* includes several examples of population-wide decrease in subjective wellbeing associated with large, nation-wide events (Helliwell et al. 2020). For example in Greece the global financial crisis, which resulted in widespread unemployment and loss of financial wellbeing, was associated with a significant population-wide decline in wellbeing[1].

This suggests that the effects of cumulative events such as bushfire, hailstorm and COVID-19 have potential to cause at least a short-term change in the average subjective wellbeing of the population. What is not known is whether that change will be limited to the shorter term (lasting months, or one or two years), or likely to cause a more permanent shift to lower levels of wellbeing that lasts for many years. The homeostatic theory suggests that when experiencing negative events (such as the effects of bushfire, hailstorm and COVID-19), the extent to which a person's subjective wellbeing will change – and whether it will 'bounce back' to previous levels after the event - will depend on factors including (i) the person's baseline level of wellbeing prior to experiencing challenges, (ii) the strength of their 'homeostatic resilience' – meaning a person's access to resources that help them protect their wellbeing in the face of these challenges – and (iii) the 'cumulative level of challenge' experienced by that person (Cummins and Wooden 2014, p. 230). Tanton et al. (2012) found that life challenges commonly associated with a person experiencing a longer-term decline from 'typical' levels of wellbeing to lower levels of wellbeing (referred to in the literature as 'homeostatic defeat') included loss of household income, increase in poor health of one or more people in a household, and other major life events.

This understanding of wellbeing suggests that (i) there is a high likelihood that the events of late 2019 and early 2020 will result in a measurable decline in wellbeing, but also suggest that (ii) this should not be assumed to be a permanent change. Some people will be able to recover their wellbeing, while others will be at higher risk of longer-term decline in their wellbeing.

[1]In addition to the report by Helliwell et al. (2020), data sets showing change in subjective wellbeing across different nations are available at https://worldhappiness.report/

This suggests a need to consider how best to identify those more at risk of experiencing a long term or permanent decline in their quality of life. This is explored further in Part 3 of this report, through examining potential indicators of longer-term vulnerability and resilience. Vulnerability, broadly speaking, is the extent to which a person or group are more likely to experience disadvantage or negative outcomes, particularly when exposed to stresses such as extreme climatic events or economic shocks (Gallopin 2006). Resilience is typically defined as having the ability to cope with adversity and adapt positively to changing circumstances (e.g. Gallopin 2006, Walker et al. 2009, Carpenter et al. 2012, Berkes and Ross 2013). While recognised as critical to maintaining wellbeing over time, there is less agreement about how to define the extent to which a person or community is 'resilient', either in general or in relation to being able to maintain their quality of life when experiencing specific types of challenges. When designing measures of wellbeing, it is useful to draw on the extensive literature on vulnerability and resilience to identify indicators that, in addition to providing a 'snapshot in time' of wellbeing, may provide some insight into likely longer-term vulnerability or resilience.

1.4 Report structure

Section 2 of this report briefly describes the *Living well* survey methods used to date. It then discusses key considerations for ensuring methods used can support longer-term measurement of wellbeing in a valid and reliable way as the ACT population changes over time. The rest of the report presents potential measures of some of the wellbeing indicators included in the *ACT Wellbeing Framework.* These are presented in sections organised based on the domains included in the *Framework:* personal wellbeing (Section 4.0), access and connectivity (Section 5.0), economy (Section 6.0), education and lifelong learning (Section 7.0), environment and climate (Section 8.0), governance and institutions (Section 9.0), health (Section 10.0), housing and home (Section 11.0), identity and belonging (Section 12.0), living standards (Section 13.0), safety (Section 14.0), social connection (Section 15.0) and time (Section 16.0).

This report is Part 1 of three. Part 2 examines how ACT residents experienced bushfires, hailstorm and COVID-19 between December 2019 and May 2020, using responses to the specific questions that asked about these events in the second *Living well survey.* Part 3 briefly explores the idea of measuring vulnerability and resilience as a way of further identifying those at greater risk of experiencing homeostatic defeat, and recommendations for further developing this approach.

2.0 Methods

This section first briefly summarises methods used in the *Living well survey.* A more detailed description is provided in Schirmer and Peel (2020). The second part of this section briefly reviews key considerations for ensuring consistent, reliable measurement of wellbeing indicators, and key needs for future measurements of the indicators presented in this report. The third part identifies the specific methods used when analysing and presenting data for this report.

2.1 Living well survey – brief description of methods

The *Living well survey* is an omnibus survey, which includes questions on the topics listed in Table 1 (the full questionnaire is available in Schirmer and Peel 2020).

Table 1 Topics included in the Living well survey

Community	**Individual/household**	**Socio-demographics**
Liveability	Subjective wellbeing	Household type (no. & type of residents)
Jobs, economic opportunity	Psychological distress, mastery, overall health	Housing type (ownership, building type)
Living costs	Physical activity & location of that activity	Employment/study/carer status
Awareness of Traditional Custodians	Access to transport (private, active, public)	Cultural background
Nature access & connection	Diet, alcohol consumption, smoking, BMI	Age, gender, marital status, religion
Perceived environmental problems	Time use	Formal education
Local area – walkability, access, safety	Access to and use of health services	Residential location, work location
Social cohesion, sense of belonging	Social activity, support, connection, isolation	Gender identity, sexual orientation
Community activities – volunteering	Inclusion, discrimination, equity	Pets
Communities activities – engagement	Household stress events last 2 years	
Effectiveness of government	Household financial status	**Wave 1b also asked:**
Inclusiveness of community	Housing quality & suitability	Bushfire & hailstorm impacts (inc. smoke)
Ability to contribute to community discussion and decision making processes	Preparedness for extreme events	COVID-19 impacts

The population sampling for the *Living well survey* was adults living in the ACT region. This was defined as all those aged 18 and over who lived in the Australian Capital Territory, Queanbeyan Palerang Regional Council, Yass Valley Council, Upper Lachlan, Hilltops Council and those parts of the Snowy Monaro Regional Council falling into the postcodes 2620, 2621 and 2622.

Survey participants were recruited using four methods. While it would be preferable to recruit participants using a single sample frame, as discussed in Schirmer and Peel (2020), no single sample frame available for the target population was identified that was sufficiently representative to enable this. Instead, recruitment methods were selected based on seeking to ensure all segments of the population would be reached by at least two methods. The recruitment methods were:

- Direct invitations sent to a stratified random sample of residents listed in a public mailing database. This was the primary recruitment method, achieving over 50% of responses.

- Flyers sent to letterboxes in an unaddressed mailing. Flyers were delivered to households in the study regions, inviting participation in the survey.
- Social media advertising. This was used only to a limited extent, and sought to address the bias towards older participants resulting from the first two methods. It involved directly inviting participation through posts placed in social media feeds.
- Notices in tertiary institution weekly email newsletters. These were used in the second wave only, as during the first wave most institutions had completed their second semester with few students on campuses. The ACT has a relatively large population of students who move to the ACT to study, and often live in student residences. These emails, together with social media posts, provided a way of reaching these students, who are typically highly under-represented in all available sample frames.

In the first wave of data collection (Nov/Dec 2019), 4,240 people participated in the survey. Not all of these participants completed all survey measures: for many measures, the useable sample is around 3,800 people. This report examines ACT residents only: in total, 3,175 respondents in the first wave were ACT residents who completed most questions on the survey.

The second wave of data collection involved (i) resurveying those participants from the first wave who had given permission to participate again, and (ii) recruiting an additional 1,000 new participants. When only those living in the ACT are examined, there was a total of 1,630 survey participants in Wave 1b who were residents of the ACT, of which 640 were new survey participants and 991 repeat survey participants.

2.2 Key considerations for producing wellbeing indicators from survey data

Wellbeing frameworks typically seek to understand how wellbeing of a population is changing over time: for the *ACT Wellbeing Framework,* this will be the population living in the ACT. Where a measure relies on survey data, it is important to consider how best to sample the ACT population to ensure an appropriate and comparable estimate is produced over time. Key considerations for collecting survey data that can be compared over time with confidence are the design of (i) sampling, (ii) measures, (iii) survey mode, and (iv) analysis.

2.2.1 Sampling

To be able to identify change over time requires designing sampling that supports production of data that is comparable over time. Key questions that need to be addressed include (i) how the survey sample will be recruited over time and (ii) what is the best way of ensuring the sample is representative of the ACT population, or the part of it being studied, at each point in time that data are collected. Typically this requires considering whether the sampling strategy should be longitudinal (the same group of people are repeatedly surveyed over time), cross-sectional (a new sample is recruited each time the survey is conducted, which is designed to be representative of the population as a whole but does not seek to include the same people over time), or a hybrid of the two (often called rotating or refreshing panels, these track participants over time while gradually 'rotating' participants over time so that any given person is a participant across several surveys, and then rotated out of the survey with a different person rotated in) (Rafferty et al. 2015).

The *Living well* survey will use a rotating/refreshing panel, in which there is a longitudinal sample that is followed over time, as well as recruitment of additional participants in each survey wave to ensure the sample maintains sufficient representation of the ACT adult population. This approach ensures that the sample over time will reflect the rapidly changing ACT adult population: the ACT population is expected to grow by 10% between 2017 and 2022 (ACT Government 2019), and in the 2016 *Census of Population and Housing,* 35.2% of ACT residents reported living outside the ACT five years previously. This indicates a need for a refreshing panel that is able to maintain representativeness in a region where more than one-third of the population may change in a five

year period. Using a rotating/refreshing panel also enables tracking of change in wellbeing amongst the longitudinal sub-sample. This provides a useful way of understanding whether changes seen at the population scale in the whole sample are a result of either (i) change in the wellbeing of individuals over time, or (ii) change in the type of people living in the ACT over time. In the first two waves of the *Living well* survey, the primary purpose was to achieve an initial panel of participants who could then form the basis of a refreshing/rotating panel going forward. This will continue for the next waves, followed by development of a documented method for recruiting new participants into the refreshing panel that is informed by observation of the characteristics of the sample achieved in initial waves.

The specific methods used to achieve a sample (for example, random sampling, quota sampling or others), and whether specific groups or regions should be oversampled, also need consideration when identifying whether a dataset can support the type of measurement needed for a wellbeing framework. This is discussed in detail in Schirmer and Peel (2020).

2.2.2 Measures

The measures used in surveys should ideally be consistent over time – in other words, to use the same questions on the survey form and same type of sampling to enable comparison of data over time. If survey questions change over time, the data collected are unlikely to be comparable over time. The first *Living well* surveys included a number of exploratory measures: reports such as this one are being used to evaluate which of these should be included in the survey over the longer term to enable tracking of change, and where further development of additional measures may be needed.

2.2.3 Survey mode

There is growing recognition that the mode by which a survey is conducted (common modes of data collection are face to face surveys in which an interviewer asked the survey respondent questions, and self-completed paper and online survey forms) can affect the answers given. The 'survey mode effect' has been shown to be important for any wellbeing measures, with people who answer questions online or on a paper survey without assistance likely to provide slightly more negative ratings of wellbeing and quality of life, and those who answer questions asked by an interviewer (by phone or face-to-face) likely to give slightly more positive ratings, although findings vary depending on the measure and the mode being compared (Christensen et al. 2014, Dolan and Kavetsos 2016). This means that when collecting data over time, it is important to use consistent survey modes and, if considering changing modes, to have a 'changeover' process that identifies the effect of the change in mode on measures.

2.2.4 Analysis

Particularly in voluntary surveys such as the *Living well* survey, it is common to find that the characteristics of survey respondents are unrepresentative of the population being surveyed in some ways. This is due to survey response bias in which some types of people are more likely than others to respond to an invitation to take part in a survey. To address this, and ensure data can be produced that are more representative of the adult population, statistical weighting methods are commonly used. 'Weighting' refers to a statistical process in which known biases in the responses received are corrected for. Weighting of survey responses is used in many surveys, including the large household surveys conducted by national statistical agencies such as the Australian Bureau of Statistics (see for example ABS 2017), as well as in large probability based sampling surveys conducted by both market research and non-market research organisations (Keeter et al. 2017). However, there are multiple approaches to developing statistical weights: if the method used to generate weights changes over time, this may reduce comparability of findings from different points in time, or prevent results for being at all comparable. When measuring wellbeing, a consistent

weighting methodology should be used, and if this method is changed, backcasting should be used to reanalyse earlier data sets using the revised method, to ensure comparability over time.

2.2.5 Critically assessing measures

This report aims to present potential measures for key wellbeing indicators, as well as evaluating them. Many criteria can be used to evaluate indicators, including whether indicators are (adapted from Brown 2009):

- Valid and meaningful (measure what they are intended to measure in a way that is useful for the intended audiences)
- Sensitive and specific (the measure should change in response to changes in the underlying phenomenon it is measuring)
- Statistically sound (methodologically sound and for purpose, often requiring there be sufficient research evaluating the assumptions underpinning the measure)
- Intelligible and easily interpreted (simple enough to be interpreted readily by intended audiences)
- Relate to other indicators where appropriate
- Enable comparison between regions, groups, and points in time (requiring ability to disaggregate the data set by group, and consistent measurement with other data collections, where possible).

Each indicator examined in this report is briefly examined to identify whether there is currently sufficient evidence of validity and statistical soundness; of specificity; of interpretability; and ability to compare to other regions. As the *Living well survey* will continue in future and be further developed to increase ability to use data from the survey to analyse specific groups as well as compare findings over time, these are not examined when evaluating indicators.

This report does not attempt to provide all the evidence that may be required for every indicator. Instead, it identifies where further investigation may be needed, and what type of investigation, to establish whether a measure is suitable for longer-term use.

2.3 Methods used to produce measures of wellbeing indicators

This report explores potential measures of a subset of the wellbeing indicators included in the *ACT Wellbeing Framework*: Table 2 lists the indicators for which measures are examined, and also identifies those indicators for which no measures are explored in this report. The sections below summarise key decisions made regarding production of measures, and why these approaches were used when producing initial data for measures of wellbeing.

2.3.1 Results examine adult residents of the ACT

While the survey collected data from people living in regions adjacent to the ACT, this report focuses on only residents of the ACT. This is because when exploring measures that could be used as part of the *ACT Wellbeing Framework*, it was considered important to focus on the part of the survey sample relevant to the *ACT Wellbeing Framework* – residents of the ACT. Other analyses of survey data will be produced that include data for survey participants who were not ACT residents.

2.3.2 Cross-sectional data are presented

Where data are compared over time, this is done using cross-sectional data rather than longitudinal data. This was done as this is the recommended method going forward, as discussed earlier. However, as the second wave of data collection was designed principally to grow the size of the overall survey panel, it had a smaller sample of people than the first. The small sample size of the second wave has some impacts on ability to compare the first and second wave, which are noted in

the results where relevant. Future waves of the survey will include more consistent numbers of participants, improving comparability.

2.3.3 Conservative criteria were used to identify changes in wellbeing

Originally, the first two waves of the *Living well* survey were not intended to be used to document change in wellbeing, as they were originally intended to occur only eight to twelve weeks apart and be used as a single sample. The 2019-20 bushfires, hailstorm and COVID-19 both led to a longer period between the two waves (of five months) and also meant it was much more likely there had been changes in wellbeing during the period between the two sets of data collection. As a result, the data was identified as providing potentially significant insight into change in wellbeing between waves. However, as noted above, the sample size of the second wave is smaller than the first, and the primary purpose of sampling was to help establish an appropriately representative initial panel of survey participants, rather than to achieve comparability of the sample over time. This suggests a need to be cautious in the approach use to identifying whether and what types of significant changes in wellbeing occurred between the first and second wave of the survey.

Given this, a conservative approach was used when analysing change in wellbeing between the two waves. In this report, changes are only identified as significant if they meet the following criteria: (i) there was a significant difference between weighted cross-sectional samples, defined as 95% confidence intervals being significantly different over time or a group being significantly different to the ACT average *and* (ii) this difference is also seen when examining the unweighted longitudinal sample. In other words, this report only identifies a change as being statistically significant if the same change was evident in both the full cross-sectional sample, and also in the sample of people who completed both surveys (just over 1,000 participants). Findings are only presented where changes are consistent for both the whole sample and the longitudinal sample, to ensure there is high confidence that changes being reported over time are a result of actual change, rather than of differences in sampling between the two waves. To reduce potential for confusion, only the cross-sectional data are presented in the report. Unless otherwise noted, changes in wellbeing are only identified as significant if they were present in both the longitudinal and cross-sectional samples.

2.3.4 Weighting

The data collected in the first two waves of the *Living well* survey deliberately oversampled some groups, and under-sampled others. Initial statistical weights were developed for the first and second wave of the survey to inform this report, using a raking weighting method. This weighting is described in detail in Appendix 1, and was based on identifying the socio-demographic characteristics for which the survey respondents were more and less representative of the overall ACT adult population as of August 2016, using ABS *Census of Population and Housing* data. This assessment also examined whether a sufficient sample of different groups was obtained to support the use of statistical weights.

All data presented in this report are weighted to be representative of the ACT adult population. The weights used ensure the results are representative of the distribution of the ACT adult population across the following characteristics: region (e.g. Belconnen East, Gungahlin etc), gender, age, language spoken at home, and proportion of people with a tertiary qualification.

The weights were developed based principally on data from the 2016 *Census of Population and Housing*, data from which were 3.5 years old when used. No other sources of data provide a more recent set of benchmark demographics of the type required for weighting. It is recommended that once 2021 Census data are available, analysis be undertaken of change in the variables used for weighting. It may be appropriate to re-analyse the data presented in this report using a modified set of benchmark data after doing this, depending on how accurately 2016 Census data represented the likely demographic composition of the ACT adult population as of late 2019 and early 2020.

The statistical weights used in this report are based on a common and relatively easy to use weighting methodology that can be readily replicated. A range of other weighting methods can be used, including more sophisticated model-based approaches that may be preferable to use in the longer-term. More sophisticated weighting models will be explored over the next waves of the *Living well* survey. If this exploration results in a decision to utilise a different weighting approach to that used for the analyses presented in this report, the new methodology should be used to re-analyse the data and identify any effects the changed methodology has on the findings.

2.3.5 Number of respondents varies

Throughout the report, the number of respondents who answered each survey question are reported. This number varies depending on the survey question, as some questions were asked of all respondents, while others were asked of a smaller number. See Schirmer and Peel (2020) for detailed description of the sample sizes and how they vary for individual survey questions.

2.3.6 Indicator scoring

This report does not used standardised scoring across the different measures presented: in this initial exploration, measures are presented using scales based on the original response scale used in survey questions. Developing standardised measures that enable comparison across indicators can be done, and the analysis presented here can form part of contributing to longer-term work seeking to develop standardised approaches to measuring and presenting different wellbeing indicators.

3.0 Wellbeing indicators & types of data examined

This report examines potential measures for multiple wellbeing indicators. The *ACT Wellbeing Framework includes* 12 domains and 56 indicators (including the indicator of 'personal wellbeing' that sits at the centre of the framework). Some indicators will be measured using existing national statistical data or administrative data, such as data on employment and unemployment rates, or will use data already available from surveys other than the *Living well* survey. These are not examined in this report.

This report focuses on measures that can be produced from data collected in the first two waves of the *Living well* survey. There is potential to further expand the questions asked in the *Living well* survey to increase the number of measures that could be produced for *Framework* indicators in future, however this report examines only those possible from the initial waves of the survey.

In total, this report proposes and explores measures for 28 of the 56 indicators. Table 2 lists the *ACT Wellbeing Framework* indicators for which potential measures are presented in this report, and those for which measures are not presented. The measure/s proposed for each indicator are explained in detail when the indicator is presented in subsequent sections of this report.

Findings for measures of each indicator are presented for (i) the adult population of the ACT and (ii) the specific groups of ACT adult residents who differed in the following characteristics: gender, age, language spoken at home, LGBTIQA+ identification, length of residence, household composition, children in household, disability, carers, home type, home tenure, employment, and region of the ACT lived in. Table 3 describes the groups compared and how these were defined for purposes of this report. These groups are not independent of each other: they overlap, with any given ACT resident being a member of multiple groups. For example, those who own their home outright are also much more likely to be in an older age group, with significant 'cross-over' in the membership of these two groups. Appendix 2 provides a summary of some of the commonalities between the groups examined in this report. This overlap means that caution is needed in interpreting findings, as similarities in findings for two groups may simply reflect a high degree of commonality in the people who are in those two groups.

Interpreting findings for different groups. This report examines how wellbeing, and some of the things known to contribute to a person's wellbeing, differs for different types of ACT residents. These differences can result from many factors. Care is needed when interpreting the findings: the indicators reported identify whether there are differences in wellbeing, but not what has caused those differences in wellbeing. For example, on average renters reported poorer wellbeing than those who were not renting. This difference is not necessarily caused by the experience of renting: a range of factors may contribute, including the typical life stage of renters compared to those who own their homes (renters are typically younger), financial and employment status, and many other factors. Understanding where differences exist is an important starting point and helps identify where more in-depth work is needed to understand what is contributing to the differences in wellbeing identified in this report.

Table 2 ACT Wellbeing Framework – indicators examined in this report

Domain	Indicators examined in this report using self-rated survey data	Indicators NOT examined in this report & reason (footnotes indicate reason each indicator not examined)
Personal wellbeing	**Personal wellbeing**	
Access and connectivity	**Liveable city** **Transport use and access**	Access to services[2] Digital access[1]
Economy	**Business conditions and economic diversity**	Employment[1] Economic performance[1] Income inequality[1]
Education and life-long learning	**Learning for life**	Early childhood education[1] Learning growth[1] Equity of educational outcomes[1] Student belonging[1]
Environment and climate	**Connection to nature** **Climate resilient environment and community**	Healthy and resilient natural environment[1]
Governance and institutions	**Feeling that voice and perspective matter** **Trust in other institutions**	Trust in government[3] Access to justice and restorative practice[1] Human rights[2]
Health	**Overall health** **Mental health** **Access to health services** **Healthy lifestyle**	Best start to life[1] Life expectancy[1]
Housing and home	**Housing suitability**	Homelessness[1] Rental stress[1] Housing affordability and availability[1]
Identity and belonging	**Sense of belonging and inclusion** **Support for multiculturalism** **Connection to Canberra** **Valuing Aboriginal and Torres Strait Islander cultures and recognising our Traditional Custodians**	Arts and culture[2]
Living standards	**Cost of living** **Financial position**	Income levels[1] Net worth[1]
Safety	**Feeling safe** **Community resilience to emergencies**	Victims of crime[1,3] Domestic and family violence[1,3] Road safety[1] Workplace safety[1] Emergency services[1]
Social connection	**Sense of social connection** **Levels of loneliness** **Levels of volunteering** **Participation in community events and activities**	
Time	**Quality of time** **Work-life balance** **Time spent travelling within Canberra**	Unpaid work including caring[2]

Measures for this indicator are not examined in this report for the following reasons:

[1] Indicator will be measured using existing national statistical data or ACT/national administrative data, rather than survey data, or other survey data are available that provide more comprehensive and suitable measures for this indicator than the *Living well* survey.

[2] First waves of *Living well* survey either collected no data or very limited data to inform this indicator: measures will be proposed based on collection of more detailed data in future waves of the survey

[3] Initial examination of data collected in the *Living well* survey relevant to this indicator suggested it was not sufficient to provide a robust measure at this stage. Because of this, data are not presented; future waves may collect additional data that address deficiencies in initial data collection.

Table 3 Groups of people compared in this report

Group	Categories examined	Notes and limitations
Gender	• Female • Male	Our data are based on a person's self-reported gender identity, rather than gender assigned at birth. As few participants identified non-binary/other genders, only male and female categories are reported.
Age	• Aged 18-29 • Aged 30-49 • Aged 50-64 • Aged 65+	Four age groups are compared in this report, selected based on common life stages. Those aged 18 to 29 - 'adult youth' – are often studying or in early career stages, and rarely own homes. Those aged 30-49 are often raising children, developing careers, and purchasing homes, and more likely to be in long-term relationships than younger adults. From age 50 to 64 it is less likely there are young children living in the home. Those aged 65 and over are more likely to be retired (however many do work beyond the age of 65).
Aboriginal and Torres Strait Islander peoples	• *Aboriginal and/or Torres Strait Islander* • *Other*	*We are unable to report for this group due to too few responses in the initial waves of the survey. A key objective of future data collection in the Living well survey is to ensure sample sizes are increased so findings can be reported for this group.*
Language spoken at home	• Main home language – English • Main home language – not English	Survey participants were asked whether their main language at home was English or another language. The survey also identified more specific cultural backgrounds, which may be explored in future reports.
LGBTIQA+	• LGBTIQA+ • Not LGBTIQA+	The survey asked participants if they identified as LGBTIQA+, straight, or whether they were unsure/ preferred not to answer. Too few reported being unsure/preferred not to say to be able to report this category.
Recent residents	• ACT resident for 3 year or less • ACT resident for 5 year or less	When people shift to a new community, it can take a while to settle in socially and financially, and to find services such as GPs. This can in turn have implications for wellbeing.
Household composition	Single parent; Couple with children; Couple, no children; Sole person h'hold; Share/group h'hold	These groups represent common household compositions in the ACT.
Children in household	• No children living in household • Children living in household aged 0-4, 5-14, 15-17 and 18-24	Household activities, priorities and needs differ depending on whether there are children living in the household, and the ages of those children. These groups compared households with children at different key stages from early childhood (0-4) to primary school and early high school (aged 5-14), late high school (15-17) and early adulthood (18-24).
People with a disability	• No disability • Disability - mild • Disability – moderate/severe	A person was defined as having a disability using the definitions described in Schirmer and Peel (2020). Disability included both physical and psychological disability, and those with high levels of psychological distress were considered to have moderate/severe disability.
Carers	• Not a carer • Carer, with either <15 hours or >15 hours of caring responsibilities each week	A carer was defined as a person who looks after someone (or helps look after someone) who has a disability, mental illness, drug or alcohol dependency, chronic condition, terminal or serious illness, or who is frail, without this being part of their paid employment (carers payments are not considered paid employment).
Home type	• Freestanding house • Townhouse • Unit/apartment	Most ACT residents live in one of these three types of housing. Some live in others, particularly aged care residents or student residences. However, there is not sufficient data to compare experiences of those in aged care or student residences to others.
Home tenure	• Home owned outright • Home has mortgage • Home rented	Data are reported for these three key groups of people in the ACT. Data were also collected for a fourth group: those who live in a house they do not own without paying rent/mortgage (mostly younger people living in parental homes), however due to small sample sizes this fourth group is not reported.
Employment	• Unemployed • Employed	In this report, only two groups are examined: those who are employed (any form of paid employment) and unemployed (not in paid employment and actively seeking work). Future reports may include part-time, full-time and casual workers.
Regions	Belconnen East, Gungahlin, Inner Belconnen, Inner North, Inner South, North, Outer Belconnen, Tuggeranong North, Tuggeranong South, Weston Creek & Molonglo, Woden Valley	See Appendix 1 for a listing of which ACT suburbs are in each of these regions. There were too few respondents from rural parts of the ACT to report findings for people living in rural ACT areas.

The next sections present the measures explored. These are presented in sections ordered by the domain of the *ACT Wellbeing Framework* they form part of. For each domain and indicator, the following are identified:

- **Indicator context and purpose:** A brief background on the purpose of the indicator/s the measure seeks to inform.
- **Description of measure:** The methods used to measure the indicator are described for each proposed measure.
- **Key findings** – **ACT population** summarises finding for the ACT adult population as a whole.
- **Key findings – population groups** summarises key findings for different population groups: note that full tables of data for different population groups are available on request, with the findings reported here summarising only those groups who differed significantly to the average. Tables of data by group are available on the *Living well* website that provide full data for every group (to access the full datasets, go to http://www.regionalwellbeing.org.au/living-well-in-the-act-region/).
- **Recommendations & conclusions** identifies whether the measure/s are likely to be suitable for use, or whether they may require further development, modified design, or other change.

4.0 Personal wellbeing

Measuring personal wellbeing is at the centre of the *ACT Wellbeing Framework*, which specifically seeks to measure personal wellbeing using an existing measure – the Personal Wellbeing Index (PWI. The *Living well* survey includes the PWI, and as such its use is examined here. Given the importance of the personal wellbeing indicator in the *Framework*, the PWI is examined in more detail than many of the other measures examined.

4.1 Indicator context and purpose

The ACT Wellbeing Framework describes the indicator 'Personal wellbeing' as:

> *Personal wellbeing is a measure of an individual's satisfaction with their standard of living, health, what they are achieving in life, relationships, safety, community-connectedness, and future security. This indicator will measure the overall wellbeing of people in the ACT using the Personal Wellbeing Index.* (ACT Government 2020)

Personal wellbeing refers to a person's overall satisfaction with their quality of life. It is a typically measured using subjective measures that rely on a person's self-assessment of their life. There is growing recognition that these types of subjective measures are critical to understanding wellbeing, as they enable a person to identify, given all the things that matter to them in life, how their life is going.

To understand why subjective ratings of personal wellbeing are key to understanding wellbeing, it is useful to understand the difference between subjective and objective measures. Wellbeing and quality of life can be measured using subjective or objective measures. Broadly speaking, subjective measures involve a person rating the overall quality of their state of wellbeing, or some aspect of it such as their standard of living. In contrast, objective measures involve measuring something that an external observer can measure independently, such as household income (which can be verified by looking at records of payments). The difference between objective and subjective measures is not based whether the method of measurement is subjective, but on whether the things being measured *can* be measured independently of the person's experience.

Many indicators of wellbeing can be measured using both subjective and objective measures. For example, household income can be measured objectively by examining the level of income, and whether it is sufficient to cover average costs of accommodation, food and clothing for the household in question. It can also be measured subjectively by asking members of the household to self-rate whether they are very poor, poor, just getting along, reasonably comfortable, very comfortable or prosperous. The two approaches provide complementary perspectives. The objective measure can identify whether a household is able to purchase goods and services easily, but not whether having access to higher income would increase quality of life. The subjective measure can identify whether lack of income is a contributor to low quality of life, but is not necessarily a reflection of objective income so much as social expectations around what is an 'appropriate' level of income and standard of living.

Advocates of subjective measures of wellbeing argue they provide critical insights not possible when using objective measures alone. Subjective wellbeing measures consider an individual's own interests, needs or preferences (Diener et al. 2009). Kahneman and Krueger (2006) have argued that indicators of subjective wellbeing provide a more nuanced appraisal than objective measures such as income, expenditure, educational attainment or lifespan. They enable a person to make their own judgments about what is important to them personally, and how well they are achieving those things important to them.

Ultimately, subjective and objective indicators should be viewed not as 'either/or' options, but as "complementary pieces of information that together permit a better understanding of how people are faring in their lives" (Diener et al. 2009, p. 45). This means using both types of indicator can often

maximise understanding of wellbeing (Ura et al. 2012). Therefore identifying both objective and subjective measures for indicators is often the best approach. While this report explores subjective measures, we would recommend these be accompanied where feasible by objective measures when examining how wellbeing is changing in the ACT.

The *personal wellbeing* indicator is an example of a subjective indicator that is based on 'life evaluation'. Life evaluation indicators of wellbeing measure wellbeing based on a person's reflective assessment of different aspects of life, such as how satisfied they are with their life overall, their standard of living, their personal relationships, or how they rate their overall life from the worst to the best it could possibly be (Diener et al. 1999, 2009; OECD 2013).

Both single-item and multi-item measures of subjective personal wellbeing are widely used, and there is ongoing debate about the advantages and disadvantages of each approach. Single-item measures, such as the common question ""Thinking about your own life and personal circumstances, how satisfied are you with your life as a whole?", let the person answering decide which aspects of their life are more and less important when answering (Cheung and Lucas, 2014). Multi-item measures ask a person to rate different aspects of their life, and by doing so can better identify which aspects of a person's life are going well or poorly, providing a better understanding of what is causing high or low wellbeing, rather than simply whether it is high or low (Cummins et al., 2003). Multi-item measures are also argued to be more robust than single-item measures from a psychometric perspective, and less ambiguous in meaning (Forgeard et al. 2011, Jovanovic 2016). The Personal Wellbeing Index is an example of a multi-item measure.

4.2 Description of measure – Personal Wellbeing index

The Personal Wellbeing Index is a relatively commonly used measure of overall subjective personal wellbeing. It is used both in Australia and internationally (International Wellbeing Group 2013). Survey participants are asked to indicate how satisfied they are with the following seven dimensions of their life, on a scale from 0 (completely dissatisfied) to 10 (completely satisfied):

- Your standard of living
- Your health
- What you are currently achieving in life
- Your personal relationships
- How safe you feel
- Feeling part of your community
- Your future security

Responses to these seven items are then transformed into a scale from 1 to 99, using the method described in International Wellbeing Group (2013). It is then possible to either present a mean score, or to examine the proportion of people who have low, typical and high wellbeing based on thresholds emerging as meaningful in the literature (Schirmer et al. 2016).

4.3 Key findings – ACT adults

The PWI was examined in two ways: first, the mean score was examined, and then the proportion of people with low, typical and high wellbeing based on thresholds suggested in the literature.

Examining the mean score for ACT adults shows a statistically significant decline in the average wellbeing of ACT adults, from 71.9 in Nov/Dec 2019, to 68.2 in Apr/May 2020 (Figure 1). While a fall of 3.6 points out of a total scale measured from 1 to 99 can appear small, it is likely to be meaningfully as well as statistically significant. PWI scores typically stay highly stable for whole communities over time. As identified earlier in this report, measures of subjective wellbeing over

time across multiple studies have found most people stay within a relatively small range of desirable wellbeing over time, unless major events occur which cause a decrease in wellbeing (e.g. Richardson et al. 2016). At the scale of an entire population, the population-wide decline in average personal wellbeing seen between late 2019 and 2020 suggests that the person wellbeing of a significant proportion of people in the population declined during the five months between the two survey waves.

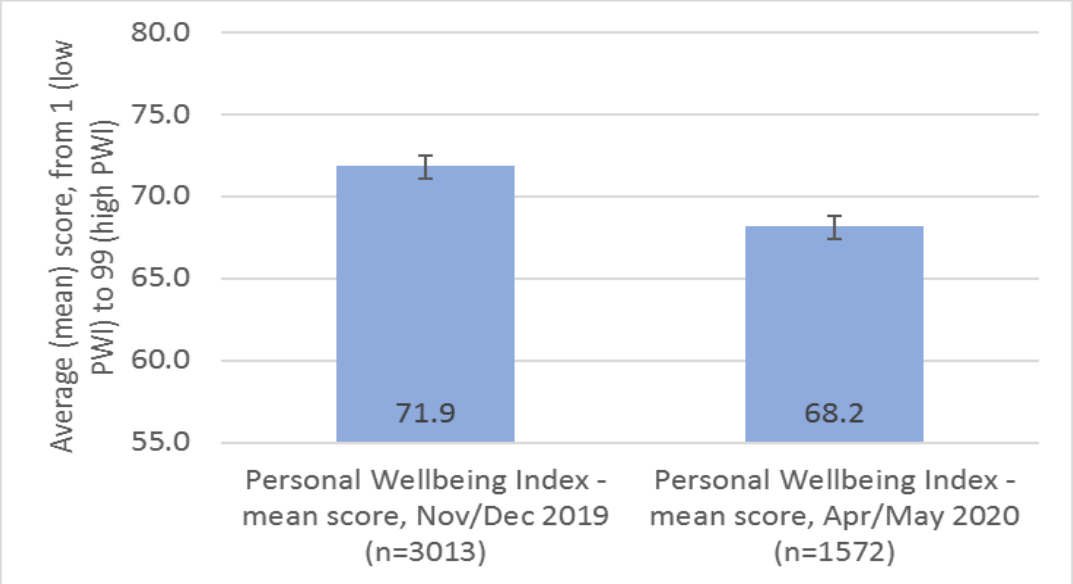

Figure 1 Personal Wellbeing Index – mean score for ACT adult residents, 2019 and 2020

Mean scores provide a useful overall picture of change, and a decline in mean score was observed in not only in the cross-sectional data presented in Figure 1 (which includes all ACT residents who participated in each survey wave, including those who participated in only one of the two surveys), but also in the longitudinal samples. In other words, the change is observed when analysing only those survey participants who completed both waves of the survey (the longitudinal sample), as well as in the cross-sectional sample.

It is also useful to examine the proportion of people with 'low', 'typical' and 'high' wellbeing. These were examined using the following scoring thresholds, based on Schirmer et al. (2016):

- Low wellbeing: A score of 60 or below
- Typical wellbeing: A score of 61 to 79 was considered 'typical wellbeing'
- High wellbeing: A score of 80 or higher.

As shown in Figure 2, the decline in 'average' wellbeing scores corresponded to an increase in the proportion of those with low wellbeing, from 20.7% to 28.4%, and a decline in the proportion of those with higher than typical wellbeing from 33.7% to 26.9%. The proportion of those with typical wellbeing remained similar. Overall, this represents a significant increase in the proportion of ACT adult residents with low wellbeing, with 7.7% of ACT adults shifting from a state of either typical or high wellbeing to a state of low wellbeing in a relatively short period of time.

PWI is measured in several Australian surveys, however not all of these produce data directly comparable to that produced in the *Living well survey.* In particular, there is a known survey mode effect for this type of subjective measure in which people tend to report consistently higher or lower subjective wellbeing depending on how a survey is administered (e.g. Dolan and Kavetsos, 2016). This means that ideally, findings of the *Living well* survey should be compared to findings of surveys that also used online and paper survey modes.

The Regional Wellbeing Survey (RWS) provides one such comparison (Schirmer et al. 2016). The RWS collects data via a mixed-mode survey in which participants can complete the survey online or by completing a mailed survey form, making the mode comparable to the *Living well* survey. However, the most recent data available from the RWS were produced in 2018, and as such have limited comparability to findings of the *Living well* survey conducted almost two years later. As shown in Figure 3, in 2018, RWS data show 25.0% of Australian adults having low wellbeing, 39.6% typical wellbeing and 35.4% high wellbeing.

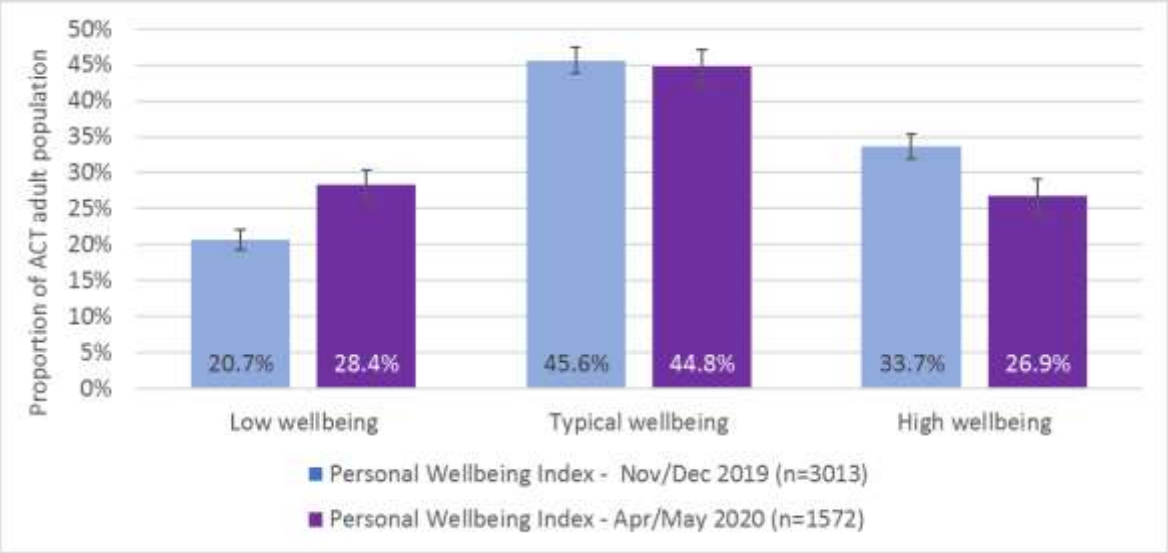

Figure 2 Personal Wellbeing Index – proportion of ACT adult residents with low, typical and high wellbeing, 2019 and 2020

As of late 2019, ACT adults had somewhat higher levels of personal wellbeing than the 2018 Australian average, being less likely to have low wellbeing, more likely to have typical wellbeing, and similarly likely to have high wellbeing. By April/May 2020, slightly more ACT residents had low wellbeing than was the case for Australia as a whole in 2018. It is likely similar declines in personal wellbeing occurred in other parts of Australia.

The comparison does highlight that despite the decline in wellbeing observed between 2019 and 2020, even in 2020 the proportion of ACT residents reporting low wellbeing was similar to that for Australia as a whole prior to COVID-19. It is possible that the relatively positive wellbeing of many in the ACT prior to 2020 has acted as a buffer against the impacts of COVID-19, possibly reducing the proportion of ACT residents falling into the 'low wellbeing' category.

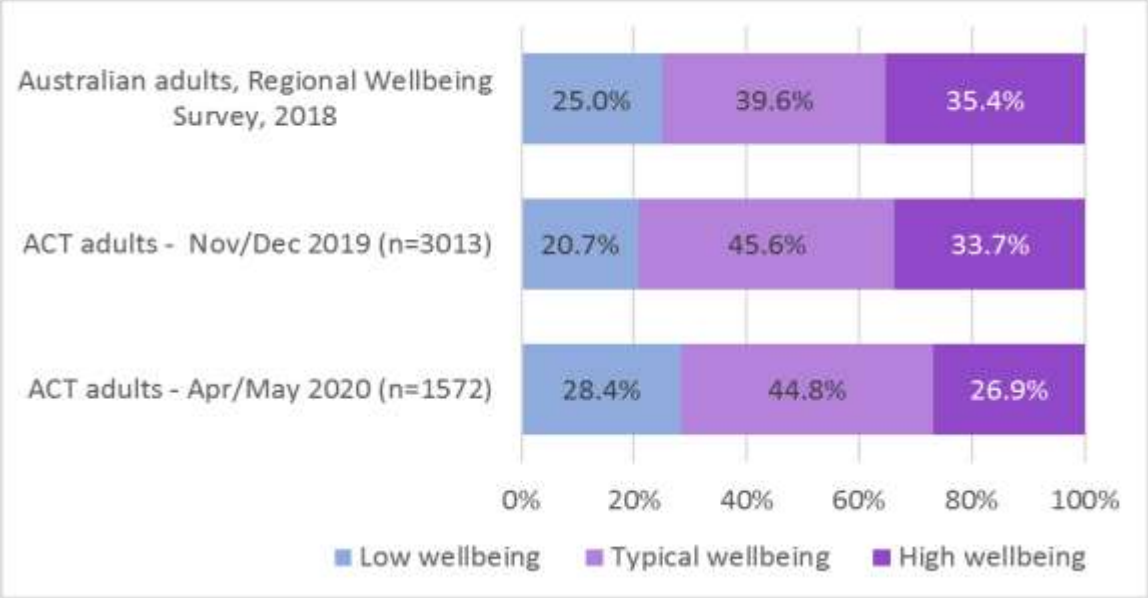

Figure 3 Comparison of PWI scores: Regional Wellbeing Survey (2018) and Living well survey (2019, 2020)

4.4 Key findings – population groups

Some groups had significantly lower wellbeing than the average for ACT adults in both 2019 and 2020. Figure 4 illustrates the change in the proportion of people with low PWI scores, by gender and age group. This shows that the proportion of women with low wellbeing increased more than the proportion of men. Similarly, the proportion of those aged under 50 with low wellbeing increased more than the proportion of those aged 50 and over. Table 4 provides data for a wider range of groups. This highlights a range of changes. Some groups had much lower than average wellbeing in 2019, and this did not decline substantially but remained lower than average, including carers and those with moderate or severe disability. For others, wellbeing was low in 2019 and worsened significantly between 2020, including those identifying as LGBTIQA+, single parents, chose with children agreed 5-17 in their household, and renters. Others did not have lower than average wellbeing in 2019, but did in 2020: women, those aged under 50, those with all ages of children under 17 (including children aged 0-4), mortgage holders and employed people. This is explored further in Part 3 of this report.

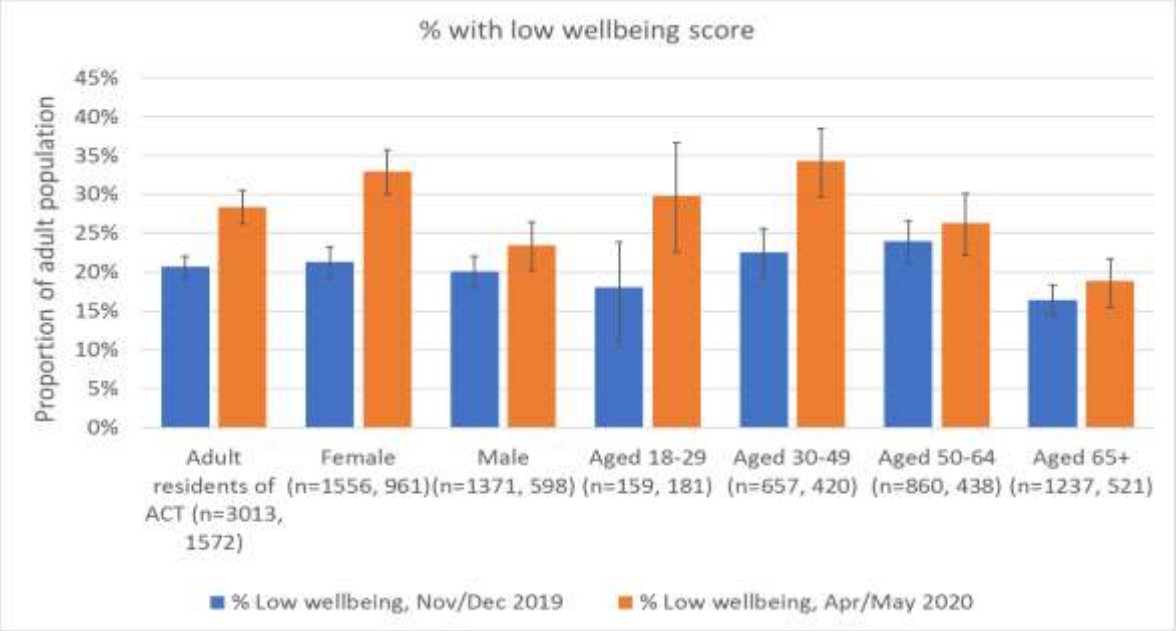

Figure 4 Personal Wellbeing Index – proportion of ACT adult residents with low wellbeing, 2019 and 2020, by gender and age

4.5 Recommendations and conclusions

The Personal Wellbeing Index is a well-established, validated and reliable measure of personal wellbeing, which is suitable for use to measure personal wellbeing. However, there are some limitations in its use, which lead to the following recommendations.

1. The PWI is measured in some Australian and international surveys, but not all. Consideration should be given to also measuring one or more of the following personal wellbeing measures, which are used in other surveys that do not use the PWI to measure personal wellbeing. Doing this would expand ability to compare personal wellbeing of ACT to other regions:
    - Global Life Satisfaction (measured in several Australian surveys including the ABS General Social Survey, and used as part of the Organisation for Economic Cooperation and Development's *How's Life* initiative) (ABS 2020, OECD 2020).
    - Possibly the Cantril Ladder (measured in the World Happiness Survey which covers multiple countries, but rarely measured in Australian surveys) (Helliwell et al. 2020).
2. Further work is needed to better establish whether the scoring thresholds used to define low, typical and high wellbeing are the optimal thresholds. As understanding of the appropriate scores to use for these thresholds is further developed, consideration should be given to adjusting the thresholds used for reporting, so they reflect emerging best practice. Given this, it is recommended that data for this measure should be retained in a form that allows re-calculation of thresholds in future as improved and more precise groupings are identified: this will enable historical data to be recalculated using any future updated groupings identified.

Table 4 Average personal wellbeing of different groups, 2019 and 2020

<table>
<tr><th colspan="2">Groups experiencing a significant decline in average personal wellbeing score between 2019 and 2020</th><th colspan="2">Groups NOT experiencing a significant decline in average personal wellbeing score between 2019 and 2020</th></tr>
<tr><td colspan="2">• Females
• Aged <50
• LGBTIQA+
• Single parents
• Children aged <17 in home
• Carers, <15 hours/week
• Renters
• Mortgage holders
• Employed people
• Gungahlin, Inner South, North, Outer Belconnen
• All home types (freestanding/townhouse/apartment)</td><td colspan="2">• Males
• Those aged 50+
• Carers, 15+ hours/week (wellbeing remained low)
• Those with moderate/severe disability (wellbeing remained low)
• Home owned outright (wellbeing remained high)
• Possibly unemployed (wellbeing remained low)[1]</td></tr>
<tr><td colspan="2">% with low wellbeing in Nov/Dec 2019: 20.7%</td><td colspan="2">% with low wellbeing in Apr/May 2020: 28.4%</td></tr>
<tr><td>Groups with lower than average wellbeing in BOTH 2019 and 2020[2]</td><td>Groups with lower than average wellbeing in 2019 only (wellbeing not significantly lower than average in 2020) [2,3]</td><td>Groups with lower than average wellbeing in 2020 only (wellbeing not significantly lower than average in 2019) [2, 3]</td><td>Groups with higher than average wellbeing in BOTH 2019 and 2020[2]</td></tr>
<tr><td>• LGBTIQA+ (34.8%, 55.8%)
• Single parents (38.9%, 60.5%)
• Children aged 5-17 in household (24.5%, 41.5%)
• Carers (29.5%, 36.6%)
• Renters (29.2%, 40.3%)
• Moderate/severe disability (39.5%, 41.1%)</td><td>• Sole person households (29.0%, 34.4%)
• Carers, 15 hours+ (38.4%, 29.9%)
• Possibly: Unemployed people[1]</td><td>• Females (21.3%, 32.9%)
• Aged 30-49 (22.5%, 34.2%)
• Those with children aged 0-17 living in the household (21.5%, 36.4%)
• Those with children aged 18-24 living in the household (17.4%, 33.6%)
• Those living in units/ apartments (19.7%, 43.7%)
• Possibly: Those in North, Inner South[1]</td><td>• Aged 65+ (46,4%, 42.1%)
• Couple with no children at home (41.7%, 34.2%)
• Home owned outright (40.8%, 38.8%)
• Woden Valley (41.5%, 28.6%)</td></tr>
<tr><td colspan="4">[1]Small sample sizes mean there is lower confidence in this finding, and percentages are not presented due to high standard errors in estimates resulting from low sample sizes
[2] Numbers in brackets indicate % with low wellbeing in 2019, 2020 Living well survey
[3] Note that significantly lower means sufficiently lower than the average to be statistically significantly when assessed using 95% confidence intervals. In some cases, a group may be lower than the average by a small amount, but that difference is not statistically significant as 95% confidence interval data suggests the difference may be due to sampling variance, and cannot be confidently stated to be likely to be a 'real' difference.</td></tr>
</table>

Overall, the Personal Wellbeing Index is a commonly used, well validated measure of personal wellbeing, and likely to be suitable for use as an ongoing measure of personal wellbeing. Despite concerns in the literature that many personal wellbeing measures are 'too stable' when measured as population scale, the initial data collected in the *Living well* survey indicate that the PWI is sensitive to large-scale changes in wellbeing experienced by many people. The stability of the measure in normal times is useful as it reduces risk of personal wellbeing measures changing in response to short-term or small stimuli, and means any changes observed at population scale in an appropriately designed survey are likely to be meaningful.

As of 2019, the 'average' wellbeing of the ACT population was likely higher than in other parts of Australia, although exact contemporary data was not available for comparison purposes. Assuming wellbeing in 2019 and 2018 were somewhat comparable, a smaller proportion of the ACT adult population had low levels of wellbeing compared to the Australian population. However, while levels of wellbeing were *overall* higher than average in the ACT in 2019, wellbeing differed substantially to the average for some groups. Those more likely to have lower levels of wellbeing included single

parents, people with disabilities, those who care for others for 15 hours or more per week, renters, those identifying as LGBTIQA+, and those who were unemployed. High levels of wellbeing were more common amongst those aged 65 and older, and those who owned their home outright (two groups with substantial overlap in membership, with most of those who owned their home outright being in older age groups).

Personal wellbeing declined significantly between Nov/Dec 2019 and Apr/May 2020 amongst the ACT adult population. This decline is highly likely to reflect the impacts of bushfires, hailstorm and COVID-19, as these are events that have had population-wide effects in the ACT, and are most likely to have contributed to a change in population-wide average levels of wellbeing. The existing high level of wellbeing in the ACT may have acted as a buffer, as even after this decline, the proportion of ACT adults with low wellbeing is only slightly higher than was typical for Australia as a whole in 2018. However, some groups of people can be identified as having differing trajectories with regard to their wellbeing that are of concern. Some groups already often had low wellbeing, and have experienced further decline in wellbeing: in particular, single parents, renters, carers, those identifying as LGBTIQA+, and those living with moderate/severe disabilities. These groups may be at high risk of longer-term decline in wellbeing, given their already high risk of low wellbeing prior to the further decline observed between the 2019 and 2020 surveys. There was emergence of higher than average rates of low wellbeing in 2020 amongst some groups, specifically women, those aged 30 to 49, those with children living in the household (particularly children aged 5 to 17), and those living in units/apartments. This may be an indication of emerging vulnerability to long-term lower levels of wellbeing amongst these groups.

5.0 Access and connectivity domain

The 'Access and connectivity' domain of the *ACT Wellbeing Framework* examines 'ability to get around easily and access the spaces, places, buildings, services, jobs and activities that help us day to day' (ACT Government 2020, p. 10). Four indicators are included in this domain: access to services, liveable city, transport and digital access. In this section potential measures for the liveable city and transport indicators that can be generated using data from the *Living well* survey are explored.

5.1 Liveable city

5.1.1 Indicator context and purpose

The 'liveable city' indicator in the ACT Wellbeing Framework aims to examine what ACT residents think about the liveability of their local area (ACT Government 2020). The concept of liveability can be measured in many ways. It is sometimes measured using indexes that combine multiple objective measures, such as average commuting time, proportion of space dedicated to parks or nature reserve, and average proportion of income spent on housing (rent or mortgage) payment. However, in the *ACT Wellbeing Framework*, other indicators measure each of these things: summing them up into a liveability indicator may result in duplication of measures across the framework.

As part of the *Living well* survey, simple subjective measures of liveability were included. These have not been used in previous studies, and are explored in this section to consider their potential use as measures of the 'liveable city' indicator.

5.1.2 Description of measure

In the *Living well survey* liveability of the ACT region was examined using two questions:

- My local area (e.g. the suburb you live in) is very liveable
- The ACT in general is a very 'liveable' city (as a whole, it is good to live in)

Respondents were asked to indicate the extent to which they agreed or disagreed with each statement on a scale from 1 (strongly disagree) to 7 (strongly agree), and could also select 'don't know' if they were unsure.

In addition to these two measures, used for the first time in this survey, the measure subsequently examined in the section of this report considering the 'Connection to Canberra' indicator could also be considered to be a liveability indicator. This connection measure asks the extent to which a person agrees or disagrees that 'I would recommend the ACT region to others as a good place to live'.

5.1.3 Key findings – ACT adults

The large majority of ACT residents find both their local area, and the ACT region as a whole, highly liveable. The mean score from 1 (strongly disagree that the region is liveable) to 7 (strongly agree the region is liveable) was 6.2 for both a person's local area and the ACT region as a whole (n=1672). While a mean score could be used to present results for the indicator, it is preferable when using ordinal data that do not have a normal distribution to present data in groups created based on the underlying measure – which in this case means identifying the proportion of people who agreed and disagreed with the statement. An almost identically high proportion of people – 95.2% for the ACT region, and 94.7% for local area – reported good liveability (Figure 5).

5.1.4 Key findings – population groups

When different groups were compared, no groups were significantly more likely to report low liveability than others. Only three significant differences in mean scores were identified, in all cases involving a group reporting higher liveability than the ACT mean score of 6.2 out of a possible range from 1 to 7: those living in the Woden Valley (mean score of 6.6), those with children aged 0-4 living

in their household (6.6) and those living in Weston Creek (6.8)[2]. However, these findings should be interpreted with caution, as they represent relatively small differences to the average (for example, only a small increase in the proportion of people reporting high liveability).

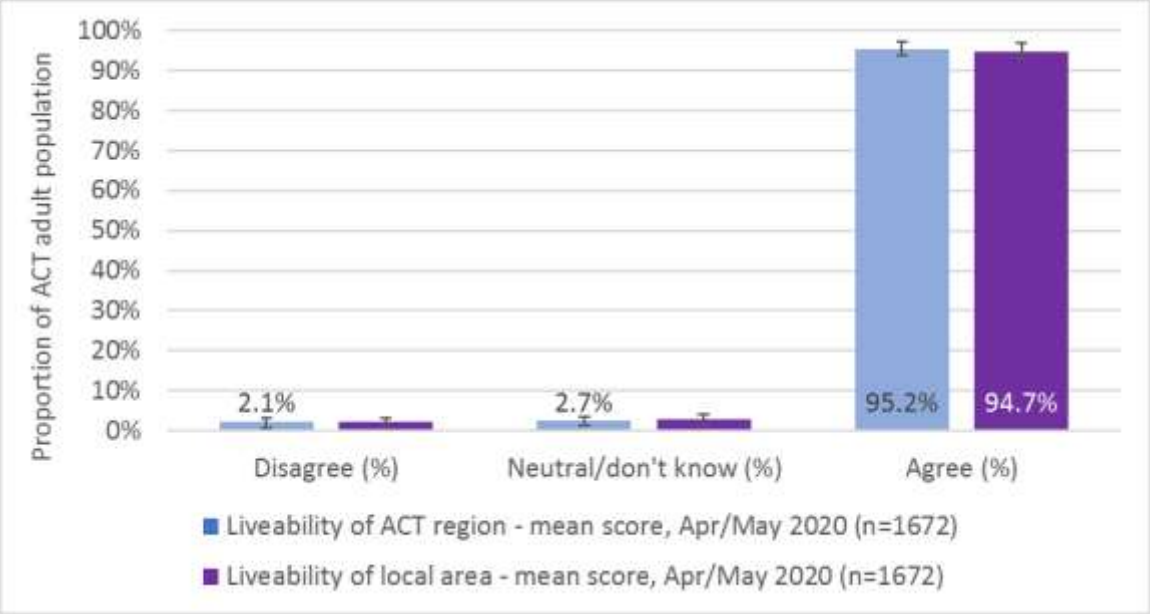

Figure 5 Liveability of the ACT – proportion of adult residents who disagreed, were neutral/unsure, or agreed that their local area/ACT region was liveable

5.1.5 Recommendations & conclusions

Overall, ACT residents find both the ACT region as a whole, and the local area of the ACT they live in, highly liveable using this measure. However, further work is needed to develop this measure and identify whether it is appropriate for longer-term use to measure liveability, or whether other measures may be more suitable.

The initial findings for the measure indicated little variation in response, with the large majority of ACT residents rating the ACT as '6' or '7' for liveability on a scale measured from 1 to 7. There was very little difference in rating of liveability of local area versus the ACT region. Further work is needed to identify whether this measure is sufficiently sensitive to use for this indicator – it is possible the findings reflect very high liveability in the ACT region, but also possible that they reflect a lack of sensitivity of the measure to differences in liveability.

This measure therefore should ideally be further tested over time to better identify whether it is sufficiently sensitive, whether amended wording may produce results that show greater responsiveness to differences in liveability, and whether measures should differentiate between 'local area' and 'ACT region' or be combined into a single measure.

5.2 Transport

5.2.1 Indicator context and purpose

The ACT Wellbeing Framework describes the importance of transport to wellbeing by explaining that *Being able to move easily within the city and our neighbourhoods helps connect us with people,*

[2] Mean scores may not be the optimal statistic to present for non-normally distributed ordinal data, although they are widely used to present findings and compare groups when reporting subjective measures such as those presented in this report. They are used in this report only where the mean score had consistent findings to alternative methods of presenting findings that are more commonly used to present results for non-normally distributed ordinal scales, including median scores, mode scores, and grouped categories. They are used as they enable a rapid and simple comparison of groups which can be relied on where it is consistent with these other types of measure.

work, places and services to live good lives (ACT Government 2020 p. 10). Transport use and access can be measured in multiple ways, with many objective measures possible, such as measuring the type of transport used, frequency of use, length of trips and similar measures. Subjective measures, in contrast, aim to identify whether a person's transport use and access is achieving what it needs to – in this case, whether they are easily able to get to the places they need to. An existing subjective measure of access to transport was used to examine how well ACT residents are able to access transport to get to the places they need to.

5.2.2 Description of measure

An existing measure used in the Australian Bureau of Statistics' *General Social Survey* was included in the *Living well* survey, and may provide a useful measure of this indicator. Survey participants were asked the following question: "Consider all the places you need to go to, by car or other transport. Which statement best describes your overall transport situation?" Participants were then asked to select from the following responses: (i) Can easily get to the places I need to, (ii) Sometimes have difficulty getting to the places I need to, (iii) Often have difficulty getting to the places I need to, (iv) Can't get to the places I need to, (v) Never go out/housebound.

5.2.3 Key findings – ACT adults

As of late 2019, a majority of ACT residents (81.0%) found it easy to get to places they need to, while 16.3% sometimes had difficulty, and 2.7% often or always had difficulty (Figure 6). This is very consistent with data released in 2020 from the ABS General Social Survey (ABS 2020), in which 2.6% of ACT residents were found to often or always have difficulty getting to the places they needed to. This was lower than the Australian average of 4.9% (ABS 2020).

Data from the second wave are not presented as at the time of 2020 data collection COVID-19 related restrictions meant many people were restricted from travelling, and answers likely to reflect COVID-19 restrictions rather than ability to access adequate transport.

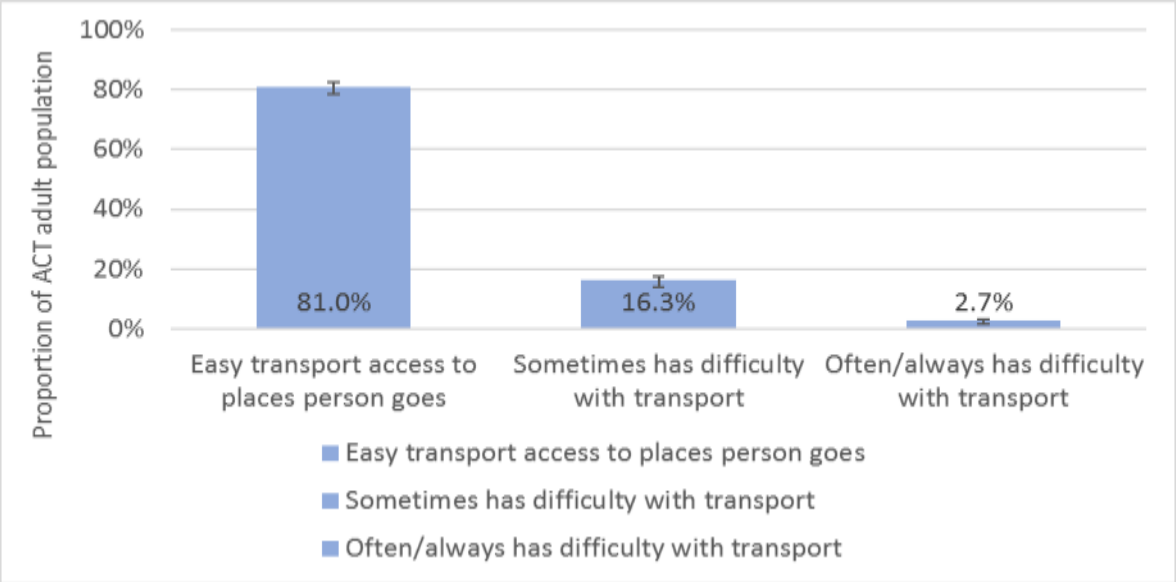

Figure 6 Ability to access transport – ACT residents, Nov/Dec 2019

5.2.4 Key findings – population groups

Those significantly more likely to report sometimes, often or always having difficulty with transport compared to the ACT average of 19.0% (the sum of the 16.3% who sometimes had difficulty and the 2.7% who often or always had difficulty were):

- Those living with moderate or severe disabilities (30.8%): As the definition of disability includes disability related to both physical and mental health, it is likely that difficulty with transport is an issue for a much higher proportion of those who have a disability involving limitation in physical mobility or in ability to drive a vehicle.
- People living in a sole person household (25.9%)
- Carers (26.1%), particularly those with 15 or more hours a week of caring obligations (31.1%)
- Renters (27.6%)
- Those who were unemployed and looking for work (34.4%)
- Those living in the North (Downer, Dickson and Watson) (29.6%).

While some groups reported better access to transport than the average, the difference was typically of only 3-4% (e.g. 85% of those in a group might have reported easy access to transport compared to the ACT average of 81%); given the limited meaningfulness of the small differences, these findings are not reported.

5.2.5 Recommendations & conclusions

The initial use of this measure indicates that while most ACT residents are able to use cars or other forms of transport to easily get to the places they need to go, some groups – those with moderate/severe disabilities, those who are unemployed, carers, and renters – find it more difficult to get to the places they need to go. This suggests the measure is reasonably sensitive to differences in circumstances. This measure is likely to be useful in identifying whether the combinations of transport used by different ACT adults are enabling them to go to the places they need to. It can also be compared to Australia-wide data using data from the GSS, and the data collected in the *Living well* survey in 2019 produced close to identical results to those from the GSS, suggesting there is good comparability of data.

6.0 Economy domain

The 'economy' domain of the ACT Wellbeing Framework examines 'factors such as employment, income equality, business performance and economic diversity' (ACT Government 2020, p. 11) using the indicators of employment, economic performance, business conditions and economic diversity, and income inequality. Many of these are typically measured using national statistical data. However, it is also common to measure confidence in business conditions, which is a subjective measure. This section examines one subjective measure that could be useful as part of measuring the indicator 'business conditions and economic diversity'.

6.1 Business conditions and economic diversity

6.1.1 Indicator context and purpose

The ACT Wellbeing Framework describes this indicator as measuring 'the vibrancy and diversity of the ACT economy' (ACT Government 2020, p. 11). This is an indicator that can be measured using objective or subjective data. It is often useful to do both, with subjective data able to provide insight into the level of confidence residents have in the local economy, and to be compared to the actual business conditions as recorded in objective conditions. With perceptions often a significant influence on people's purchasing behaviour in the economy, subjective measures are a useful measure of how purchasing behaviour may be changing amongst consumers.

6.1.2 Description of measure

While many surveys both in Australia and internationally measure business confidence and access to economic opportunity, wording varies across surveys and there is not a specific standard form of wording used across multiple surveys. Many surveys measure confidence using a large number of survey items that are then turned into a scale. As the *Living well* survey seeks to measure multiple concepts, concise measures are preferable, and single item measures were explored in the *Living well* survey.

Two single-item measures were explored to identify whether they have potential utility for this indicator. They were each based on a single survey item, measured using a 7-point scale from 1 (strongly disagree) to 7 (strongly agree), with a 'don't know' option also provided.:

- Businesses in the ACT region are doing pretty well at the moment.
- There are many job opportunities for me in the ACT.

These measures were based on measures used in the Regional Wellbeing Survey (RWS) since 2014. In the RWS, the wording is 'in my local region' rather than 'in the ACT region/in the ACT'. In the RWS, the measures have shown high levels of variance between communities over time (Regional Wellbeing Survey 2014-2018).

These two items differ in what they are examining. The first examines overall views about the economy as a whole, by asking about businesses in general. It could be considered a 'community scale' measure as it is not asking a person to comment on their own individual circumstances, but their views about broader ACT-wide circumstances. The second is an individual-scale measure and focuses on whether an individual feels they themselves have job opportunities. Their answers will likely reflect both their individual circumstances and broader confidence in the availability of jobs.

These measures were both included in the first wave of the survey; however, in the second wave, where more questions were included that were specific to COVID, only a subset of participants were asked one of the measures. This means there is only limited ability to identify likely change in the indicators between the two waves of the survey.

6.1.3 Key findings – ACT adults

In late 2019, the average score for confidence in business conditions was 4.9 out of a possible 7 (n=2956). In Apr/May 2020, the average score was significantly lower, at 3.5 out of a possible 7 (n=608). This suggests a significant decline in confidence in business conditions. As shown in Figure 7, in 2019 56.6% of ACT residents agreed that businesses in the ACT were doing 'pretty well' and only 9.4% disagreed. In contrast, by Apr/May 2020, only 23.8% felt businesses were doing pretty well, and 45.2% disagreed. It is considered highly likely that this change reflects the impacts of bushfires, hailstorm and COVID-19 on ACT businesses.

In late 2019, 54.2% of ACT adult residents agreed that there were plenty of job opportunities for them in the ACT, while 19.5% disagreed (Figure 8). This item was not included in the 2020 survey, and will be included again when the survey is repeated in future.

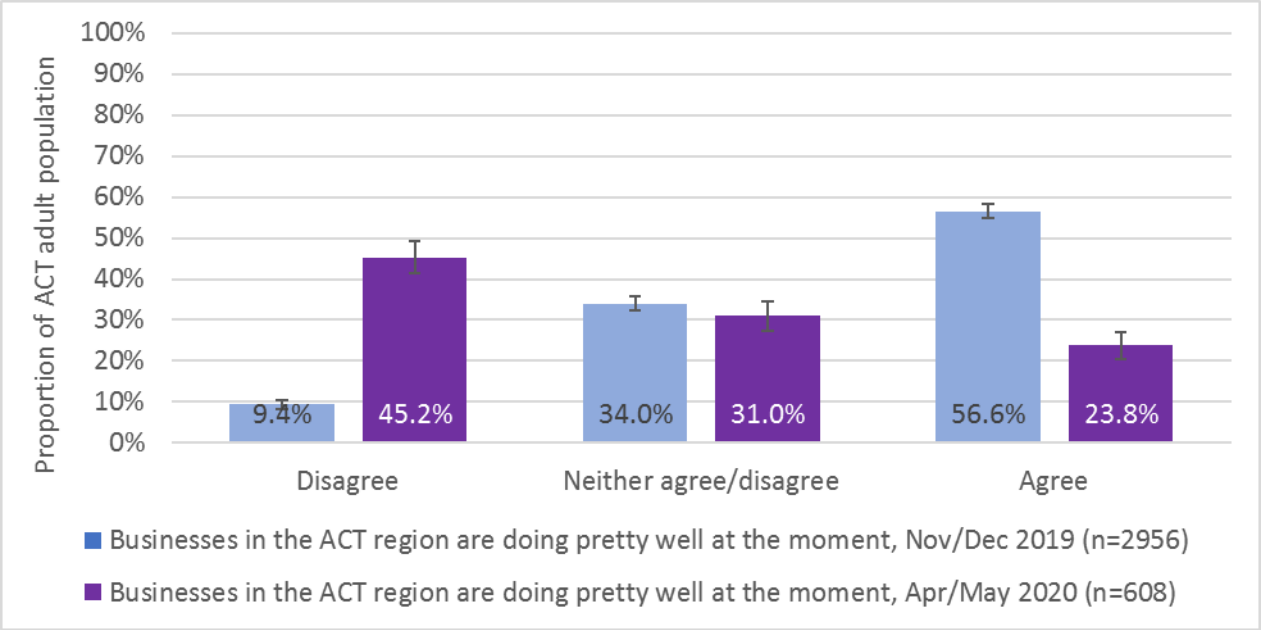

Figure 7 Confidence in business conditions– ACT residents, 2019 and 2020 – comparison of levels of confidence

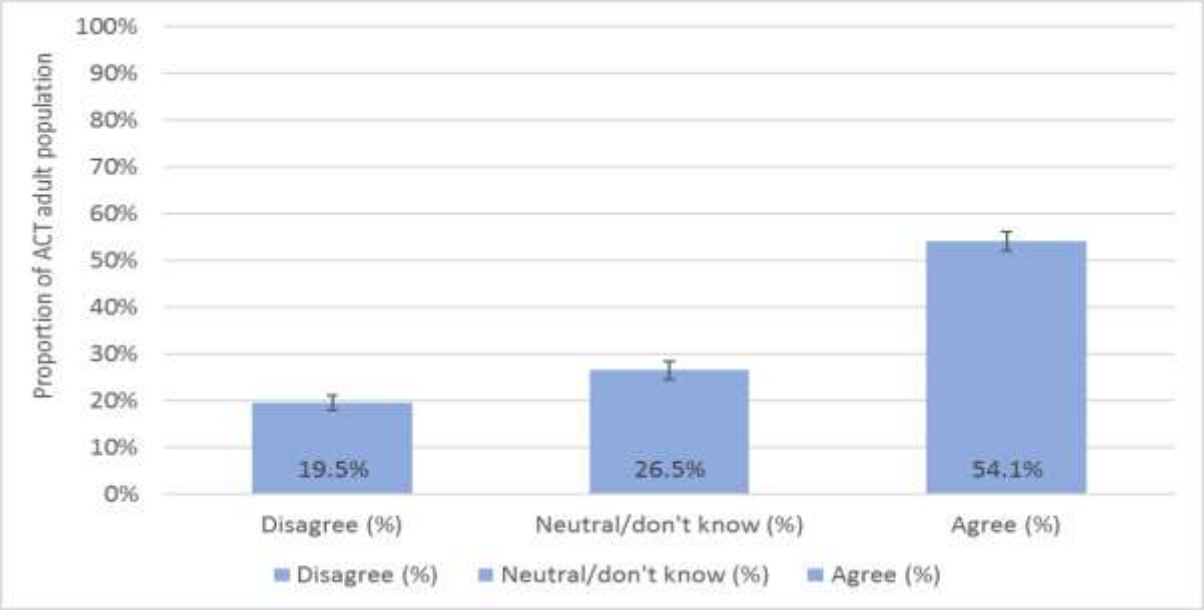

Figure 8 Availability of job opportunities– ACT residents, 2019 – levels of confidence

6.1.4 Key findings – population groups

While confidence in business conditions declined substantially between the two waves, within each wave the views of different groups of people were very similar. While some groups were slightly less or more likely to feel businesses were doing pretty well in each wave, and some of these differences were statistically significant, the actual magnitude of the difference was small (typically less than 2% to 3% difference in the proportion of those agreeing or disagreeing).

In contrast, there were larger differences in the views of different groups about availability of job opportunities. While no group was significantly more likely to report having good job opportunities, the following were significantly less likely to feel they had good job opportunities in the ACT as of late 2019:

- Those aged 65 and older (25.9% disagreed that there were plenty of job opportunities, compared to 19.5% of ACT adults)
- Those living with moderate or severe disabilities (27.6%)
- Those living in sole person households (29.2%)
- Carers with 15 or more hours a week of caring obligations (25.9%)
- Those who were unemployed and looking for work (56.4%)
- Those living in Belconnen East (30.7%) and Inner Belconnen (30.6%).

6.1.5 Recommendations & conclusions

Confidence in the health of the local economy, in the form of feeling confident local businesses were doing well, declined between Nov/Dec 2019 and Apr/May 2020, across all groups. While there was little differentiation in views of different groups, the decline suggests sensitivity of the measure to changing conditions. As of late 2019, almost one in five (19.5%) ACT adults did not feel there were many job opportunities for them in the ACT, and this varied significantly for some groups, also suggesting reasonable sensitivity of the measure.

The initial results for the two measures indicate that they are measuring differing underlying concepts, with more variance in responses when people were asked about their own access to job opportunities and less when they were asked their views about business conditions more generally.

These findings suggest a need to further clarify the objectives of different measures that may be considered for this indicator: is it important to measure overall confidence in business conditions, individual access to job opportunities, or both? If both are considered relevant, further work should be done to appropriately validate these measures, given the initial indications that there is sufficient variation in response to enable identification of differences between groups and over time. There may also be utility in identifying other measures that can be included for this indicator, to better enable comparison to findings of other Australian surveys.

7.0 Education and lifelong learning domain

The *ACT Wellbeing Framework* includes several indicators of education and life-long learning, focusing on early childhood education, learning growth, equity of educational outcomes, student belonging, and learning for life. Most of these will be measured using data already collected in ACT administrative or national statistical data. However, one indicator may require some subjective data – 'learning for life'.

7.1 Learning for life

7.1.1 Indicator context and purpose

Learning for life refers to having opportunities for post-school education, something which 'improves employment opportunities, which in turn contributes to overall wellbeing and life satisfaction' (ACT Government 2020 p. 13).

7.1.2 Description of measure

A search for existing subjective survey measures that examine access to post-school education opportunities identified no suitable existing, validated measures that were sufficiently short to include in the *Living well* survey. While many surveys ask about post-school education, most ask about whether a person has accessed post-school education or their views about the quality of the specific courses they have accessed. Few ask whether the post-school learning opportunities meet their needs for learning post-school.

Given the lack of existing measures, a simple initial measure was developed and included in the first wave of the *Living well survey.* Survey participants were asked: "How would you rate the quality of access to the following in the ACT region – ongoing opportunities for you to improve your skills and knowledge?" Participants were then asked to rate their access from 1 (very poor access) to 7 (very good access). They could also select 'don't know' if they were unsure. This initial measure is very general, and does not differentiate between the types of learning needs different people may have, or their levels of access and barriers to accessing these.

7.1.3 Key findings – ACT adults

Data were analysed from 2019 only, as this question was only asked of a small sample in 2020. A majority of ACT residents (79.1%) reported having good access to opportunities to improve skills and knowledge, while 16.3% reported having neither good or poor access or being unsure, and 4.6% reported poor access (Figure 9). The mean score from 1 (very poor access) to 7 (very good access) was 5.7 (n=2956); this mean score excludes 'don't know' responses.

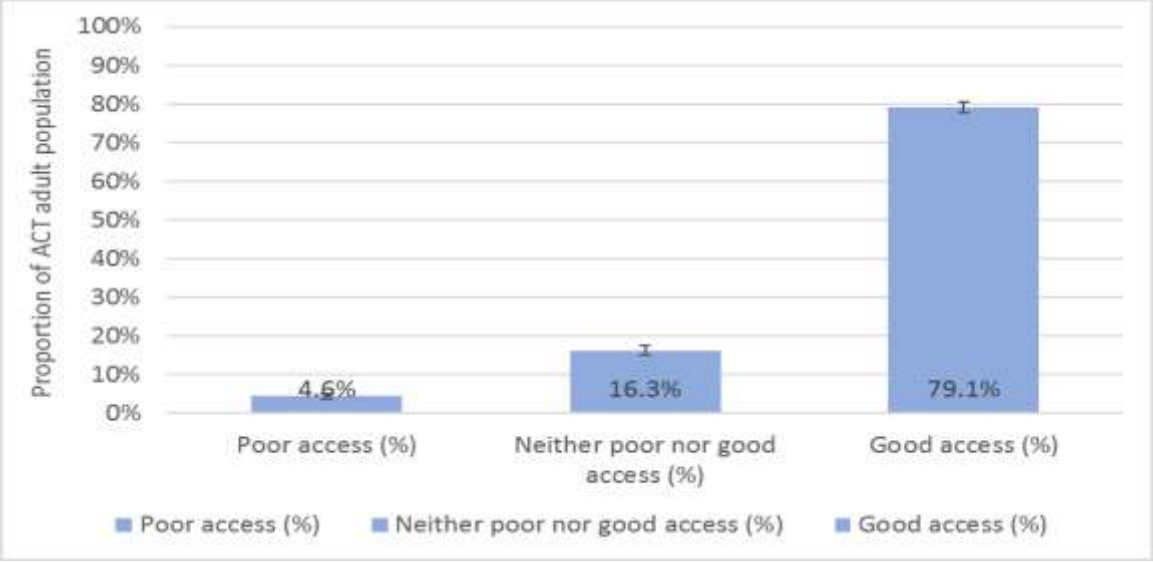

Figure 9 Access to opportunities to increase skills and knowledge – ACT residents, Nov/Dec 2019

7.1.4 Key findings – population groups

When different groups were compared, few differed significantly to the ACT average. A small number of groups were more likely than average to report having poor access to opportunities to improve their skills and knowledge: those living in share/group households (42.0% reported poor or neither poor or good access, compared to 20.9% of ACT adults, although the sample of this group was small), renters (25.7%), those who were unemployed and looking for work (34.2%). Single parents were also more likely to report not having good access (29.0%), however due to the relatively small sample of single parents, this difference was not statistically significant.

7.1.5 Recommendations & conclusions

Most ACT residents feel confident they have good access to opportunities to increase their skills and knowledge. However, this measure showed relatively little differentiation in response, with few people disagreeing with the statement. This suggests that this measure may not be highly useful as a longer-term measure of this indicator, and a need to develop measures that are more sensitive and specific to differences in access to opportunities to increase skills and knowledge.

8.0 Environment and climate domain

The 'environment and climate' domain of the *ACT Wellbeing Framework* examines a range of indicators of the quality and sustainability of air, water, land, flora and fauna. These include the indicators of (i) healthy and resilient natural environment, (ii) connection to nature, and (iii) climate resilient environment and community. Subjective measures can form an important part of measuring the second and third of these, and some options for measures of these are explored in this section.

8.1 Connection to nature

8.1.1 Indicator context and purpose

The *ACT Wellbeing Framework* describes the 'connection to nature' indicator as measuring 'how much green space we have in the ACT in our parks, nature reserves and other places, whether we can access these spaces, and how often we use them' (ACT Government 2020, p. 14). Measures of amounts of green space typically use objective data, such as spatial measures of the volume of different green space. Access to green spaces can be measured objectively, for example, by calculating the proportion of residents living within a certain distance of green space. It can also be measured subjectively, for example by identifying the proportion who self-report that they have good access to green space, which will vary not only based on distance to green space, but whether a person has the ability to actually visit the green space – for example, a person who has difficulty walking, or is caring for someone with limited mobility, may not be able to visit a nearby greenspace if it requires high mobility to access.

8.1.2 Description of measures

Three dimensions of self-reported connection to nature were developed for the *Living well* survey, forming three distinct measure that each provide differing insight into ability to connect to nature in the ACT:

- **Measure 1: Access to nature in ACT region.** This measure examined whether residents feel they have good access to nature in the region, irrespective of whether those nature areas are located close to their residence or not. This was examined by asking survey participants 'How would you rate the quality of access to the following in the ACT region? (i) Access to nature reserves, (ii) Access to nature trails/hiking/bushwalking opportunities'. Responses were measured using 7-point scale from 1 (very poor) to 7 (very good), with a 'Don't know' option also provided. Good access was cData are presented for 2019 only for this measure, as during 2020 data were collected during a period in which some ACT nature reserves were closed to visitors due to COVID restrictions.
- **Measure 2: Access to nature in local area.** This measure examined whether ACT residents have access to nature areas within an easy walking distance of their home. It was measured by asking 'About how long would it take to WALK from your home to the nearest park or nature reserve'. Response options were '1-5 min', '6-10 min', '11-20 min', '20-30 min', '30+min', or 'Don't know'. Data are presented for 2019 only for this measure, as walkability to nature areas was unlikely to change between 2019 and 2020. This measure was adapted from an existing measure that forms part of the NEWS scale (Saelens and Sallis 2002, Cerin et al. 2009)
- **Measure 3: Use of local green spaces.** This measure examined whether in a usual week, a person typically walked in local green spaces in their local area. It was measured by asking "Which places would you walk for recreation, health or fitness in your local area in a usual week? (i) Nature reserve or conservation reserve, (ii) Park or oval". This measure reflects that physical proximity to nature (examined in the first two measures) is only one of several factors that may influence whether a person is able to spend time in natural or 'green' spaces. Many factors may act as barriers or enablers to using green spaces, such as a person's health, how

busy they are, and their exercise/recreation preferences. This measure was developed for this survey, and was examined for both 2019 and 2020, as it was expected use of local green spaces may have changed during the COVID-19 restrictions occurring at the time of 2020 data collection.

8.1.3 Key findings – ACT adults

The large majority of ACT residents report having good access to nature in the ACT region in general (defined as a score of 5, 6 or 7 on the scale measured from very poor [1] to very good [7]), with an average score of 6.4 out of a possible 7, and 92.5% reporting good access to trails/hiking opportunities and 93.4% good access to nature reserves (Figure 10).

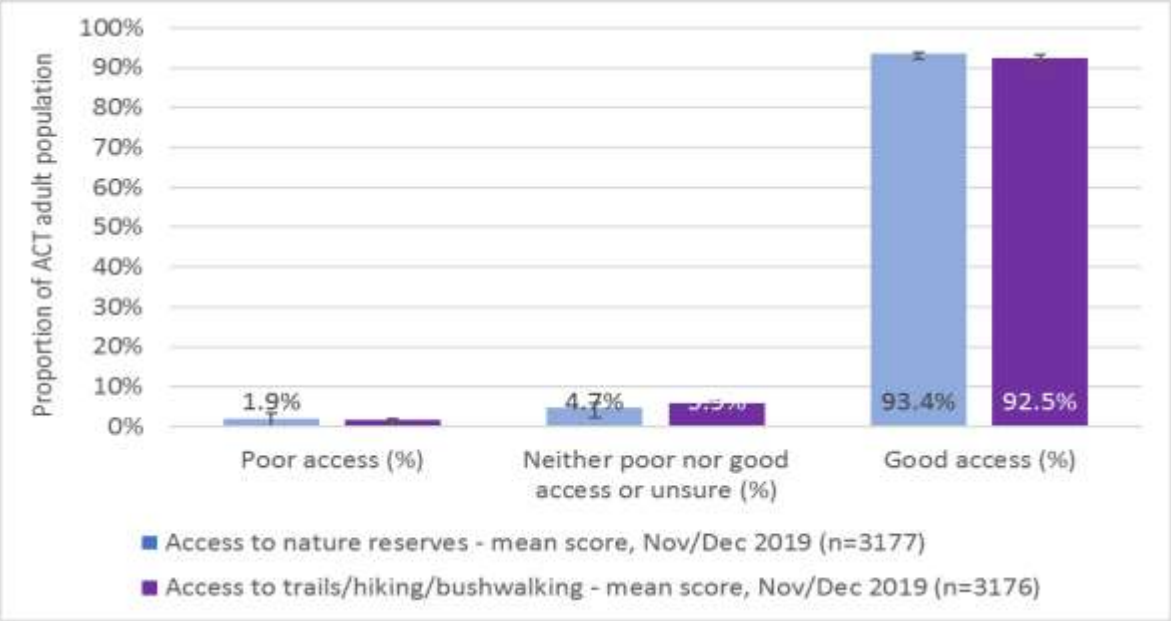

Figure 10 Access to nature reserves and trails in the ACT region, Nov/Dec 2019 – proportion reporting poor and good access

Just under four in five ACT residents – 77.5% - reported being able to walk to a park or nature reserve within 10 minutes of their residence (Figure 11). A further 10.7% reported that it took 11-20 minutes, while 9.2% reported it took 20 minutes or more, and 2.6% were unsure.

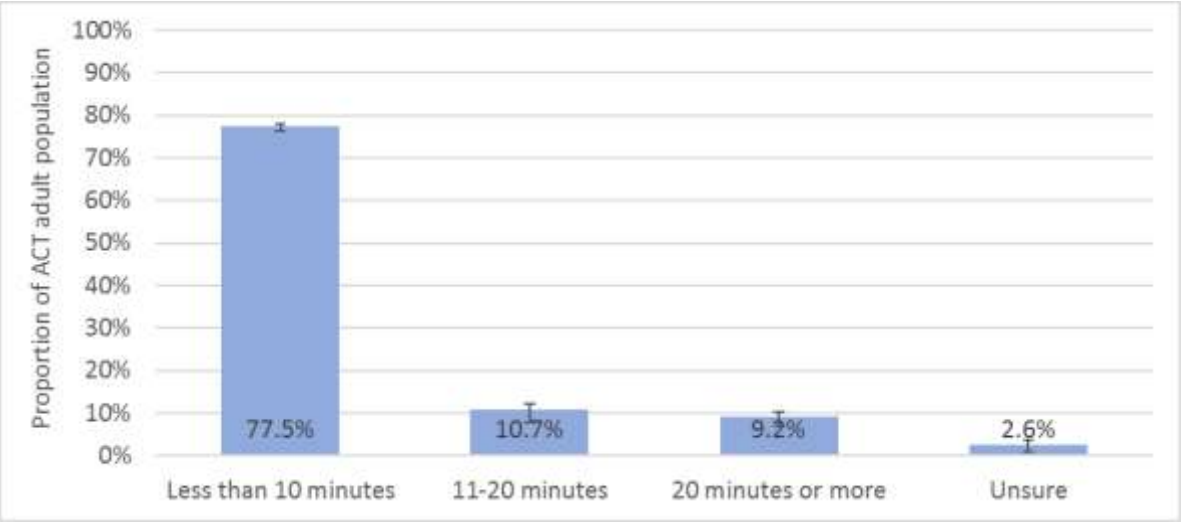

Figure 11 Walking time from residence to nearest park/nature reserve – ACT residents, Nov/Dec 2019

In 2019, 65.9% of ACT adults walked at least once a week in either a nature reserve and/or park/oval for health, recreation and fitness (Figure 12). This increased to 74.2% in Apr/May 2020. It is likely the data presented here under-represents the increase in use of local nature reserves and parks/ovals between 2019 and 2020, as anecdotal data suggests that many people used these areas more frequently while restricted in their ability to exercise in places such as gyms: this means it is likely many of the 65.9% who already walked at least once a week in a local park/nature reserve were doing so more frequently in 2020 than in 2019, but this increase in frequency was not captured by the survey question. The small sample of people asked this question in the second wave of the survey also limits ability to confidently identify change over time.

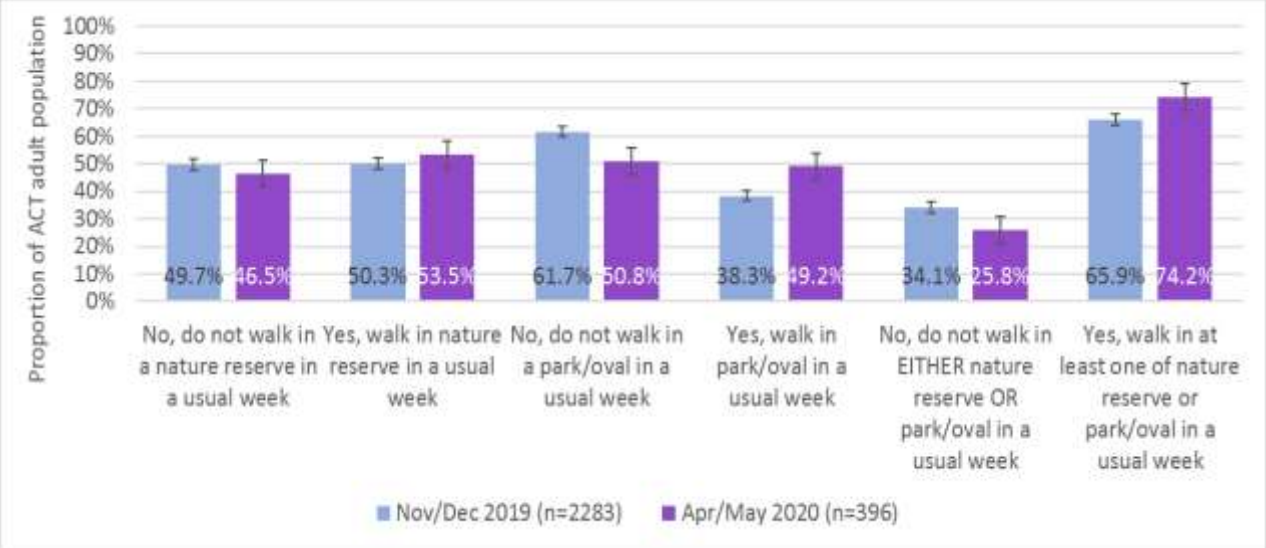

Figure 12 Use of local green spaces in a usual week, ACT adults, 2019 and 2020

8.1.4 Key findings – population groups

Access to nature reserves in ACT region: When different groups were compared, a small number reported even higher than average access to nature reserves, however the differences were typically in a magnitude of 3% or less, and as such are not considered sufficiently meaningful to report here. A small number of groups were less likely to report having good access to nature reserves compared to the ACT average of 93.4%, however even those less likely to report good access still had 85% of more who stated they had good access. This again indicates a lack of differentiation in response. When asked to rate their access to trails/hiking/bushwalking opportunities, results were almost identical.

Access to nature in local area: Some groups were significantly less likely to report being within a 10 minute walk of a nature reserve compared to the ACT average of 77.5%, and some significantly more likely to. Some of these differences may relate to differing perceptions of walking times, rather than actual differences in physical distance. Only differences involving 3% or greater difference in the proportion of people reporting being able to walk to a nature reserve within 10 minutes are included below:

- Those more likely to report being within a 10 minute walk of a nature reserve: Those living in the Inner North (88.2%), Outer Belconnen (83.7%), Tuggeranong North (79.9%) and Woden Valley (83.9%), men (80.8%)
- Those less likely to report being within a 10 minute walk of a nature reserve: those living in Belconnen East (61.1%) and Tuggeranong South (68.3%), those with moderate/severe disability (72.5%), women (74.4%), those aged 65 and older (74.3%), sole person households (69.7%), and those who were unemployed (69.1%)

Use of local green spaces: Those more likely to walk in either a nature reserve or park/oval in a usual week (compared to the average of 65.9% for the ACT as a whole) were those aged 18-29 (79.2%), those who identified as LGBTIQA+ (76.5%), those with children aged 0-4 in their household (78.2%), and those who were unemployed (82.7%). Those less likely to walk in either a nature reserve or park/oval in a usual week (compared to the average of 65.9% for the ACT as a whole) were those aged 65 or older (54.6%), those with moderate/severe disability (60.6%), and carers with 15 or more hours per week of caring obligations (53.6%).

8.1.5 Recommendations & conclusions

Overall, ACT residents report having good access to nature reserves, and most can walk to a nature reserve relatively easily from their home. However, there are some differences in use of nature connection opportunities, with those who are older, have disabilities, or have high levels of caring obligations for a person who is ill, frail or has a disability, less likely to spend time walking in local areas. This may reflect barriers such as difficulty physically accessing and using nature spaces, or barriers related to lack of time, amongst other possibilities.

Given the high proportion of ACT residents who walk at least once a week in green spaces, this measure should be modified in future to ask about the frequency of use. This would enable better understanding of how the frequency of nature connection in local areas is changing. In addition, the frequency of use of nature reserves and other green spaces *not* located within walking distance of a person's home should be asked about in future surveys. This will provide improved insight into nature connection activities.

8.2 Climate resilient environment and community

8.2.1 Indicator context and purpose

Having a climate resilient environment and community is critical for a range of reasons, with changing climatic conditions meaning the ACT is expected to experience more frequent heatwaves and extreme weather events including storms and bushfire in future. The 'climate resilience environment and community' indicators '…will measure climate mitigation and adaptation by tracking greenhouse gas emissions, tree canopy coverage, waste, and community preparedness for climate change impacts and extreme weather events' (ACT Government 2020, p. 14). While this indicator will mostly require objective measures, community preparedness is typically examined through surveys that ask people to self-identify whether they have engaged in different emergency preparation actions.

A key challenge of measuring community preparedness is that many of the measures that can be used are likely to already be a part of other indicators. For example, the 'safety' domain of the ACT Wellbeing Framework includes the indicator 'community resilience to emergencies', which could equally be considered a measure of preparedness for higher rates of events such as fires, storms, drought and bushfires resulting from climate change.

8.2.2 Description of measures

Self-rated measures for this indicator focus on community preparedness for (i) climate change impacts and (ii) extreme weather events. We used measures that were originally developed in 2017 and used in a previous survey of ACT residents.

In 2017, measures were developed to examine the resilience of people living in the ACT to the expected effects of climate change, described in Schirmer and Yabsley (2018). Schirmer and Yabsley developed both an overall measure of resilience to climate change, and also separately reported the six sub-indices that made up this overall measure. Each sub-index measured a different aspect of resilience to climate change. Some of these sub-indices are measured by indicators located in other parts of the *ACT Wellbeing Framework,* for example the community resilience to emergencies indicator, and measures of overall access to financial and social resources.

Given this, and that Schirmer and Yabsley (2018) explicitly recommended that the sub-indices be the usual unit of measurement, rather than focusing on reporting only the overall index, only the sub-indices both (i) identified as most important contributors to variance in resilience by Schirmer and Yabsley (2018), and (ii) not effectively measured by other indicators forming part of the *Framework* are examined here.

The three key subindices found by Schirmer and Yabsley (2018) to most influence overall climate change resilience were included in the *Living well survey*:

- **Heatwave resilience** (reported in this section). This index is based on the average score of responses to the following items, all of which were asked as a 7-point scale from 'strongly disagree' (1) to 'strongly agree' (7) with a don't know option also provided:
    a. I can easily cope with heatwaves when they happen
    b. My home warms up very fast in hot weather (scoring reversed)
    c. When the temperature outside drops after a hot day, my home cools down quickly
    d. My home has sufficient cooling installed
- **Extreme weather preparedness.** This measure is based on the extent to which households report being prepared for extreme weather events, and is reported subsequently in this report as part of the 'community resilience to emergencies' indicator in the 'safety' domain.
- **Generalised household resilience.** This measure examines the overall 'resilience resources' a household has to cope with challenging events such as a need to rapidly access funds to repair storm damage. Many of the indicators in the wellbeing framework measure different aspects of generalised household resilience: given this, it is not measured specifically in this section, as other indicators in the *Framework* effectively already examined this aspect of climate resilience.

This section therefore reports one measure: resilience to heatwaves. This is an important measure, as more frequent, more intense and longer heatwaves are predicted to result from climate change in the ACT, and this is likely to present one of the greatest risks of increasing rates or morbidity and mortality resulting from climate change, given that significant numbers of Australians already experience heatwave-related illness and death each year (Bi et al. 2011).

8.2.3 Key findings – ACT adults

While most ACT residents report having sufficient cooling in their homes, with an average score of 5.3 out of a possible 7, there is less confidence in other aspects of heatwave resilience, with few agreeing that their home cools down quickly after a hot day, and an average score for heatwave resilience of 4.5 out of a possible range of 1 to 7 (Figure 13).

When asked whether they felt they could cope easily with heatwaves (Figure 14), one in four disagreed (24.8% in 2019 and 25.8% in 2020), 15% were neutral or unsure, and 60% were confident they could cope easily. However, as noted by Schirmer and Yabsley (2018), in some cases this may reflect lack of awareness of some groups of the impacts of heatwaves.

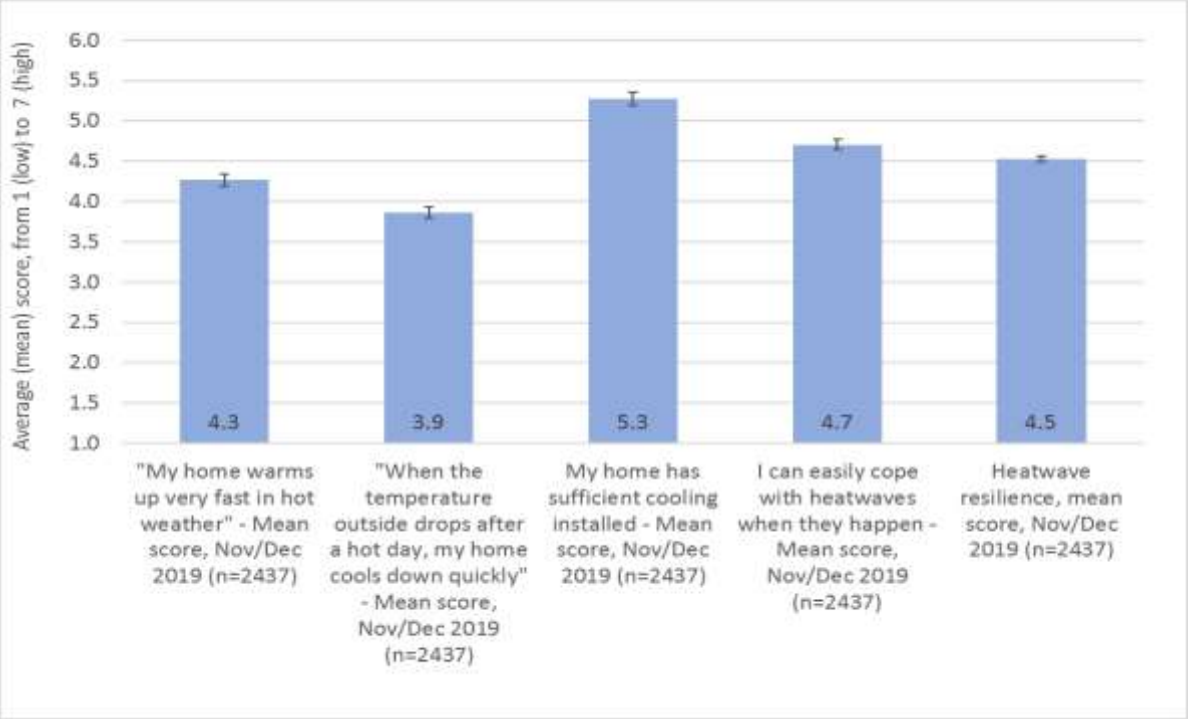

Figure 13 Heatwave resilience – mean scores, 2019

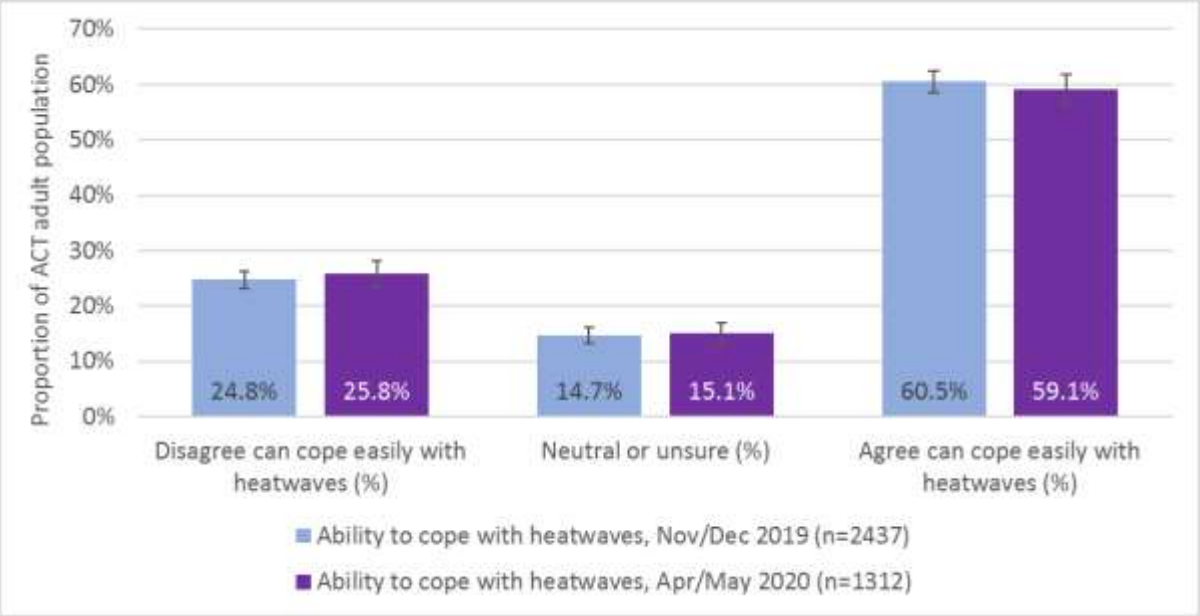

Figure 14 Comparing confidence in ability to cope with heatwaves – 2019 and 2020

8.2.4 Key findings – population groups

Groups that were significantly less likely to feel able to cope with heatwaves in 2019 were females (29.6% disagreeing they could cope compared to 24.8% of ACT adults), those whose main language at home was not English (41.3%), those who identified as LGBTIQA+ (44.6%), those who had lived in the ACT for three years or less (34.0%), those living in share/group households (44.0%), those living in townhouses (36.3%) or units/apartments (32.6%), renters (31.5%), and those living in Inner Belconnen (34.9%) and the Inner North (43.2%). Those who were more confident in their ability to cope were males (66.4% being confident compared to 60.5% of all ACT adults), and those aged 65 and older (66.6%).

These findings point to a key challenge of this measure: it is possible for some people to feel confident they can cope with heatwaves, even though from an objective point of view they are at high risk. This limitation was also identified by Schirmer and Yabsley (2018). Elderly people are at known higher risk of adverse impacts from heatwaves, yet in these findings were more confident than average that they could easily cope with heatwaves. This suggests a need for caution if using measures that directly ask people to self-rate their coping ability, as their answers may reflect a degree of over-confidence in some cases. Ideally, objective measures of incidence of heatwave-related illness should by measured to better understand how to interpret results of subjective measures such as these.

8.2.5 Recommendations & conclusions

While overall 60% of ACT residents are confident in their ability to cope with heatwaves, some of this confidence may be misplaced, with older people – one of the groups known to have higher vulnerability to experiencing heat related illnesses – being more confident in their ability to cope. However, this higher confidence may also to some degree reflect that older people are more likely to live in the types of homes (freestanding houses) whose residents report greater ability to cope with heatwaves, whereas younger people are more likely to live in townhouses and units/apartments and to rent their home, all factors associated with lower heatwave resilience. While this measure can be used, ideally it should be accompanied by objective measures that help to identify those groups whose self-rated confidence corresponds to objective evidence, and those who may be 'over-confident'.

9.0 Governance and institutions domain

The ACT Wellbeing Framework has five indicators in the 'governance and institutions' domain, of which four are typically measured using self-rated surveys such as the *Living well* survey: trust in government; trust in other institutions; feeling that voice and perspective matter; and human rights. The latter three are examined in this section: measures of trust in government require further development to ensure they are robust and reflect longer term assessment of multiple dimensions of trust in aspects such as the effectiveness, integrity, and effort of all parts of government (including both the public service and elected representatives).

9.1 Trust in other institutions

9.1.1 Indicator context and purpose

A wide range of organisations are important to the functioning of the ACT community and economy. This indicator is described as measuring whether people trust 'that institutions other than government will do the right thing, listen, lead, respond effectively and represent the community' (ACT Government 2020, p. 15).

9.1.2 Description of measure

A key challenge for developing measures for this indicator is addressing the diversity of non-government organisations in the ACT. It is likely that a given person will (i) be familiar with some, but not all, (ii) have differing levels of trust in different organisations, and (iii) may have difficulty providing an 'overall' rating of the function of institutions other than governments.

In the *Living well survey* only one question was initially asked about trust in institutions other than government: survey participants were asked the extent to which they agreed or disagreed that 'Local groups and organisations in the ACT are good at getting things done'. This measure examines only one dimension of trust – trust in effectiveness to achieve outcomes. While limited, it provides some initial data that can be used prior to development of a more comprehensive and appropriate measure. This measure was drawn from the Regional Wellbeing Survey, which asks the same question using the term 'in my local community' instead of 'in the ACT'.

9.1.3 Key findings – ACT adults

In Nov/Dec 2019, 45.1% of ACT residents agreed that local groups and organisations in the ACT were good at getting things done, while 40.1% were neutral or unsure, and 14.8% disagreed (Figure 15). In 2018, Regional Wellbeing Survey data found that across Australia, 21.1% disagreed with this statement, 51.7% agreed and 27.1% were neutral or unsure (Regional Wellbeing Survey 2020). This suggests that asking this item at the scale of the whole ACT results in less certainty in answering when compared to the rural communities for which the question was originally designed. With ACT residents unlikely to confine interactions organisations to those located only in their local suburban area, constraining the question to one that asks about the local area is considered unlikely to improve ability to respond to the question with greater certainty. There is potentially a need to use a different measure which better identifies *which* organisations a person has knowledge of and interacts with, and asks more explicitly about those types of organisations.

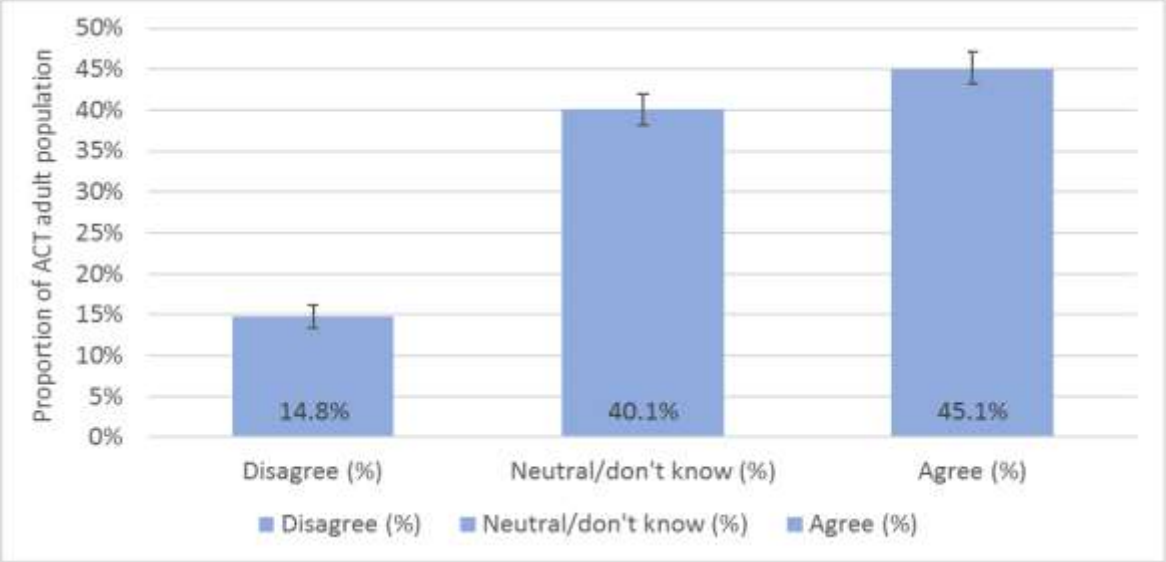

Figure 15 Confidence in effectiveness of ACT community groups and organisations – proportion with low, moderate and high confidence, Nov/Dec 2019

9.1.4 Key findings – population groups

When different groups were compared, most differences between groups were relatively small. However, those with children aged 0-4 in their household were more likely to agree (51.9% compared to 45.1% of all ACT adults), as were and those in Gungahlin (52.3%) and Inner Belconnen (51.6%). Those least confident that local groups/organisations were good at getting things done were single parents (36.0% agreed), those with moderate/severe disability (39.6%), those in Tuggeranong South (31.0%), Woden Valley (38.3%) and Weston Creek (35.8%).

9.1.5 Recommendations & conclusions

While few ACT residents actively lack confidence in the ability of local groups and organisations, many are unsure how effective they are, and slightly less than half are confident that ACT groups and organisations are able to 'get things done'. The high proportion of people indicating lack of certainty suggests a need for a more specific measure that can be more readily answered.

Ideally, future surveys should identify perceived effectiveness of (i) different types of non-government organisations, with a suitable range of categories identified that can be meaningfully examined (for example, this might range from sporting organisations to businesses, community groups and others); and potentially also (ii) examine different dimensions of trust in these organisations.

9.2 Feeling that voice and perspective matter

9.2.1 Indicator context and purpose

The 'feeling that voice and perspective matter' indicator seeks to 'measure the agency people feel they have in our city, including whether they can get involved in decision-making processes, and if they're confident their voices will have an impact' (ACT Government 2020, p. 15).

9.2.2 Description of measure

This measure examines the confidence of ACT residents in being able to get involved in decision making processes in the ACT region if they wish to, and their confidence in being listened to, as well as engagement in contributing to discussion and decision making. It was based on similar measures used in the Regional Wellbeing Survey (Regional Wellbeing Survey 2014-2018 data tables), however

as a slightly different set of overall measures is used in the Regional Wellbeing Survey, data are not directly comparable.

The measure used in the *Living well* survey was calculated as the average score of the following three statements, each of which was measured on a scale from 1 (strongly disagree) to 7 (strongly agree) with the option of selecting 'don't know' also provided:

- I can get involved in decision-making processes in the ACT if I want to
- If I want to have a say to decision makers in the ACT, I am confident they will listen to me
- I actively contribute to discussion and decision making in the ACT region, e.g. through local groups, consultation processes, school councils, business groups.

These items aim examine confidence in being able to have a say in a wide range of decision making processes, with the examples given including local community groups, schools and business groups. The measure overall is intended to reflect confidence and ability to contribute to civic life overall in the ACT, including to government and non-government processes and decision making.

9.2.3 Key findings – ACT adults

Overall, ACT residents are moderately confident they can get involved in decision making processes in the ACT if they wish to, with an average score of 4.3 out of 7 in 2019 (Figure 16). Fewer have confidence that they will be listened to (average score of 3.3) and even fewer report actively contributing (average score of 2.6 in 2019). Overall, this results in an average score of 3.3 out of a possible 7 for the voice and perspective index in 2019. Figure 16 does not show data for 2020, as only 329 participants were asked these questions, however an almost identical score was obtained for each item in 2020, with an index score of 3.4. This suggests that there is often low confidence in being listened to, and in making a contribution. In total, in 2019 52.0% had low overall confidence in their ability to contribute (Figure 17), and 19.7% high confidence.

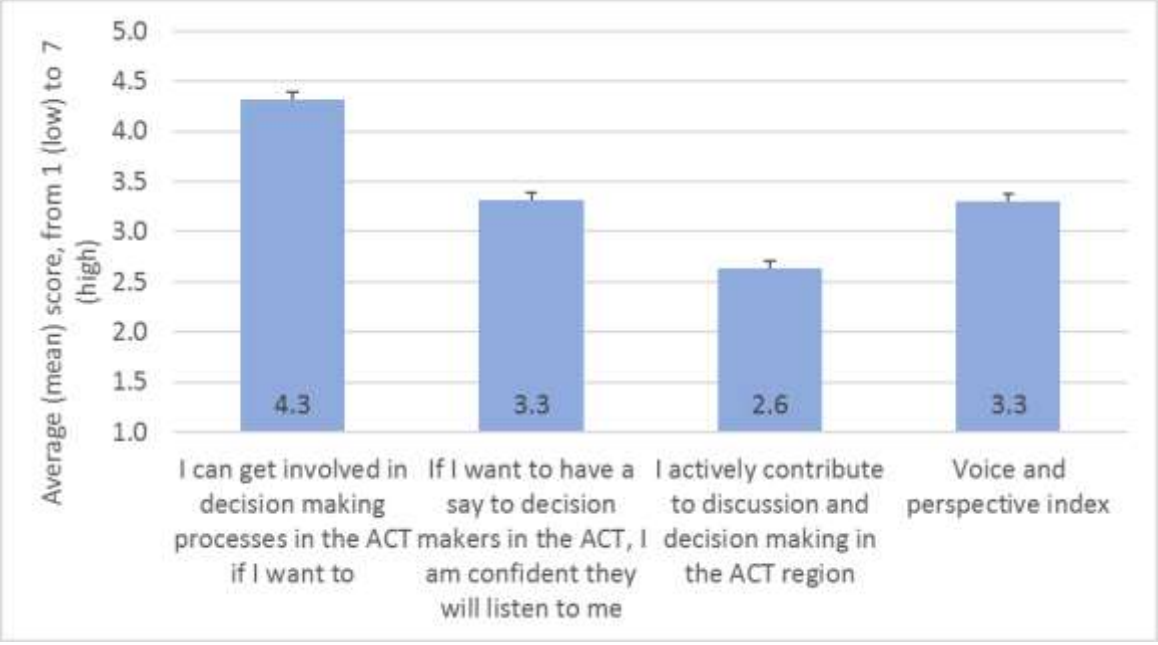

Figure 16 Voice and perspective index – average score, Nov/Dec 2019

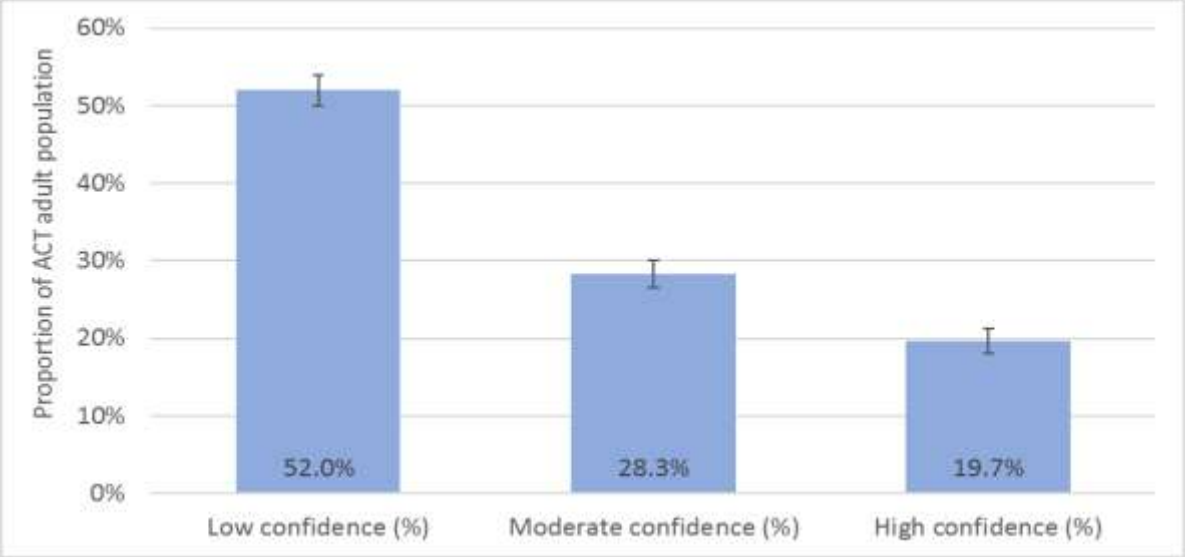

Figure 17 Voice and perspective index – proportion with low, moderate and high confidence in their ability to speak and be listened to, Nov/Dec 2019

9.2.4 Key findings – population groups

There were relatively few significant differences between groups in 2019, and the few differences identified were typically small. Those more likely to report lower confidence in their ability to put forward their voice and perspective were single parents (9.9% reporting high confidence compared to 19.7% of ACT adults), carers with 15 hours or more of caring obligations a week (12.5%), those in Outer Belconnen (9.2%), in Tuggeranong South (10.6%), and to a lesser extent those with moderate or severe disability (15.2%).

9.2.5 Recommendations & conclusions

While many ACT residents feel they can have a say if they wish to, fewer are confident they will be listened to in community decision making processes, or actively contribute to these decision-making processes. Confidence in being able to contribute to decision making is lower amongst two groups known to often experience marginalisation - single parents and carers – something which is an important issue for supporting wellbeing of these groups, as it may mean their needs are less heard in community discussion and decision making processes.

The measures used, while already used in the Regional Wellbeing Survey, are not published as validated statistical measures, and have not been measured every year in the Regional Wellbeing Survey. Further validation work is recommended to better establish the appropriateness of the measure for examining this indicator, as well as potentially exploration of alternative measures.

9.3 Human rights

9.3.1 Indicator context and purpose

The human rights indicators seeks to 'measure our community's experience of human rights protection and the confidence of the community that these rights are being effectively upheld' (ACT Government 2020, p. 15).

9.3.2 Description of measure

A set of statements that could potentially measure this indicator were included in the second wave of the survey only, as in the first wave the initial development of the human rights indicator was not yet complete. This means the measures were only explored using a relatively small sample of

people, as due to the need to ask about experiences of bushfire and COVID-19, these and some other questions were asked only of a sub-sample of those who completed the survey.

Confidence in the protection of human rights was examined by asking survey participants the extent to which they agreed or disagreed that:

- The ACT Government respects and protects human rights
- ACT Government decision makers consider human rights in their decision-making processes
- Aboriginal and Torres Strait Islander cultural rights are well protected in the ACT (e.g. through the Human Rights Act)
- The Australian Government respects and protects human rights.

The first three items were grouped into an exploratory 'Human Rights Index' for the ACT through calculating the average score of the three items, however this should be considered exploratory only at this stage. This was used to identify the proportion of people with low confidence human rights were protected (score below 3) moderate confidence (score from 3 to 4) or high confidence (score of 5 or above).

These items were originally suggested in wellbeing framework discussions forming part of development of the *ACT Wellbeing Framework* and are not used in other surveys. While other surveys do examine human rights, they typically examine aspects of human rights that are not suitably specific to the ACT context. As the sample was limited, the first question was asked about both the Australian and the ACT Government, to provide a better indication of whether responses to the statement vary when asking about different governments.

9.3.3 Key findings – ACT adults

On average, ACT adults were moderately to highly confident that human rights are protected in the ACT, and less confident that they were protected by the Australian Government (Figure 18). Overall, for the ACT, 18.1% had low confidence that human rights were protected in the ACT, 28.2% moderate confidence, and 53.7% high confidence (Figure 19).

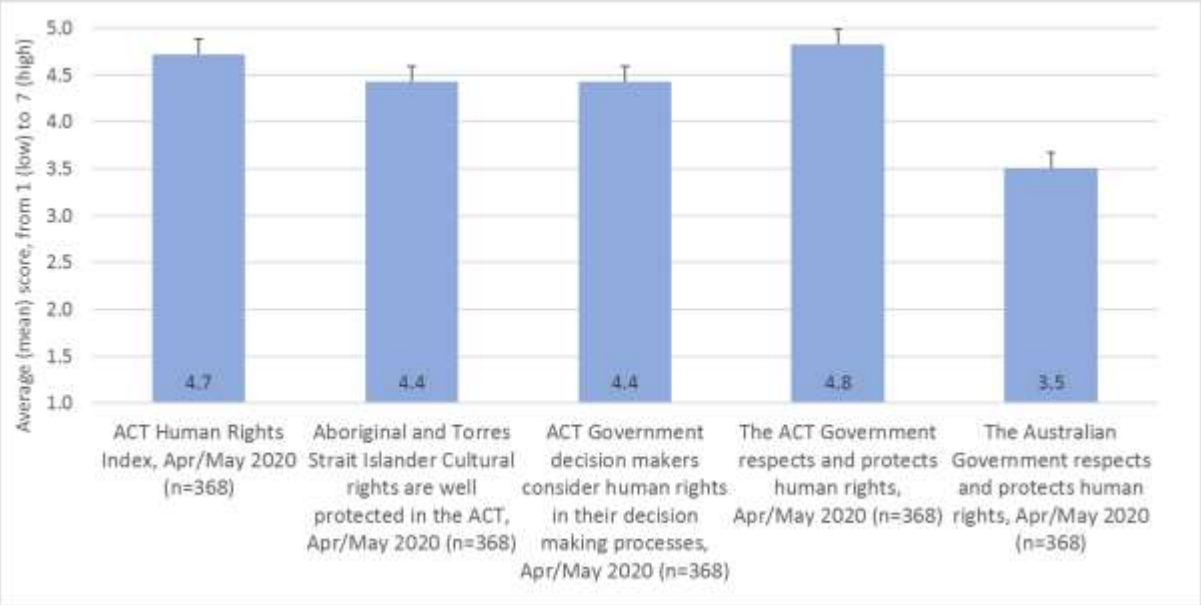

Figure 18 Views about protection of human rights – average score, Apr/May 2020

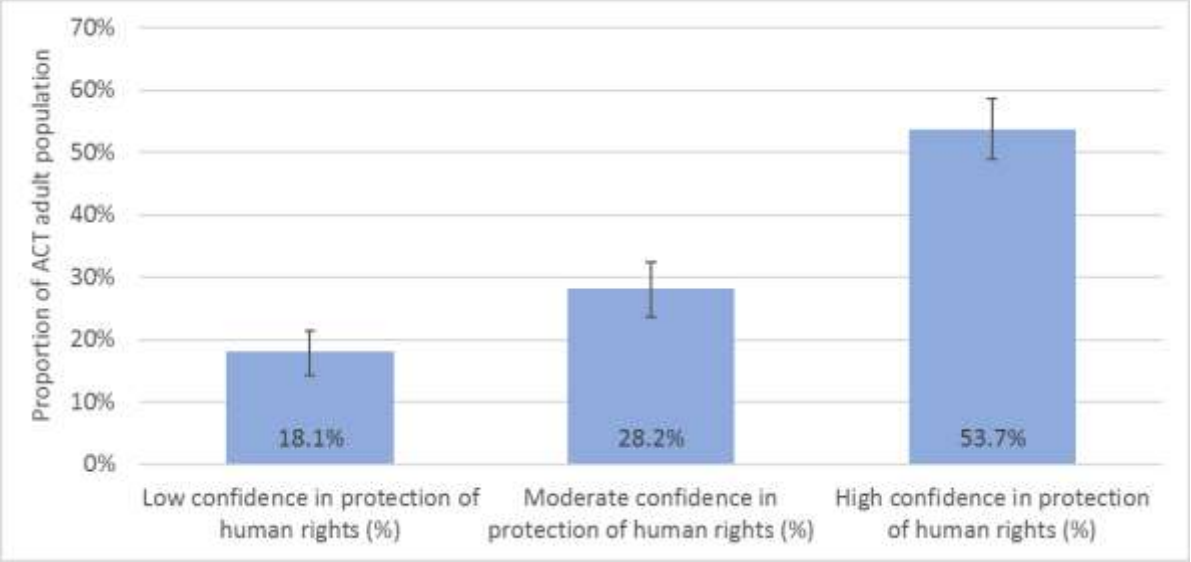

Figure 19 Proportion of ACT population with low, moderate and high confidence in protection of human rights, Apr/May 2020

9.3.4 Key findings – population groups

The views of different groups were not compared due to the small sample size. For the few groups with larger samples, initial indications suggest that carers and those with disabilities may have lower confidence in protection of human rights, although further data collection would be needed to confirm this.

9.3.5 Recommendations & conclusions

Future surveys should further explore whether these questions show evidence of sensitivity, robustness and validity, ideally using a larger sample than was possible as part of Wave 2. The initial index suggested here should be further developed, and depending on findings of further work may require modification. Further measures should also be explored and tested for suitability.

10.0 Health domain

The health domain of the *ACT Wellbeing Framework* contains multiple indicators. Some – such as life expectancy – are measured using objective data. For others, subjective measures are reasonably often used (often in conjunction with objective measures), including some measures of overall health, mental health, access to health services and healthy lifestyle.

10.1 Overall health

10.1.1 Indicator context and purpose

An overall health measure is desirable when considering wellbeing across the population. While many health indicators use objective measures of prevalence of different health conditions or health status (e.g. body mass index), these can be challenging to interpret in relation to overall health status, as they often lack generalisability to the concept of overall health due to their specificity to particular conditions. The 'overall health' indicator of the ACT Wellbeing Framework states that 'Self-assessed health status is a commonly used measure of overall health. It reflects a person's perception of their own health at a given point in time, providing a broad picture of health outcomes across the general population' (ACT Government 2020, p. 16).

10.1.2 Description of measure

Two types of self-rated overall health measures are relatively commonly used in health surveys. The first involves asking a set of questions – including anywhere from six to 36 items – that ask about different aspects of health. Answers to these are then used to calculate an overall health score. Examples include the 120item General Health Questionnaire (GHQ-12) and the 36-item SF36 health survey (Ware et al. 1992, Hu et al. 2012), commonly used in multiple surveys worldwide. Ideally, this type of long assessment instrument would be used, however the length of the items required is likely to present difficulties for regular monitoring if data for multiple other wellbeing measures are being collected in the same survey. The second approach involves asking a single item that asks people to self-rate their overall health. The 'general health' measure used in the *Living well* survey is of the second type, a single item measure that asks a person 'overall, how would you rate your health during the last four weeks' with response options of excellent, very good, good, fair or poor. This measure is used in a range of surveys internationally, and in Australia is used in the ACT General Health Survey, the Australian Bureau of Statistics *National Health Survey* (ABS 2018), the Regional Wellbeing Survey and the *Household Income and Labour Dynamics in Australia* (HILDA) survey, amongst others, making it one of the most widely used general health measures in available Australian datasets.

10.1.3 Key findings – ACT adults

In 2019, 48.1% of ACT adults reported very good or excellent health, while 20.5% reported being in fair or poor health. Comparing these results to other studies is challenging, due to a known survey mode effect: when surveys are conducted using phone or face to face methods, respondents tend to rate their general health more positively, whereas they on average rate their health more poorly when self-completing questions online or on paper surveys without direct interaction with an interviewer. The Regional Wellbeing Survey uses the same survey modes as the *Living well* survey: in 2018, the Regional Wellbeing Survey found that 24.1% of Australians reported fair/poor health and 41.7% very good or excellent health. This suggests that ACT residents have on average better general health than those living in other parts of Australia.

Examining initial data released from the 2018 ABS National Health Survey (NHS) shows a similar pattern: while the data are not directly comparable, as the NHS uses direct interviews to collect data and includes all people aged 15 and over, the NHS also found that the general health of those in the ACT was higher than the average for Australia (ABS 2018). Examining NHS findings also highlights how different findings are depending on survey mode: in the NHS, 56.4% of Australians and 59.9% of ACT residents aged 15 and over reported very good or excellent health, and only 14.7% and 10.7% respectively reported poor/fair health. This highlights the importance of carefully assessing comparability of different data sets, and taking into account survey mode when doing so.

Overall self-reported health declined between 2019 and 2020 (Figure 20). The proportion of ACT adults reporting very good or excellent health declined from 48.1% in 2019 to 40.2% in Apr/May 2020, while the proportion reporting fair or poor health rose from 20.5% to 27.8%.

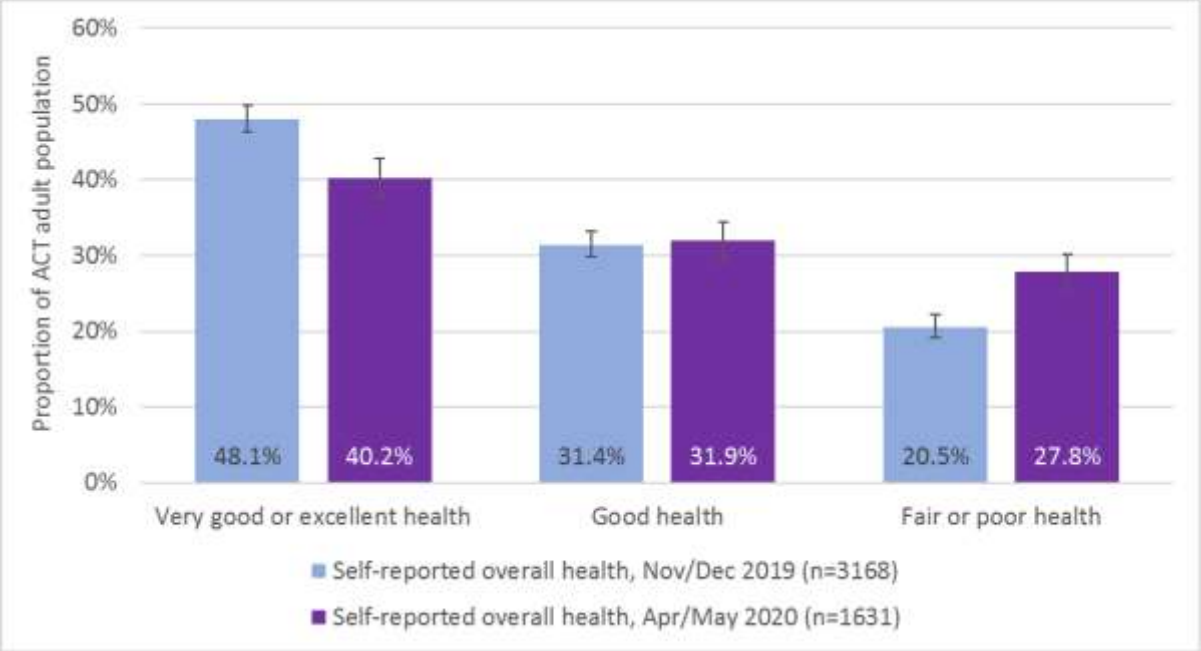

Figure 20 Self-assessed overall health, 2019 and 2020

10.1.4 Key findings – population groups

The groups more likely to report having fair or poor health in both 2019 and 2020, compared to the ACT average of 20.5% in 2019 and 27.8% in 2020, were those with moderate or severe disability (41.1% in 2019 and 49.6% in 2020), and carers with 15 hours or more caring obligations each week (28.5% in 2019 and 45.4% in 2020). Two groups were more likely to report fair or poor health in 2019 than the average, but had smaller change between 2019 and 2020: those who identified as LGBTIQA+ (34.9% in 2019, 32.6% in 2020), and those living in sole person households (27.4% in 2019, 29.8% in 2020).

Some groups were more likely to report poor/fair health in 2020 despite not having done so in 2019: single parents (52.4%), renters (36.6%), carers overall irrespective of caring hours (39.7%), and those living in Weston Creek (39.6%). This suggests that events such as COVID-19 may be impacting differently on different groups.

10.1.5 Recommendations & conclusions

Self-reported overall health declined between 2019 and 2020. This measure of overall health reflects both mental and physical health, and it is not possible from this measure to identify the different types of health change contributing to this decline. However, other indicators examined in this report do identify an increase in rates of psychological distress, and Part 2 of this report identifies that many people reported an increase in severity of mental and physical health problems occurring in response to bushfire and/or COVID-19.

This measure is useful for the overall indicator of health. Ideally, it should be accompanied by other supporting measures that enable more specific understanding of what types of health issues may be contributing to any changes observed in this general measure. It is also critical to ensure data for this measure are collected using consistent survey modes over time, to ensure comparability over time.

10.2 Mental health

10.2.1 Indicator context and purpose

The *ACT Wellbeing Framework* describes the indicator of mental health as:

A person's perception of the level of their mental health has direct connection with how they perceive their wellbeing. This indicator will measure the proportion of persons who rate their mental health as either very good or excellent. This indicator will also report on levels of psychological distress in the community. (ACT Government 2020)

10.2.2 Description of measures

Two measures were used to examine this indicator with data from the *Living well in the ACT region* survey: (i) psychological distress, and (ii) self-rated mental health.

Psychological distress: This was measured using the Kessler 6-item distress scale (K6). This measure is widely used, and its use described in multiple references (Andrews and Slade 2001). This measure asks 'In the last four weeks, how often have you felt (i) Nervous (ii) Hopeless (iii) Restless or fidgety (iv) So sad that nothing could cheer you up (v) That everything was an effort (vi) Worthless'. Response options for each statement are: None of the time (1), A little of the time (2), Some of the time (3), Most of the time (4), All of the time (5). The scores of the 6 items are summed, resulting in a score from 5-30. The K6 measure (or the related K10, which includes the K6 as six of its ten items) are used in a wide range of Australian and international surveys: a full review is not provided here, however usage in Australia includes the Regional Wellbeing Survey, the ABS National Health Survey, the ACT General Health Survey, and the HILDA survey, amongst others.

There is debate about the most appropriate thresholds to use for calculating categories, with different authors proposing somewhat different thresholds (Andrews and Slade 2001). In this report, we used the following classification, however it should be noted that others could be used and may be appropriate (Andrews and Slade 2001):

- Low distress (% with score 5-12)
- Moderate distress (% with score 13-18)
- High distress (% with score 19 or higher)

Self-rated mental health: This was measured by asking survey participants 'overall, how would you rate your mental health during the last four weeks'. Respondents selected one of five response options: excellent, very good, good, fair or poor. This measure has been used at least twice in the ACT General Health Survey; its use is not well documented elsewhere. Given its history of use in a major health survey conducted in the ACT, it was included in the *Living well* survey.

10.2.3 Key findings – ACT adults

Psychological distress: Experience of psychological distress symptoms increased amongst ACT adult residents between 2019 and 2020 (Figure 21). The proportion of ACT residents reporting low rates of distress fell from 69.6% in 2019, to 53.5% in 2020, while the proportion reporting high rates of distress rose by 10%, from 6.8% to 16.8%. This finding of change is consistent with the results of multiple emerging studies examining the effects of the COVID-19 pandemic on mental health and distress, with several identifying increase in incidence of distress, or worsening of other more specific aspects of mental health, since the start of the pandemic, both internationally (see for example Mazza et al. 2020, Qiu et al. 2020, Wang et al. 2020, Zhang et al. 2020) and in Australia (Biddle et al. 2020, Rahman et al. 2020).

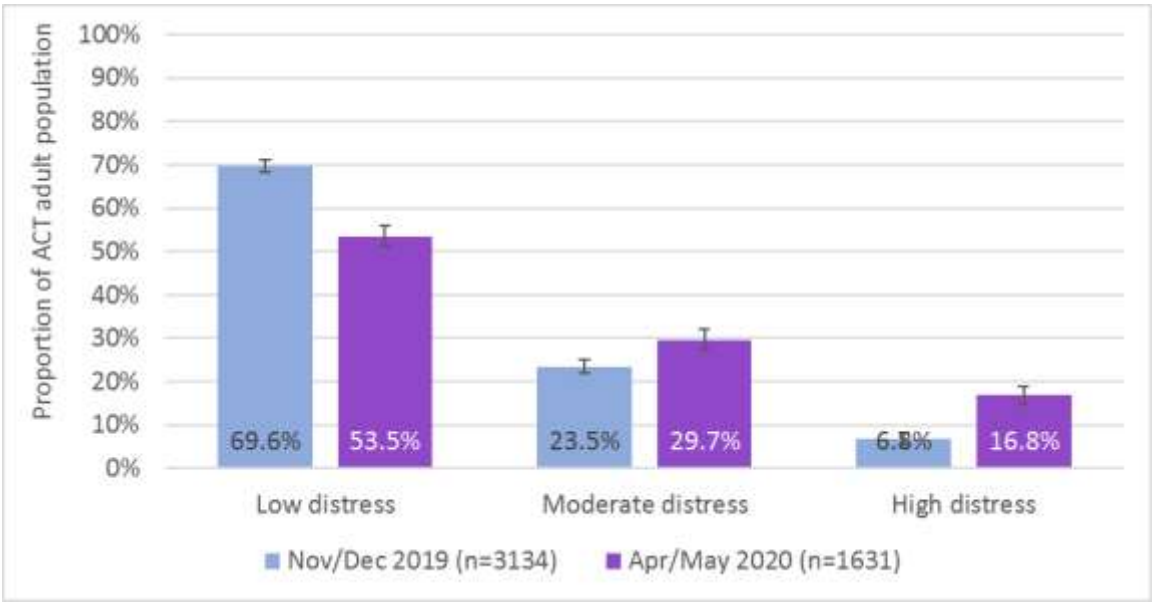

Figure 21 Psychological distress (Kessler 6 psychological distress scale), 2019 and 2020

Self-rated mental health: When asked to self-rate their mental health, the proportion reporting very good or excellent mental health fell from 49.6% in 2019 to 32.6% in 2020, while the proportion reporting fair or poor mental health increased from 22.9% to 38.9% (Figure 22). This shows an overall similar pattern of change to the K6 psychological distress measure.

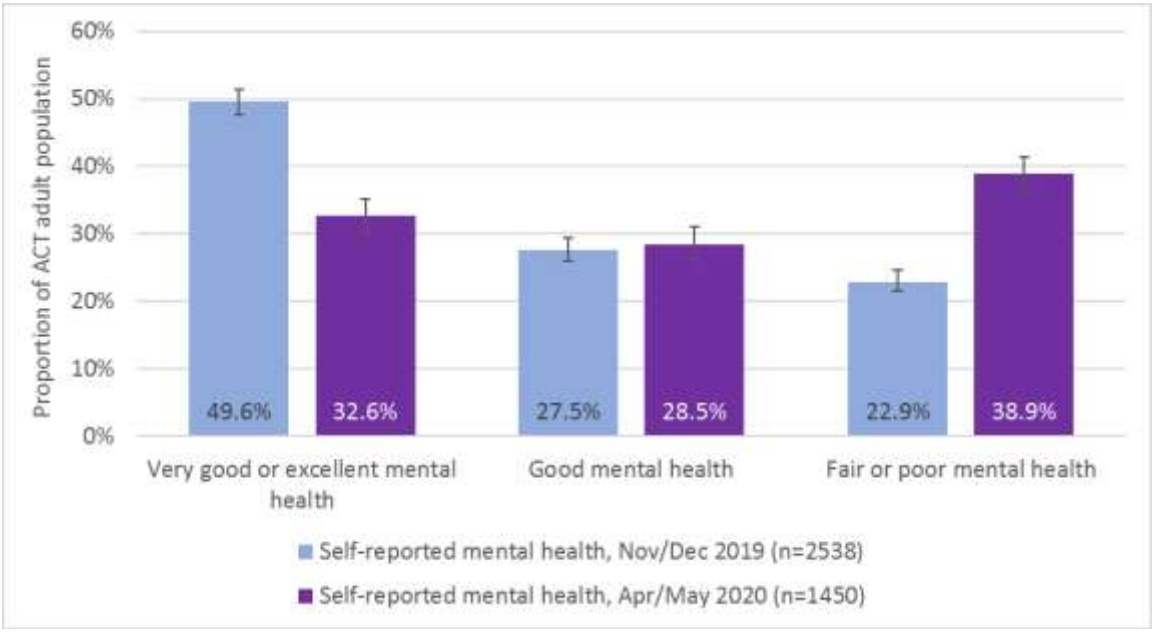

Figure 22 Self-assessed mental health, 2019 and 2020

10.2.4 Key findings – population groups

In 2019, the groups more likely than the ACT average (30.3%) to report moderate or high distress were those with moderate or severe disability (43.6%[3]), aged 18-29 (43.1%), those identifying as LGBTIQA+ (52.4%), single parents (49.0%), carers with 15 hours or more a week of caring obligations

[3] This group includes those experiencing moderate or high barriers to daily functioning resulting from physical or mental health related challenges or conditions. One of the criteria for being considered to have moderate to high barriers is a person's K6 score, with those who have high scores considered to have moderate to severe disability, as this indicates it is highly likely they experience barriers to some types of daily functioning.

(42.9%), those living in unit/apartments (46.0%), renters (39.0%), those who were unemployed (56.2%) and to some extent those living in Inner Belconnen (36.8%), Inner North (40.9%) and Inner South (39.3%), all areas with larger proportions of younger adult residents, renters and people living in units/apartments.

In 2020, a much larger range of groups – including several who did not have higher than average rates of distress in 2019 – reported moderate to high distress, compared to the ACT average of 46.5% in the 2020 survey. Several groups who had higher rates of distress in 2019 continued to have higher than average distress (meaning their overall distress rates were sufficiently higher in 2020 to remain above the average, despite the overall increase in distress rates across the population): those aged 18-29 (67.8%), those identifying as LGBTIQA+ (67.9%), single parents (63.2%), carers with 15 hours or more a week of caring obligations (62.0%), those with moderate/severe disability (59.7%), those living in unit/apartments (59.4%), renters (68.0%), those who were unemployed (88.0%) and to some extent those living in the Inner South (58.8%). In addition, the following groups emerged as reporting higher than average rates of moderate to high distress, who had not done so in 2019: those aged 30 to 49 (53.3%), those whose main language at home was not English (58.9%), those who had lived in the ACT for five years or less (60.3%), those living in townhouses (55.8%), those with one or more children aged 5 to 14 living in the home (57.9%), and carers of all types (irrespective of typical number of caring hours per week, 56.9%).

Findings of the self-rated mental health measure has some similarities, but also some differences, to the findings when using the K6 measure. In 2019, the groups more likely than the ACT average (22.9%) to report having fair or poor mental health were those who identified as LGBTIQA+ (44.7%), those living in share/group households (49.4%), those with moderate or severe disability (37.7%), carers with 15 hours or more a week of caring obligations (37.4%), renters (31.5%), and the unemployed (38.3%). By Apr/May 2020, the groups more likely than the ACT average (38.9%) to report having fair or poor mental health were women (47.4%), those who identified as LGBTIQA+ (61.2%), those with moderate or severe disability (55.6%), single parents (73.5%), those living in share/group households (53.6%), those living in households with children aged 5-17 (50.1%), carers, irrespective of caring obligations (55.2%), renters (50.1%) and those who were unemployed (63.8%).

10.2.5 Recommendations & conclusions

The two measures of mental health show somewhat similar patterns of findings. Both show a decline in mental health between the two survey waves, and also have similar findings regarding the groups most likely to report poor mental health. The findings indicate both that some groups who already had higher rates of poor mental health in 2019 reported greater than typical increase in these rates between 2019 and 2020, particularly carers, renters, those identifying as LGBTIQA+, and the unemployed. Additionally, in 2020 some additional groups had higher rates of poor mental health compared to the ACT average: single parents, and those living in households with children aged 5-17 in particular. These measures are likely to be appropriate for longer term use. The K6 in particular has a long history of use as an indicator of overall levels of distress.

10.3 Access to health services

10.3.1 Indicator context and purpose

This indicator seeks to measure ‘how difficult or easy it is for Canberrans to access a range of health services, from GPs through to public and private health services’ (ACT Government 2020, p. 17).

10.3.2 Description of measure

A new measure was developed for this survey to examine self-rated access to health services. Rather than focusing on whether a person had used health services, the measure examined the extent to which they had found it easy or difficult to access services they had accessed either for themselves, or for a person they cared for such as a child. Those who reported accessing any of the following

types of services in the last 5 years for themselves or a person they cared for were asked rate whether they found it (i) hard, (ii) neither hard or easy, or (iii) easy to access each of the following types of health service: (i) Walk-in clinic, (ii) GP, (iii) Dentist, (iv) Mental health services, (v) Specialist health services, and (vi) Allied health services (e.g. physiotherapist, occupational therapist, speech pathologist).

This measure is designed to measure overall ability to access services. Differences in ability to access health services may result from many factors, including lack of availability of services, difficulty obtaining an appointment, lack of financial ability to pay for some services, or difficulty accessing transport to get to the service, amongst others. This measure is designed to provide an indication of overall ability to access services; like most generalised social indicators it is not designed to identify the causes of difficulty in accessing services. By identifying the groups most likely to report lack of access, it provides the ability to focus on understanding causes of poor access amongst those who are most likely to experience this difficulty.

10.3.3 Key findings – ACT adults

The majority of those who accessed walk-in clinics, GPs, dentists or allied health services reported finding it easy to access these services, although around 25%-30% did not find it easy to access each of these (Figure 23). Fewer found it easy to access mental health services (37.7%) or specialist health services other than mental health services (43.6%).

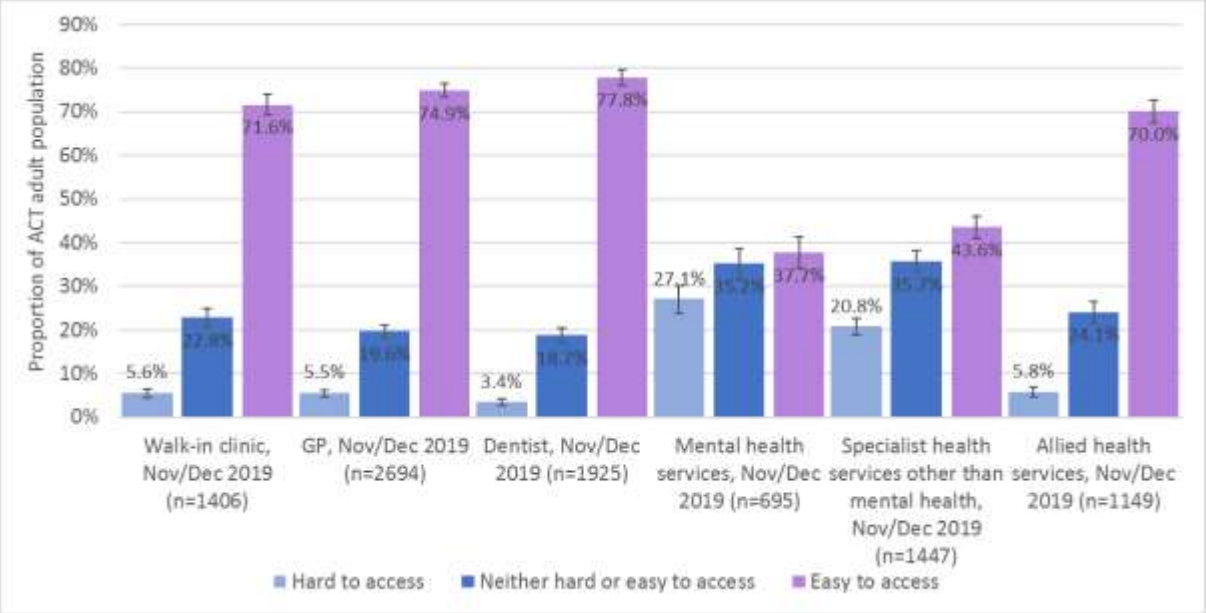

Figure 23 Access to health services, 2019

10.3.4 Key findings – population groups

Four groups were less likely to rate access to services as 'easy' than the ACT average:

- Those with moderate or severe disability were less likely to find it easy to access walk-in clinics (62.2% compared to 71.6% of ACT adults, GPs (66.4% compared to 74.9%), dentists (70.2% compared to 77.8%), but similarly likely to find it easy to access mental health services, other specialist services, and allied health services.
- Carers were significantly less likely to find it easy to access walk-in clinics (59.8% compared to 71.6% of ACT residents), GPs (62.0% compared to 74.9%), mental health services (17.2% compared to 37.7%), other specialist health services (32.2% compared to 43.6%) or allied health services (52.2% compared to 70.0%).

- Those who identified as LGBTIQA+ were less likely to find it easy to access mental health services, with only 20.0% reporting this was easy, compared to 37.7% of ACT residents
- Those who had lived in the ACT for 5 years or less were less likely to find it easy to access a GP (63.4% compared to the ACT average of 74.9%), as were those who were unemployed (46.7%).

10.3.5 Recommendations & conclusions

Access to health services varied substantially depending on the type of health service a person is seeking to access, with mental health and other specialist health services more difficult to access than other types of health service. Carers report higher levels of difficulty in accessing health services for themselves or those they care for compared to other groups.

The measure explored here was limited in that it only asked those who had successfully accessed a service whether they found it easy or difficult to do so. It may be just as relevant to identify those who had tried and failed to access services, or had felt they should access a service but not attempted to. Additionally, future surveys should better distinguish between a person's ability to access services for themselves and their ability to access services for those they care for. This is likely to assist in better understanding whether those with often high need to access health services for people other than themselves (particularly parents and carers) are able to achieve that access.

10.4 Healthy lifestyle

10.4.1 Indicator context and purpose

The 'healthy lifestyle' indicator 'will measure healthy weight for adults and children, as well as quality of sleep' (ACT Government 2020, p. 17). Quality of sleep can be assessed using subjective measures, and is examined here. Healthy weight is typically measured using objective data if possible, and is not examined here.

10.4.2 Description of measures

Two measures were explored to examine whether a person was achieving sufficient sleep:

- Measure 1: Sleep hours: Survey participants were asked how many hours of sleep they had each night on average over the previous four weeks. This was then coded into three categories: too little sleep (defined as less than 7 hours for all age groups), healthy sleep hours (7-8 hours for those aged 65 and older, 7-9 hours for those aged 18-64), or too much sleep (more than 8 hours for those aged 65 and older, more than 9 hours for those aged 18-64). Healthy sleep hour definitions were based on the National Sleep Foundation's recommended sleep hours for different age groups (Hirshkowitz et al. 2015). Similar measures have been used in some past surveys, including the Australian Bureau of Statistics *Time Use Survey,* for which the most recent resulted were produced in 2006 and are not comparable to data collected here.
- Measure 2: Self-rated satisfaction with sleep: Survey participants were asked if during the last month they had achieved (i) less sleep than they wanted, (ii) about the right amount, or (iii) more sleep than desired. This measure was designed specifically for the *Living well* survey, and has not been fully validated.

10.4.3 Key findings – ACT adults, sleep hours

When reported sleep hours were examined (Figure 24), similar findings were identified in 2019 and 2020, with over 40% of ACT adults reporting having less sleep than recommended in the previous four weeks, around 54% reporting healthy sleep hours, and 2% to 3% reporting having more sleep than recommended.

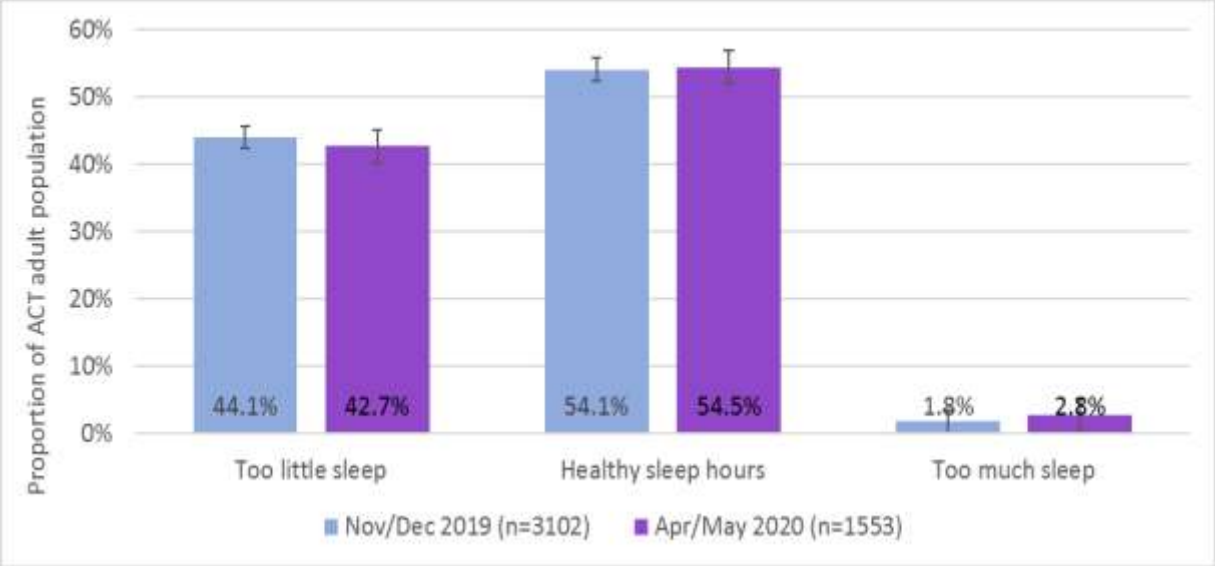

Figure 24 Hours of sleep in the last month – comparison of 2019 and 2020

10.4.4 Key findings – ACT adults, sleep satisfaction

The self-rated measure of sleep satisfaction changed positively between 2019 and 2020, with those who felt they achieved less sleep than desired in the last month declining from 59.9% in 2019 to 50.6% in 2020, while those reporting more sleep than desired increased from 2.7% to 9.4% (Figure 25). This indicator was examined as an exploratory indicator: as it changes in different ways to actual sleep hours reported by the same survey respondents, there is a need to better understand the factors that influence how a person judges whether they are achieving sufficient sleep before using this as an indicator of wellbeing.

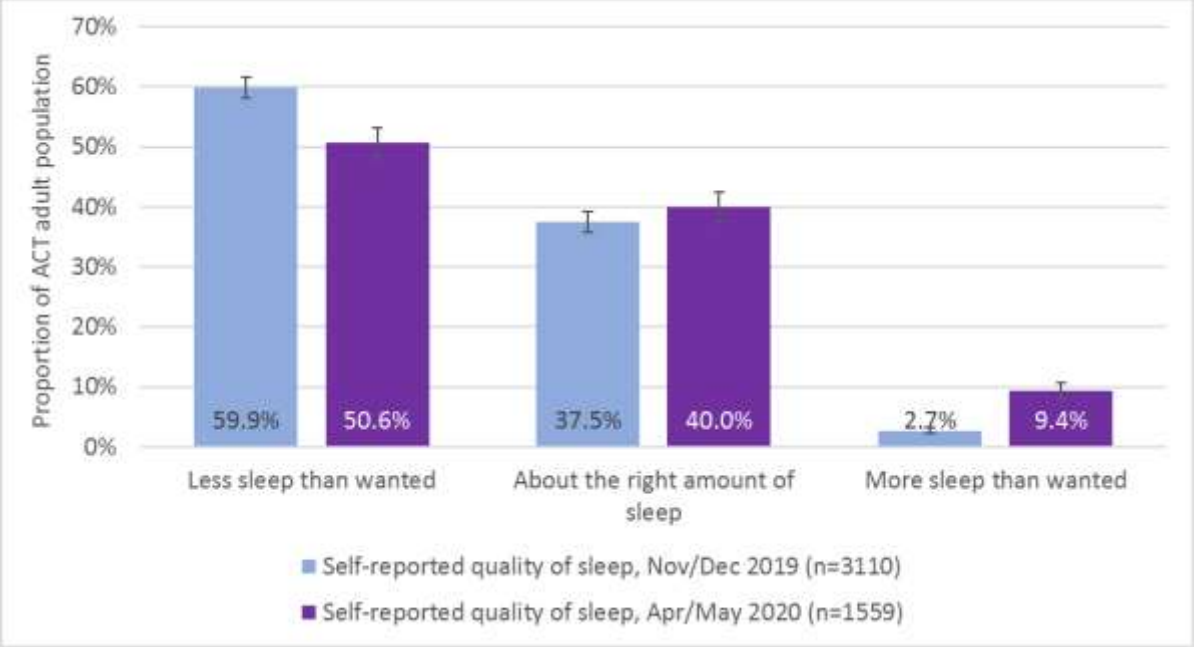

Figure 25 Self-reported quality of sleep, 2019 and 2020

10.4.5 Key findings – population groups (sleep hours)

There was high consistency in the groups who were most likely to report having too few sleep hours in 2019 and 2020. However, a small number of additional groups emerged as being more likely to have less than recommended sleep in 2020, compared to 2019. In particular, those aged 30-49 were

similar to the ACT average in 2019, but in 2020 more likely to lack sleep (51.2% compared to 42.7% of ACT adults), as were renters (51.3% in 2020).

Those more likely to report getting fewer hours of sleep than recommended in both survey waves were single parents (58.9% in 2019, 53.3% in 2020), people with moderate or severe disability (55.9%, 50.7%), those with children aged 0-4 in their household (58.3% in 2019, 64.2% in 2020), carers with 15 hours or more a week of caring obligations (61.2%, 55.8%), and those living in Tuggeranong South (53.1%, 62.0%).

The proportion of those aged 18-29 who reported fewer hours of sleep than recommended for good health declined between 2019 and 2020, from 43.5% to 35.6%, as did the proportion of those aged 65 and older (41.5% in 2019, decreasing to 36.4% in 2020). It is possible this reflects different patterns of change in sleep related to COVID-19, with some groups having more sleep during the period of COVID-related restrictions in Apr/May 2020 (the younger and older age groups, specifically those most likely to not have children in the home), while in contrast rates of poor sleep increased amongst the 30-49 age group.

Perceived sleep changed somewhat differently to actual reported hours of sleep. For almost all groups, the proportion reporting having less sleep than desired decreased between 2019 and 2020 – despite most of these groups not reporting the same degree of change in their actual sleep hours. This suggests a need to better understand how perceived of desired hours of sleep change in relation to sleep hours before using the perceived sleep measure. It is possible the subjective rating of satisfaction relates to change in the quality of sleep achieved, rather than simply considering hours of sleep.

10.4.6 Recommendations & conclusions

It is recommended that self-rated satisfaction with sleep not be used as a measure for this indicator until further work identifies how to appropriately interpret this measure. The sleep hours measure has better precedent for use, and is based on known data on what constitutes a healthy amount of sleep. This measure showed that parents, particularly of young children, and those who are caring for others, are most likely to report having too little sleep. While overall there was little change in the proportion of people reporting having too little sleep, in 2020 those aged (i) under 30 and (ii) 65 or older were more likely to report healthy sleep hours than they were in 2019, while the converse was true for those aged 30 to 49.

There is a large volume of literature examining aspects of sleep quality, and surveys such as HILDA ask about quality of sleep through examining factors such as whether a person has difficulty falling asleep or would self-rate their sleep quality as poor. Further exploration of the use of a wider range of measures of sleep quality, in addition to overall hours of sleep, should be considered.

11.0 Housing and home domain

The housing and home domain examines the extent to which ACT residents have secure, suitable and affordable homes, by examining the indicators of (i) homelessness, (ii) rental stress, (iii) housing affordability and availability, and (iv) housing suitability (ACT Government 2020). The first three indicators are typically measured using national statistical data; the fourth often requires self-rated survey data, and is examined here.

11.1 Housing suitability

11.1.1 Indicator context and purpose

The 'housing suitability' indicator is described in the ACT Wellbeing Framework as measuring 'the proportion of households that are overcrowded in the ACT and … a housing suitability index which measures household accessibility and quality' (ACT Government 2020, p. 19).

Overcrowding is one specific aspect of housing suitability. Housing suitability more broadly can include whether a home is in good condition, and meets a person's needs. Two measures were explored: one for overcrowding, and one for housing suitability more generally.

11.1.2 Description of measures

Overcrowding: Overcrowding is often measured using data on the ratio of occupants to rooms in a house, often adjusted based on age of occupants and types of rooms (see for example Blake et al. 2007). These data are able to be measured from sources such as the ABS *Census of Population and Housing.* A subjective measure of overcrowding differs in that it asks a person their views about whether their house is over-crowded, rather than assuming crowding equates to an occupancy rate higher than a specific threshold.

In a measure designed for the *Living well* survey, participants were asked the extent to which they agreed or disagreed with the statement 'My home is too small for all the current residents to live in easily', on a scale from 1 (strongly disagree) to 7 (strongly agree), with a 'don't know' option also provided. Answers were grouped to identify the proportion who disagreed (score of 1-3), agreed (score of 5 to 7) or were neutral or unsure (score of 4 or 'don't know'). This was examined for both 2019 and 2020, although with a relatively small sample in 2020 as not all survey participants were asked the question.

Housing suitability: This measure was calculated as the average score of responses to the items (i) Overall my home meets my needs well, (ii) My home is well maintained, (iii) How satisfied are you with the overall condition of the outside of your home, (iv) How satisfied are you with the overall condition of the inside of your home? The first two items were answered as 7-point agree-disagree scales, and the second two as 7-point satisfaction scales from 1 (not at all satisfied) to 7 (very satisfied). The first item was designed for the *Living well* survey; the other items were drawn from existing surveys conducted by the Community Services Directorate, and have not previously been used in an index. Initial exploration of statistical properties indicated the three items were suitable to use as a scale, however appropriate validation work should be conducted for this measure to confirm this.

11.1.3 Key findings – ACT adults

In 2019, 15.6% of ACT residents reported that their house was too small for all the current residents to live in easily. This increased to 25.0% in 2020 (Figure 26). A majority of ACT residents reported having high housing suitability (73.3% in 2019, and 68.3% in 2020), while 26.7% reported low to moderate housing suitability in 2019 and 31.7% in 2020 (Figure 27). While there was a decrease in the proportion reporting having housing of high suitability, the decline was not statistically significant. Further data should be collected to identify whether changes in occupation and use of

housing resulting from restrictions put in place to reduce spread of COVID-19, such as working from home, have changed how suitable many people find their housing for their needs.

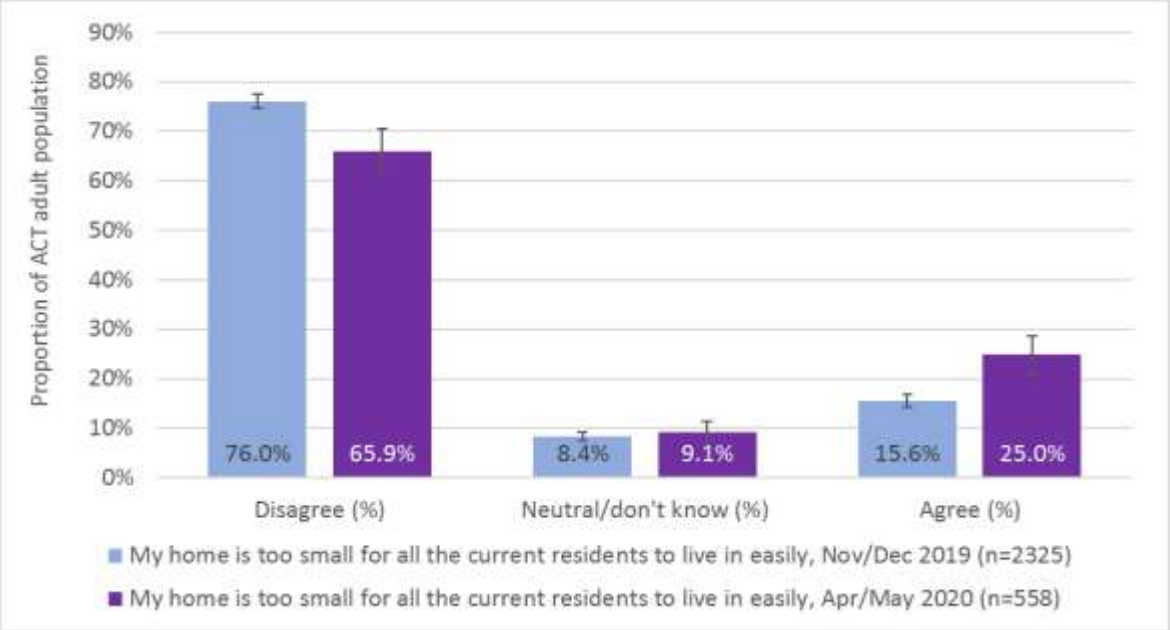

Figure 26 Overcrowding, comparison of 2019 and 2020

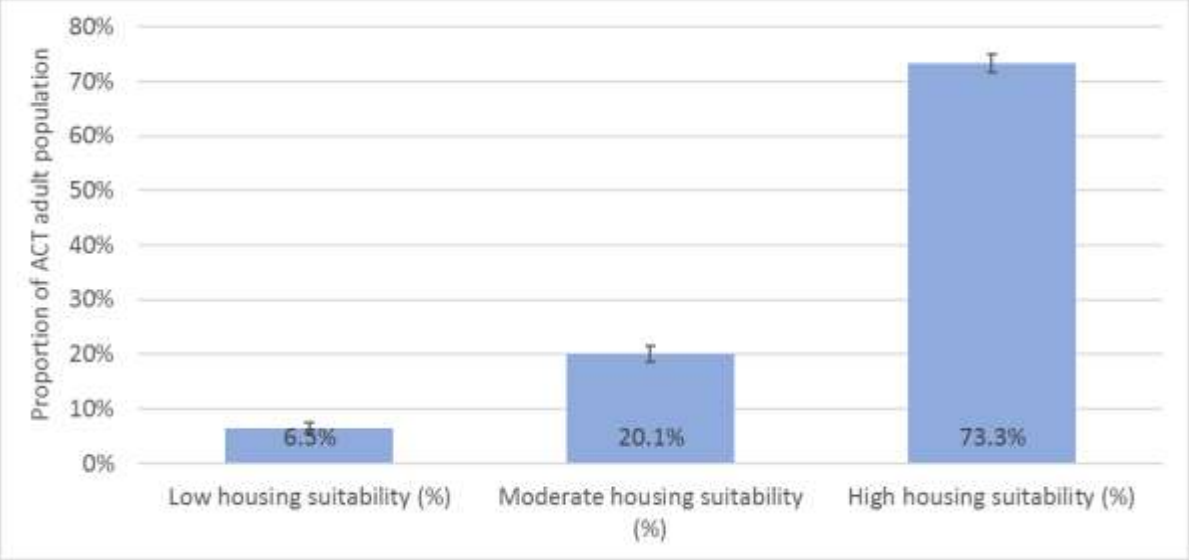

Figure 27 Housing suitability, 2019 (n=2456)

11.1.4 Key findings – population groups

The groups most likely to report over-crowding in 2019 (when a large sample were collected) were those aged 30-49 (22.3% reporting overcrowding in 2019), single parents (29.7%), couples with children of any age under 25 living in the home (23.6%), and those living in units/apartments (26.6%).

The groups significantly less likely to report having high suitability of housing in 2019 (when a large sample of people were asked this question) were single parents (14.2% reported low suitability of housing), those with children aged 5-17 in their household (13.8% reporting low suitability), those with moderate or severe disability (8.6%, with this figure masking much higher proportions amongst those who experience barriers to physical functioning) and carers (11.4%).

11.1.5 Recommendations & conclusions

While most ACT residents reported having suitable quality housing, some groups were less likely to live in suitable housing. Overcrowding also appeared to increase between 2019 and 2020, potentially reflecting the effects of COVID-19 on households; however, the low sample size asked this question in the second survey limits ability to compare the two waves. At the time of the Wave 2 survey, many people were working from home and/or home-schooling children, and some had additional residents, due to COVID-19 related restrictions. This may have resulted in a change in how residents rated the suitability of their housing compared to late 2019.

The measures used appear initially useful, but further work should be undertaken to appropriately validate them. In addition, an objective measure of overcrowding that is based on the ratio of number of occupants to rooms should be developed (potentially drawing on those already developed that use data from the Australian Bureau of Statistics), and compared to the self-rated overcrowding measure. This would improve ability to interpret findings of the self-rated overcrowding measure, and understand what level of occupancy is commonly perceived to represent overcrowding in the ACT. Further work should also examine whether the measures of housing suitability used are the most appropriate, and reflect the needs of groups with differing types of housing needs.

12.0 Identity and belonging domain

12.1 Sense of belonging and inclusion

12.1.1 Indicator context and purpose

The 'sense of belonging and inclusion' indicator is described in the ACT Wellbeing Framework as measuring 'people's self-rated sense of belonging in their community, how inclusive they find their local area, and whether different people experience discrimination in Canberra' (ACT Government 2020, p. 20). As these are three distinct types of experience (belonging, inclusion and experience of discrimination), three separate measures were examined.

12.1.2 Description of measures

Sense of belonging: Sense of belonging was measured by calculating the average score of responses to the following items, each measured using a 7-point disagree-agree scale: (i) I feel welcome here, (ii) I feel part of the community in my local area, (iii) I feel like an outsider here [scoring reversed]. This measure is used in the Regional Wellbeing Survey. Answers were grouped to identify the proportion who had a low sense of belonging (score of 1-3), moderate sense of belonging (score of 4 to 5) or high sense of belonging (score of 6 to 7).

Sense of inclusiveness: Sense of inclusiveness was measured by calculating the average score of responses to the following items, each measured using a 7-point disagree-agree scale: (i) Some groups in this local area keep to themselves, (ii) Some groups in this local area aren't made to feel welcome, (iii) There is a lot of disagreement between people in my local area. This measure is used in the Regional Wellbeing Survey, but only recently, and is in developmental stages. This was asked in 2019 only, with only a very small sample captured in 2020 due to the need to create space to ask questions about experiences of bushfires, hailstorm and COVID-19. Answers were grouped to identify the proportion who had a low sense of inclusion (score of 1-3), moderate sense of belonging (score of 4 to 5) or high sense of belonging (score of 6 to 7).

Experience of discrimination: This was measured by asking survey participants 'In the past 12 months, do you feel that you have experienced discrimination or have been treated unfairly by others?', with response options of (i) yes, (ii) no or (iii) don't know. This measure has previously been used in the ACT *General Health Survey*, and the Australian Bureau of Statistics *General Social Survey*, amongst others.

12.1.3 Key findings – ACT adults, sense of belonging

Overall, just under three-quarters of ACT residents (74.7%) reported feeling a high sense of belonging to their local community in 2019, while 17.3% reported a moderate sense of belonging, and 7.9% a low sense of belonging (Figure 28).

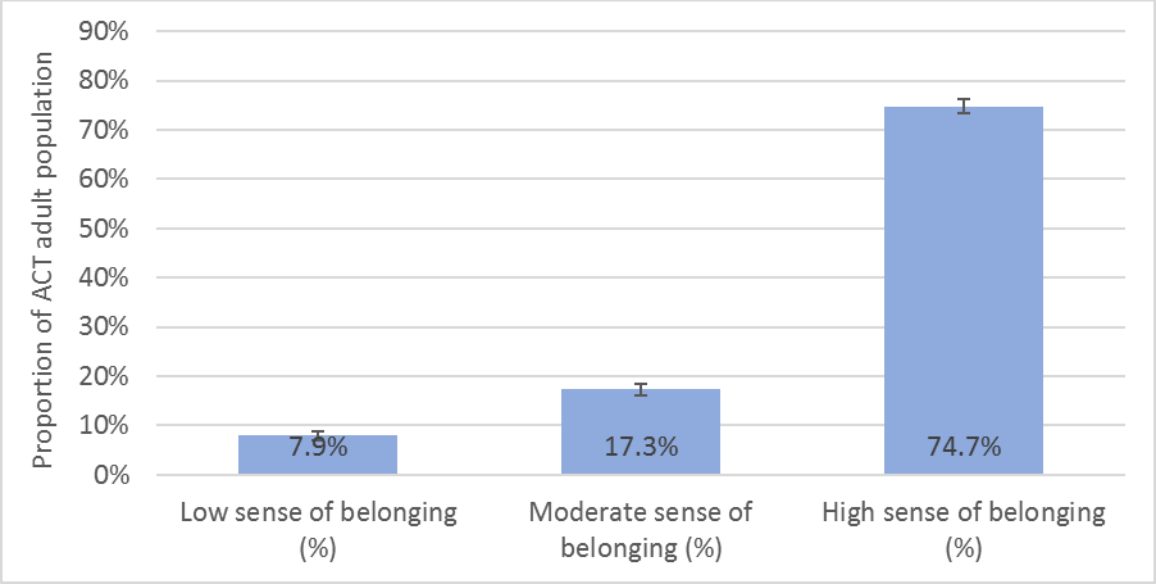

Figure 28 Sense of belonging – 2019 (n=3180)

12.1.4 Key findings – ACT adults, sense of inclusion

Views about the inclusiveness of the ACT region varied. In 2019, 29.8% of ACT residents felt their local area was highly inclusive, while 26.0% reported low levels of inclusion (Figure 29). As this measure has not been fully validated, further work is needed to develop the indicator before findings can be interpreted with confidence. In particular, further work examining the suitability of combining the three items into a scale is recommended, together with further work to identify suitable thresholds for defining low, moderate and high inclusiveness.

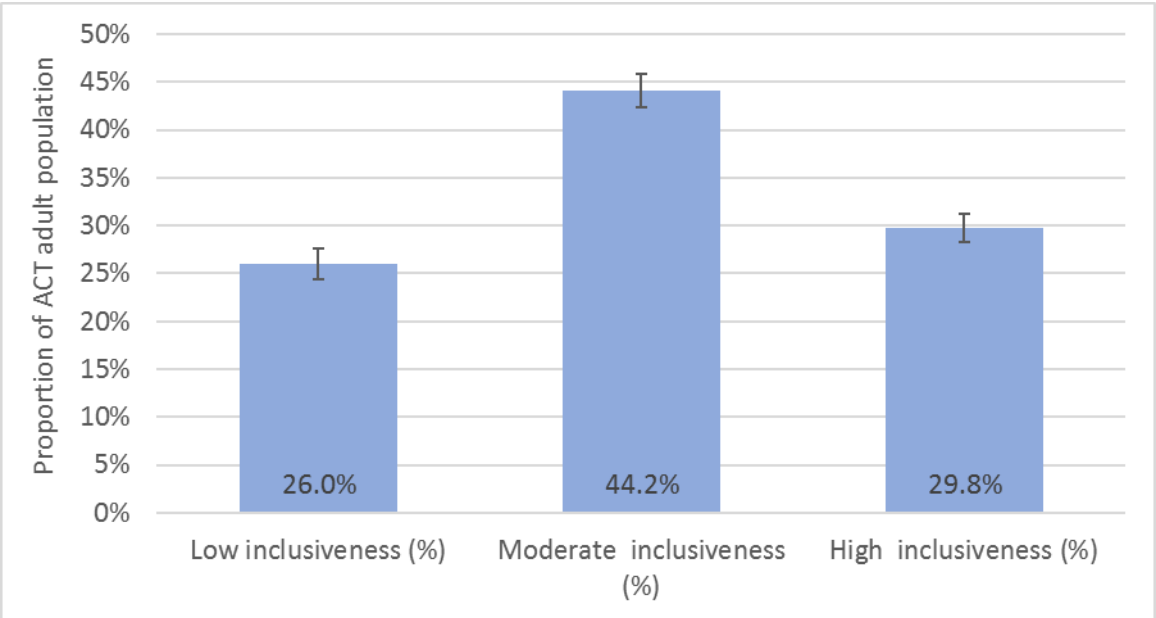

Figure 29 Sense of inclusion – 2019 (n=3,172)

As of 2019, just over one in five ACT adults reported experiencing discrimination or unfair treatment at some point in the last 12 months (Figure 30). In 2020, similar findings were identified for a smaller group of participants; further data will be collected in future surveys to identify whether experience of discrimination changes over time.

12.1.5 Key findings – ACT adults, experience of discrimination

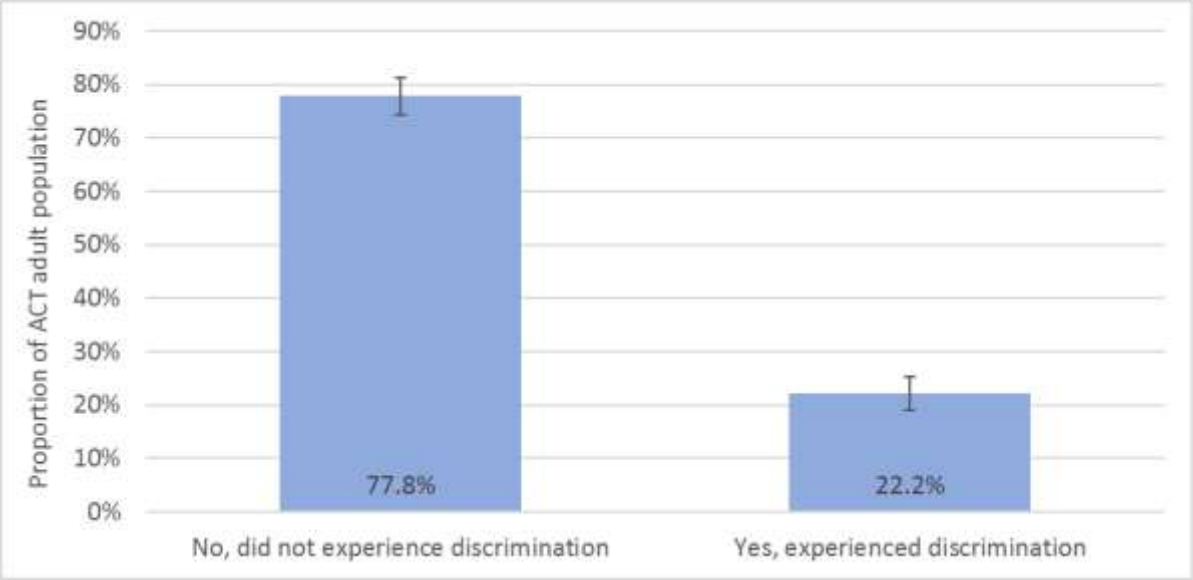

Figure 30 Experience of discrimination, 2019 (n=3047)

12.1.6 Key findings – population groups

In 2019, the groups significantly *less* likely to report feeling a high sense of belonging (compared to the average of 74.9% across the ACT), more likely to report low levels of inclusion (compared to the ACT average of 26.0%), and/or more likely to report experiencing discrimination (compared to the average of 22.2%) were:

- Those who identified as LGBTIQA+ (63.0% reporting a high sense of belonging, 40.8% low sense of inclusion, and 41.1% experiencing discrimination)
- Renters (69.6% reporting high belonging, 36.8% low inclusion, and 31.3% reporting experiencing discrimination)
- Those with a moderate to severe disability (69.6% reporting high belonging, 28.9% low inclusion and fewer than average – 23.3% – reporting high inclusion, and 34.5% reporting experiencing discrimination)
- Those who lived in the ACT 3 years or less (59.1% reporting high sense of belonging and 27.4% reporting experiencing discrimination) or 5 years or less (63.4% reporting high sense of belonging, 28.8% reporting experiencing discrimination)
- Those aged 18-29 (68.3% reported high sense of belonging)
- Those living in units/apartments (66.3% reporting high sense of belonging)
- Those who were unemployed (36.5% reporting a low sense of inclusion)
- Those living in the Inner South (40.2% reporting a low sense of inclusion)
- Those living in share/group houses (37.7% reporting a low sense of inclusion)
- Those who mainly spoke a language other than English at home (27.5% reporting experiencing discrimination).

12.1.7 Recommendations & conclusions

Some groups are less likely to feel a sense of belonging or inclusion, and more likely to report experiencing discrimination, than others. In the ACT, renters and those identifying as LGBTIQA+ are

particularly likely to report low sense of belonging and experience of exclusion and discrimination. Those who speak a language other than English are more likely to report experiencing discrimination, but report similar levels of belonging and inclusion to the ACT average, while younger people and those who have recently arrived in the ACT are less likely to report feeling a strong sense of belonging to their local community.

The measures used initially appear to have useful properties, with differences in experiences reported across groups. The inclusion measure should be further validated to enable robust interpretation, however it does appear to measure a somewhat different underlying concept to belonging (as intended) given the different patterns of inclusion compared to belonging amongst different population groups. Experience of discrimination also varies to experience of belonging and inclusion, suggesting that using all three measures may be relevant.

12.2 Support for multiculturalism

12.2.1 Indicator context and purpose

The 'support for multiculturalism' indicator focuses on how welcoming and supportive the ACT community are of different cultures. The ACT Wellbeing Framework states that 'Canberra is a welcoming and vibrant city, shaped by the cultural diversity of those who live here. This indicator will measure Canberrans' support for multiculturalism, including how welcome people of different cultural backgrounds feel in Canberra' (ACT Government 2020, p. 20).

12.2.2 Description of measure

Support for multiculturalism was measured using a set of survey items that sought to measure the extent to which ACT residents find the ACT to be a city that welcomes people of a wide range of cultures, languages and identities. The four items were each measured using a 7-point disagree-agree scale: (i) Canberra as a community accepts people from different cultures, (ii) There is room for a variety of languages/cultures in the ACT region; (iii) Australia is better off because we have many different races/cultures; (iv) Australia is a racist country. The first item is used in the Canberra Omnibus Survey commissioned by the ACT Community Services Directorate (Winton 2018), the second has been used in multiple surveys world-wide, sometimes as a stand-alone item and sometimes as one of multiple items intended to measure support for multiculturalism (e.g. Gui et al. 2016), and the third and fourth are drawn from the Australian Reconciliation Barometer (Reconciliation Australia 2019). Each of these items was explored individually, rather than initially combining them into a single scale, as initial exploration suggested a need to further examine the suitability of the items for use as part of a single scale.

12.2.3 Key findings – ACT adults

Most residents of the ACT report finding Canberra a welcoming city, with 85.8% on average agreeing that Canberra is accepting of people from different cultures, 83.7% that there is room for a variety of languages/cultures, and 82.1% that Australia is better off because it has many different races/cultures (Figure 31). Views about whether Australia is a racist country were more diverse: 35.0% disagreed while 45.0% agreed and 20.0% were either unsure or neither agreed or disagreed. Given the almost identical responses to the first three items, and very different response to the fourth – which is not simply due to the negative phrasing of the question, but suggests substantial overall difference in distribution of views - future work examining this measure should consider reporting concerns about racism as a separate measure to indicators of acceptance of multiculturalism.

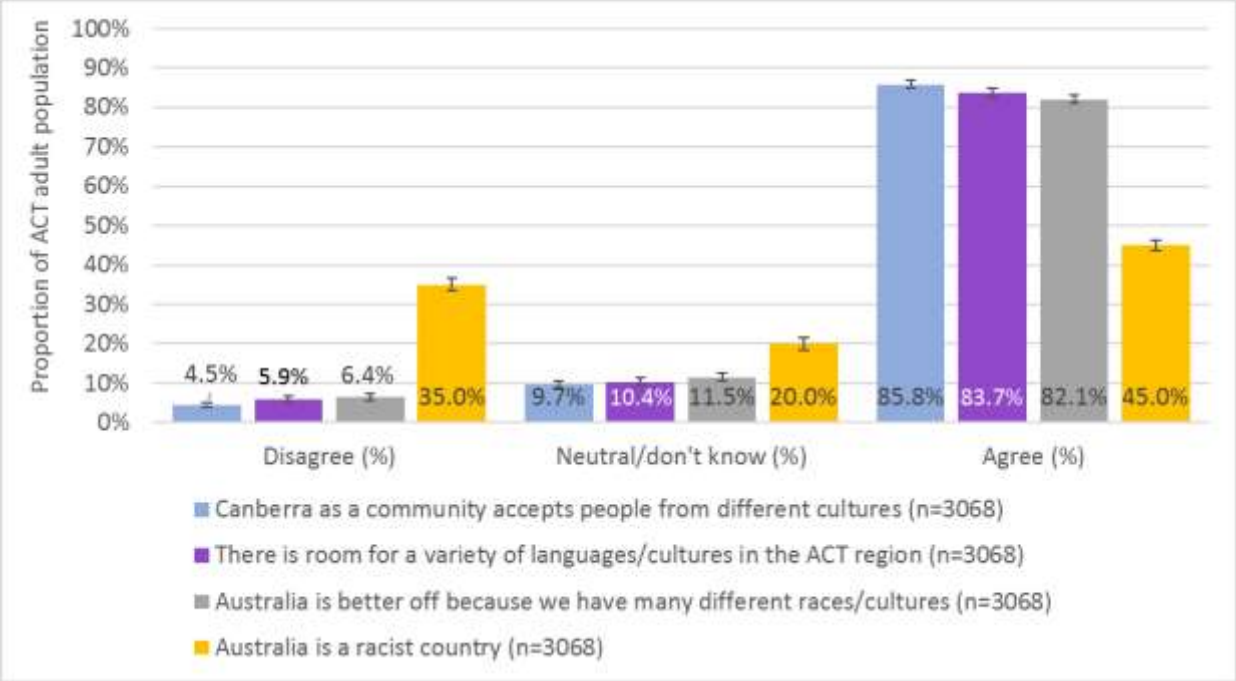

Figure 31 Welcoming city measures – 2019

12.2.4 Key findings – population groups

Few groups had consistently differing views to the average for any of the four items; the differences noted below, while statistically significant, mostly involve relatively small differences to the average for the ACT, and therefore represent often only small magnitude of difference:

- Canberra as a community accepts people from different cultures:
    - Less likely to agree: Carers (79.8%), unemployed (72.5%), those living in Tuggeranong North (78.6%), those with moderate/severe disability (81.1%)
    - More likely to agree: Those living in the Inner North (96.4%) and North (93.9%)
- There is room for a variety of languages/cultures in the ACT region:
    - Less likely to agree: Carers with >15 hours caring obligations (75.1%), those living in Inner Belconnen (77.4%) and Tuggeranong North (74.3%), those with moderate/severe disability (78.1%)
    - More likely to agree: Those living in Belconnen East (93.6%) and the North (91.3%)
- Australia is better off because we have many difference races/cultures:
    - Less likely to agree: Men (78.2%), those aged 65+ (77.6%), single parents (71.7%), those living in Inner Belconnen (76.5%), and those with moderate/severe disability (75.9%)
    - More likely to agree: Women (95.7%), those living in the Inner North (91.6%), and North (88.5%)
- Australia is a racist country:
    - Less likely to agree: Those living in Gungahlin (37.0%)
    - More likely to agree: Those who identified as LGBTIQA+ (64.6%), those living in the North (54.2%) and Woden Valley (53.4%).

12.2.5 Recommendations & conclusions

This measure suggests that most ACT residents, including those from non-English speaking backgrounds, overall feel Canberra is a welcoming city. There is a need to further develop measures to better identify different aspects of successful multiculturalism. In particular, the two measures that refer to Australia should be accompanied by measures that ask about the ACT specifically, enabling better understanding of whether views reported reflect local experiences or reflect on views about Australia more generally.

12.3 Connection to Canberra

12.3.1 Indicator context and purpose

This indicator is intended to examine whether residents feel a sense of connection to Canberra, and 'will measure whether Canberrans would recommend our city to others as a good place to live, as well as how proud we are to live in the ACT region' (ACT Government 2020, p. 21).

12.3.2 Description of measure

In the *Living well survey*, connection to Canberra was examined by asking participants the extent to which they agreed or disagreed that 'I would recommend the ACT region to others as a good place to live'. This measure is also used in the Regional Wellbeing Survey. Respondents were asked to indicate the extent to which they agreed or disagreed with the statement on a scale from 1 (strongly disagree) to 7 (strongly agree), and could also select 'don't know' if they were unsure. Answers were grouped to identify the proportion who disagreed (score of 1-3), agreed (score of 5 to 7) or were neutral or unsure (score of 4 or 'don't know').

12.3.3 Key findings – ACT adults

The large majority of ACT residents reported that they would recommend the ACT region to others as a good place to live, with an average score of 6.2 (out of a possible 1 to 7) in 2019 (n=3180) and 6.1 in 2020 (n=749). When examined based on the proportion who agreed with the statement, in 2019, 92.5% agreed that they would recommend the ACT region to others (Figure 32), and similarly 91.8% agreed in 2020, with the small difference between the two surveys not statistically significant.

This compares favourably to Australia as a whole: in 2018, across Australia, the average score was 5.1 and 66.0% of Australians stated they would recommend their community to others as a good place to live (Regional Wellbeing Survey 2020).

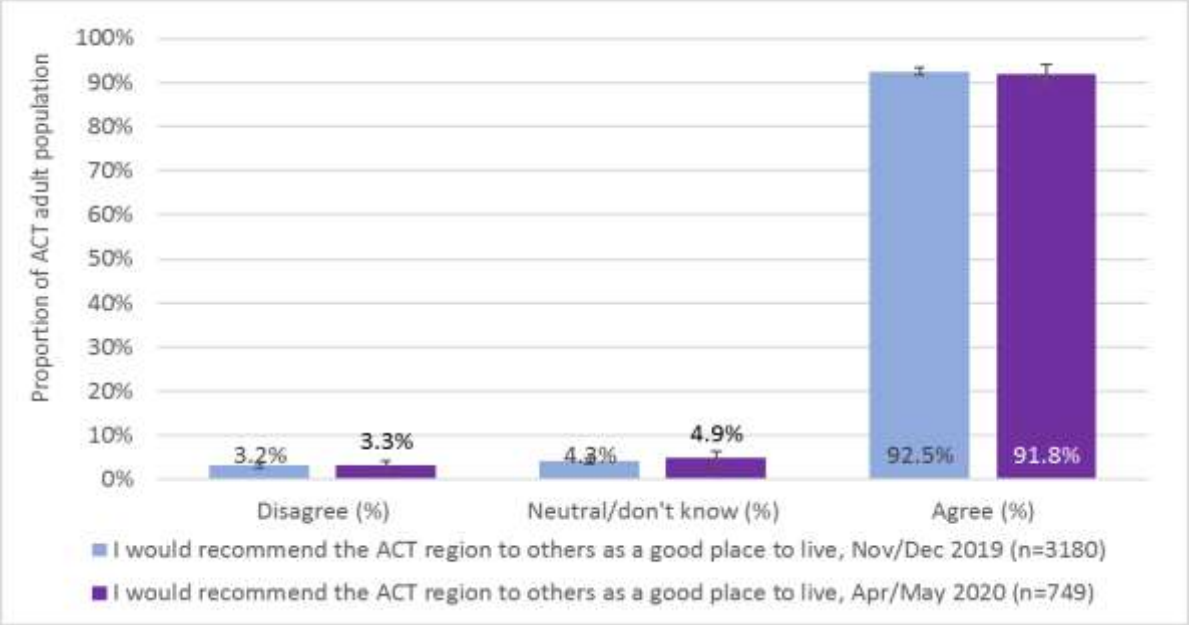

Figure 32 Connection to Canberra – proportion with different views, 2019 and 2020

12.3.4 Key findings – population groups

Only three groups were significantly less likely to recommend the ACT region to others as a good place to live – although even for each of these, more than 80% would recommend it:

- LGBTIQA+ (84.2%, compared to 92.5% of all ACT adults)
- Those living in share/group households (81.1%)
- Unemployed people (80.8%).

12.3.5 Recommendations & conclusions

The large majority of ACT residents would recommend the ACT region to others as a good place to live, suggesting a positive connection to the region amongst its residents. When used in other communities across Australia (Regional Wellbeing Survey 2020), this measure shows high levels of variation, indicating it is sensitive to differences in community circumstances.

Some further exploration of this measure is warranted, however, to better identify whether it measures connection to Canberra versus liveability of Canberra. These two concepts are likely to be highly interdependent (liveability in part is likely to depend on sense of connection). Given the strong similarity of response distribution of this measure to the response distribution of the 'liveable city' measures, it appears likely the two are measuring similar concepts, and that it may be redundant to develop measures for both.

12.4 Valuing Aboriginal and Torres Strait Islander cultures and recognising our Traditional Custodians

12.4.1 Indicator context and purpose

This indicator 'will measure the level of understanding the ACT population has in acknowledging and respecting the Traditional Custodians of this land, and in celebrating and valuing Aboriginal and Torres Strait Islander cultures as the cornerstone of Australia's identity' (ACT Government 2020, p. 21). This recognises the importance of recognising and valuing Traditional Custodians to the social identity and social fabric of the ACT.

12.4.2 Description of measures

Three measures were used to examine the extent to which Aboriginal and Torres Strait Islander cultures, and the Traditional Custodians of the ACT region, are valued and recognised:

1. **Valuing Aboriginal and Torres Strait Islander cultures:** This was examined by identifying the extent to which survey participants agreed or disagreed that (i) I feel proud of our Aboriginal and Torres Strait Islander cultures, and (ii) Aboriginal and Torres Strait Islander cultures are important to Australia's identity as a nation. Respondents could answer from 1 (strongly disagree) to 7 (strongly agree), with a 'don't know' option also provided. Both items were drawn from the Australian Reconciliation Barometer (Reconciliation Australia 2019).
2. **Engaging with Traditional Custodians and Aboriginal and Torres Strait Islander cultures:** This measured was designed and used for the first time in the *Living well* survey, but drew on concepts included in the Australian Reconciliation Barometer, which asks people whether they feel having Acknowledgment of Country or Welcome to Country addresses at key events can help celebrate national unity and identity (Reconciliation Australia 2019). Rather than asking about importance, the *Living well* survey sought to identify engagement by asking survey participants whether in the last 12 months they had:
    a. Attended an event in which Welcome to Country was performed by a Traditional Custodian representing Aboriginal people of the ACT region
    b. Attended an event in which an Acknowledge of Country was given to acknowledge the Traditional Custodians of the ACT region
    c. Attended any events, ceremonies or activities in the last year (other than acknowledgement of or welcome to country) that focused on or were held by Aboriginal or Torres Strait Islander people
3. **Awareness of Traditional Custodians of the ACT region:** Survey participants were asked to identify Traditional Custodians of the ACT region by writing the name/s of Traditional Custodians, and could select 'I am unsure who the Traditional Custodians of the ACT region are' if they were unsure. The names provided were then considered to indicate awareness of Traditional Custodians if the name written was Ngunnawal, Ngambri, Ngarigo and/or Walgalu peoples, or variants of names of these peoples. All of these were accepted as the question asked about the ACT region as a whole. This measure was developed and used for the first time in the *Living well* survey.

12.4.3 Key findings – ACT adults, Valuing Aboriginal and Torres Strait Islander cultures

In 2019, 70.1% of ACT adults agreed that they felt proud of Aboriginal and Torres Strait Islander cultures, and 83.8% agreed that these cultures are important to Australia's identity as a nation (Figure 33). These findings were almost identical for 2019 and 2020. In contrast, 57% of the general Australian public report feeling proud of Aboriginal and Torres Strait Islander cultures, while 79% of the Australian public agree that Aboriginal and Torres Strait Islander cultures are important to Australia's identity as a nation (Reconciliation Australia 2019).

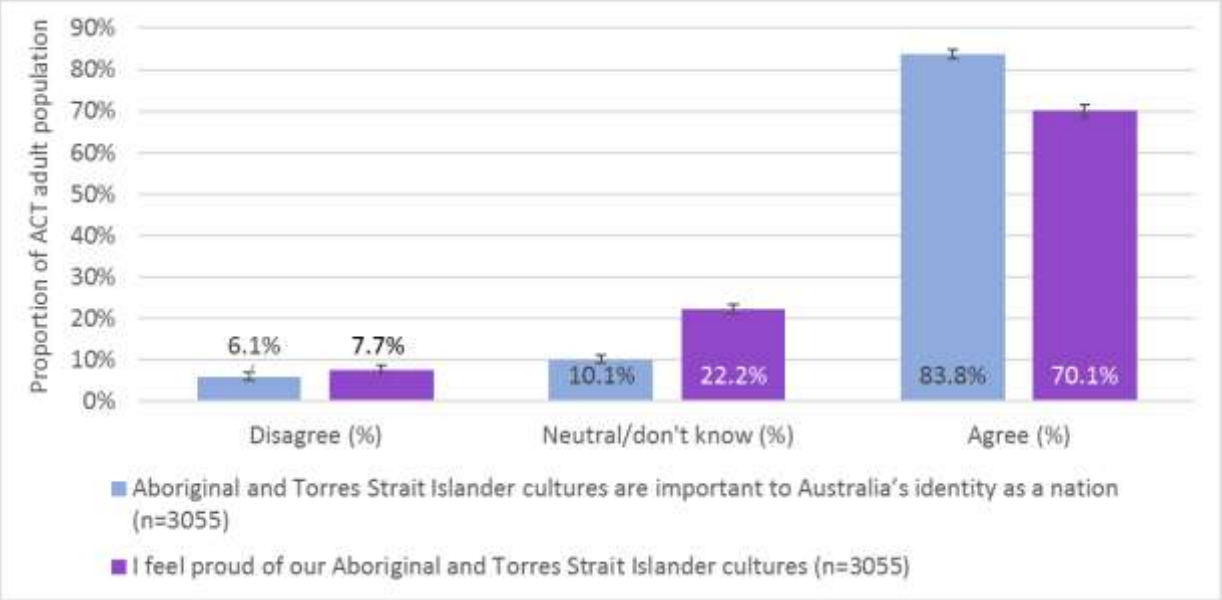

Figure 33 Valuing Aboriginal and Torres Strait Islander cultures – 2019

12.4.4 Key findings – ACT adults, Engaging with Traditional Custodians and Aboriginal and Torres Strait Islander cultures

In total, 59.1% of ACT adults reported they had attended an event in the last year in which a Welcome to Country was given by a Traditional Custodian representing Aboriginal people of the ACT region, and 75.8% had attended an event in which an Acknowledgment of Country was given. Fewer- 31.9% - had attended other types of events, ceremonies or activities in the previous 12 months that focused on or were held by Aboriginal or Torres Strait Islander peoples (Figure 34). Data are not reported for 2020 as these questions were asked of only a small number of people in the 2020 survey.

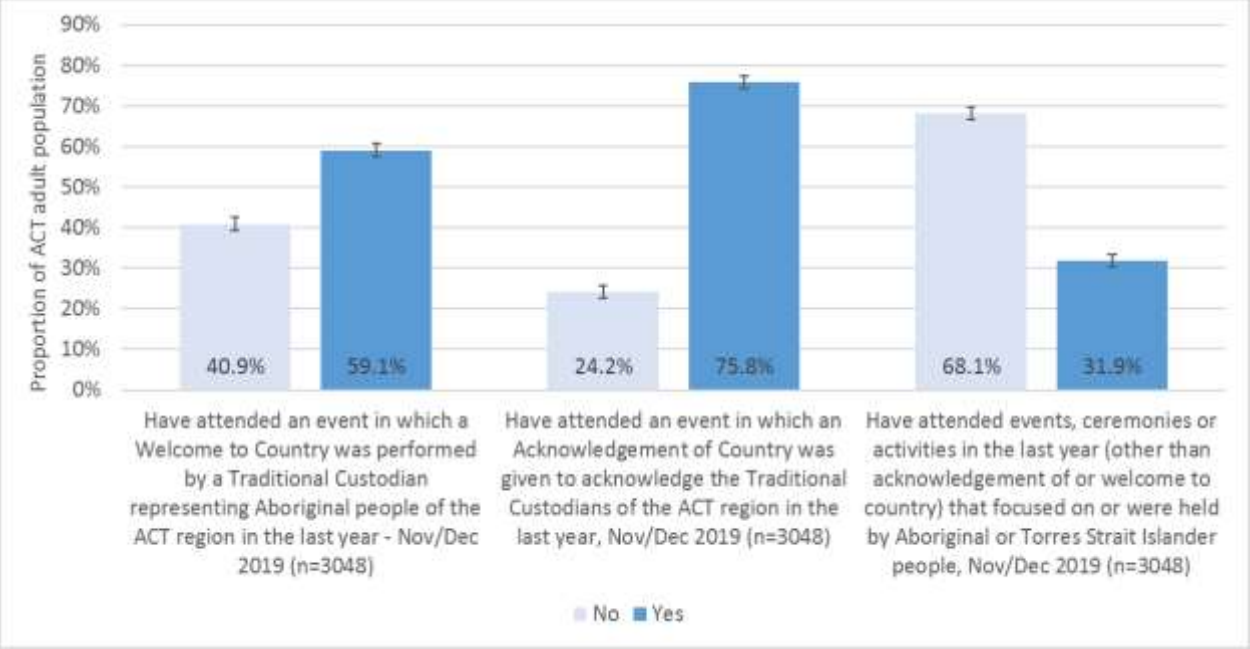

Figure 34 Engaging with Traditional Custodians and Aboriginal and Torres Strait Islander cultures, 2019

12.4.5 Key findings – ACT adults, Awareness of Traditional Custodians of the ACT region

Just under three quarters of ACT adults (74.7%) could name Traditional Custodians of the ACT region, while 25.3% were unsure who the Traditional Custodians of the ACT region were, or named a group that was not one of those who have historically claimed rights as Traditional Custodians of part or all of the ACT region (Figure 35).

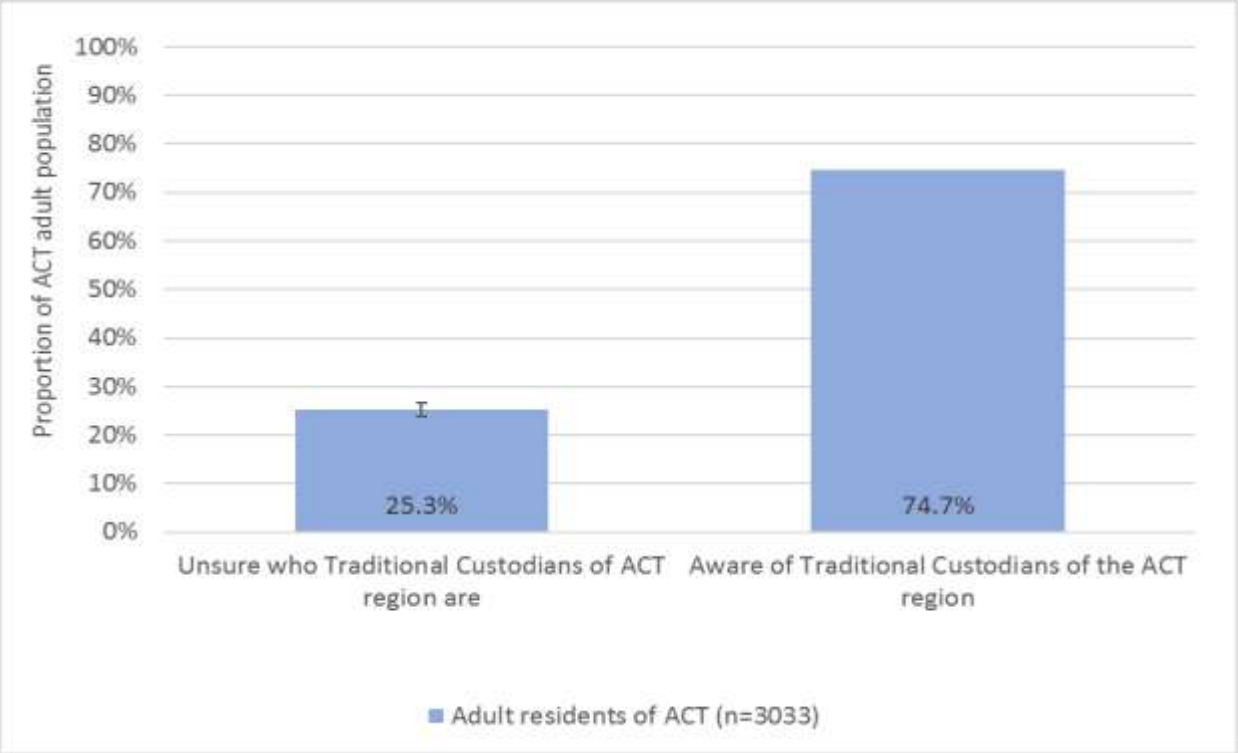

Figure 35 Awareness of Traditional Custodians of the ACT region, 2019

12.4.6 Key findings – population groups

Table 5 summarises the groups whose values and recognitions of Traditional Custodians differed to the average. Men were slightly less likely than women to feel proud or and value Aboriginal and Torres Strait Islander cultures, and to have attended any of the types of events asked about or be able to name Traditional Custodians of the ACT region. Younger people aged 18 to 29 were more likely to report feeling proud of Aboriginal and Torres Strait Islander cultures, but less able to name Traditional Custodians. Those aged 65 and older were less likely to report valuing and feeling proud, and to have attended events, although they were similarly likely to others to be able to name Traditional Custodians. Those who main language at home was not English were less likely to be able to name Traditional Custodians, as were those who had lived in the ACT for a shorter period of time, and those living in Tuggeranong South.

12.4.7 Recommendations & conclusions

While a majority of ACT residents value Aboriginal and Torres Strait Islander cultures, and many have attended events at which an Acknowledgment of Country was given, fewer have attended events in which they directly engage with Traditional Custodians, particularly amongst older people and those from non-English speaking backgrounds. Those who have lived in the ACT for a shorter time, and younger people (who have often lived in the ACT for a shorter time), were less likely to be aware of the Traditional Custodians of the ACT region, despite reporting high value and respect for Aboriginal and Torres Strait Islander cultures.

Table 5 Valuing and recognising Traditional Custodians – population groups different to the ACT average

Group (data only shown where group were significantly different to the ACT average)	Feel proud of our Aboriginal and Torres Strait Islander cultures - % agree	Aboriginal and Torres Strait Islander cultures are important to identity as a nation - % agree	Attended event with Welcome to Country - % who did so in last 12 months	Attended event with Acknowle-dgment of Country - % who did so in last 12 months	Attended event, activity or ceremony focused on Aboriginal or Torres Strait Islander people - % who did so in last 12 months	Awareness of Traditional Custodians of ACT region - % who were able to identify specific Traditional Custodians
ACT adults	70.1%	83.8%	59.1%	75.8%	31.9%	74.7%
Males	61.6%	79.7%	55.2%	72.9%		
Females	78.1%	87.6%	62.7%	78.5%		
Aged 18 to 29	78.3%	88.9%				65.4%
Aged 30 to 49			65.9%			
Aged 50 to 64						81.4%
Aged 65 and older	63.1%	77.4%	44.3%	63.0%	16.1%	
Main language at home not English	70.7%			79.9%		58.1%
LGBTIQA+	82.3%	95.1%				
Lived in ACT 3 years or less			52.7%	58.6%		51.8%
Lived in ACT 5 years or less			54.5%	68.2%		57.1%
North	83.8%	93.0%				
Tuggeranong South	60.6%	74.0%	53.1%		25.8%	61.9%
Moderate or severe disability			54.7%		25.4%	

The initial results of these measures may be suitable for future use, however further work is needed. In particular, these findings should be further discussed and reviewed by Traditional Custodians, and measures should continue to be used only if this is supported by Traditional Custodians.

13.0 Living standards domain

The term 'living standards' often refers to a wide range of aspects of a person's home and lived environment, from the quality of their housing to their access to healthy food and ability to purchase goods and services. As many of these things are measured via other indicators forming part of the ACT Wellbeing Framework, the 'living standards' domain principally considers financial aspects of living standards (ACT Government 2020).

13.1 Cost of living

13.1.1 Indicator context and purpose

High costs of living can add 'pressure to people's living standards, which may in turn impact on their wellbeing' (ACT Government 2020, p. 22). Cost of living can be measured using objective measures such as the Consumer Price Index. Subjective measures can complement this perspective by identifying how people with differing life circumstances (such as different household sizes, caring obligations, income types and home ownership) experience cost of living in the ACT.

13.1.2 Description of measure

Cost of living was measured by asking survey respondents the extent to which they agreed or disagreed that 'living costs are affordable here', on a scale from 1 (strongly disagree) to 7 (strongly agree) with a 'don't know' option also provided. This measure is drawn from the Regional Wellbeing Survey, where it has been used since 2013. Answers were grouped to identify the proportion who disagreed (score of 1-3), agreed (score of 5 to 7) or neither agreed/disagreed (score of 4 or 'don't know').

13.1.3 Key findings – ACT adults

In 2019, the average score for cost of living was 3.8 out of a possible 7 (n=3174), and fell to 3.6 in 2020 (n=609). The difference was statistically significant, despite being small when examined using the mean score. The indicator as a whole, and change in it, are more readily interpreted by examining the proportion of people who agreed and disagreed with the statement. Overall, 42.4% of ACT residents did not agree living costs were affordable in 2019, rising to 47.0% in 2020, while the proportion who agreed fell from 34.9% to 25.4% (Figure 36). In 2018, 36.6% of Australian adults reported living costs were not affordable in their local region compared to 38.3% who agreed that living costs were affordable in their region (Regional Wellbeing Survey 2020). While not collected at an identical time, this suggests higher cost of living in the ACT compared to the Australian average.

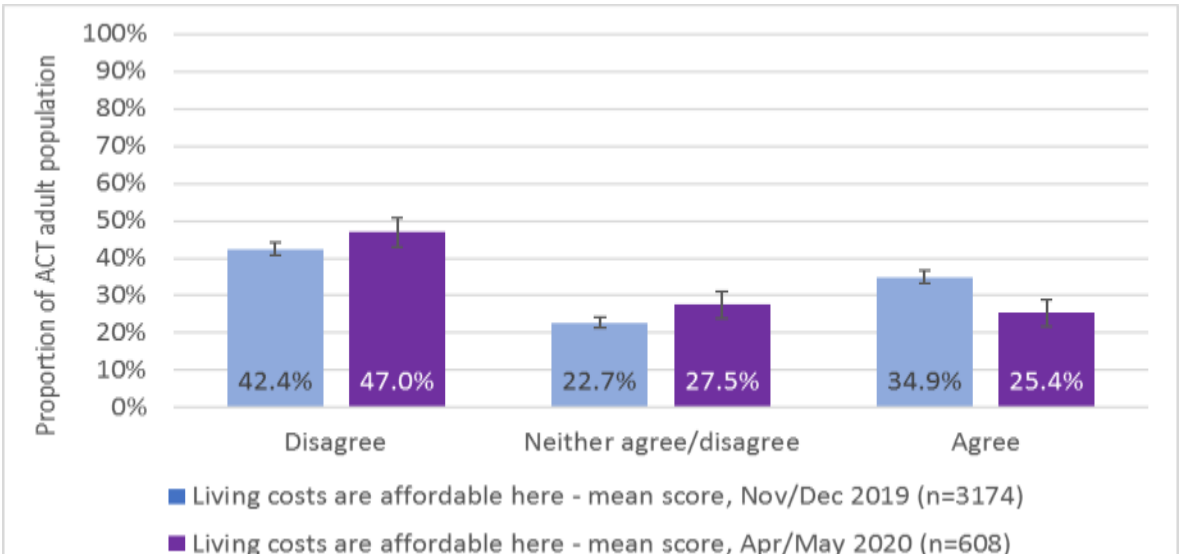

Figure 36 Living costs are affordable here – categories, 2019 and 2020

13.1.4 Key findings – population groups

In 2019, the groups who were significantly more likely to find living costs unaffordable compared to the ACT average of 42.4% were those aged 50-64 (48.7%); who had lived in the ACT for 3 years or less (54.8%); couples with children aged under 18 living in the home (48.4%), particularly those with children aged 5-17 (54.3%); renters (51.5%); and those living in Weston Creek and Molonglo (53.1%).

Those more likely to find living costs affordable were those aged 65 and older (49.3% agreeing living costs were affordable), those who owned their home outright (44.7%), and living in Belconnen East (45.2%). As a smaller sample was captured in 2020, groups were compared using 2019 data only.

13.1.5 Recommendations & conclusions

A relatively large proportion of ACT residents do not find living costs affordable in the ACT region, particularly those with children aged under 18, renters, and those who have lived in the ACT for a shorter period of time. There is some evidence of declining affordability between 2019 and 2020, however further data are needed to confirm whether this is a longer-term trend or a short-term change.

13.2 Financial position

13.2.1 Indicator context and purpose

The 'financial position' indicator examines self-rated household financial wellbeing – meaning how people self-rate their household's financial position. This self-rated measure is useful to include when considering living standards, as it complements objective measures of income and net worth to identify whether the income being earned by different households is viewed as sufficient to achieve a reasonable financial standard of living.

13.2.2 Description of measure

The measure 'financial position' was measured using a common measure of household financial wellbeing used in a range of surveys, including the Household, Income and Labour Dynamics in Australia (HILDA) survey and the Regional Wellbeing Survey. Participants were asked 'Given your current needs and financial responsibilities, would you say that you and your family are...' and able to respond (i) Very poor, (ii) Poor, (iii) Just getting along, (iv) Reasonably comfortable, (v) Comfortable or (vi) Prosperous.

13.2.3 Key findings – ACT adults

In 2019, 28.5% of ACT adults reported they and their family were either 'poor', 'very poor' or 'just getting along', with most of this 28.5% reporting they were 'just getting along' (Figure 37). This increased slightly but significantly to 33.1% in 2020, while the proportion who felt they were 'reasonably comfortable' declined from 47.3% to 41.9% and the proportion reporting being 'very comfortable' or 'prosperous' remained relatively stable (24.1% in 2019 and 25.0% in 2020).

It was not possible to compare the data to findings from the HILDA survey, however this will be possible through accessing and analysing the HILDA dataset to provide comparison. In the 2018 Regional Wellbeing Survey, 45.0% of Australians reported being poor, very poor or just getting along (much higher than the 28.5% of ACT residents in 2019), 41.6% were reasonably comfortable, and 13.4% reported being very comfortable or prosperous. This suggests that ACT residents on average rate their financial prosperity higher than those in other parts of Australia.

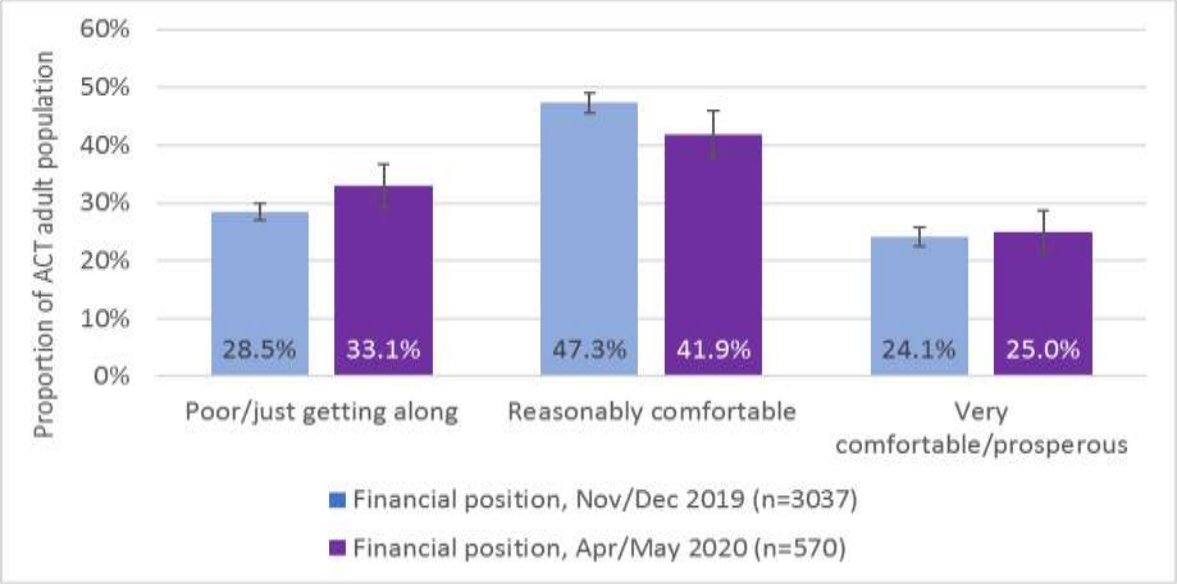

Figure 37 Financial position, 2019 and 2020

13.2.4 Key findings – population groups

Some groups were more likely to report being in the 'very poor, poor or just getting along' category, which is an indicator of likely high financial vulnerability. These groups more likely to report being poor or just getting along in 2019, compared to 28.5% of ACT adults, were:

- Slightly higher financial vulnerability than average: those aged 30-49 (33.5%); sole person households (33.4%); those with one or more children aged under 25 in their household (34.5%); those living in Tuggeranong South (35.5%); those with moderate or severe disability (36.7%); carers with 15 hours or more a week of caring obligations (37.5%).
- Much higher financial vulnerability than average: single parents (60.7%); renters (52.1%); those who were unemployed (50.3%); and those with children aged 0-4 in their household (43.0%).

13.2.5 Recommendations & conclusions

This measure is widely used and well validated. It is suitable for use the measure the financial position indicator in the *ACT Wellbeing Framework*, and there are multiple sources of comparison data enabling comparison of the ACT to other jurisdictions. The measure also shows sensitivity to changing circumstances. Ideally, it should be used alongside objective indicators of financial position.

As of 2020, one in three ACT adults reported a financial position which indicates they have relatively high vulnerability to financial shocks, with limited ability to cope with events such as loss of income or sudden large expenses. While this remained below the Australian average in 2018, it remains of concern, particularly for the specific groups most likely to be financially vulnerable, particularly single parents, renters, the unemployed and those with young children in their household.

14.0 Safety domain

The safety domain of the ACT Wellbeing Framework includes multiple indicators, related to feeling safe, experience of crime and violence, road and workplace safety, emergency services, and resilience to emergencies. Several of these can be measured using available administrative data and national statistical data, with only a small number of measures explored in this report.

14.1 Feeling safe

14.1.1 Indicator context and purpose

The 'feeling safe' indicator measures 'people's self-rated sense of safety walking in their neighbourhoods' (ACT Government 2020, p. 23).

14.1.2 Description of measure

Sense of safety in the local area a person lived in was measured by asking survey participants the extent to which they agreed or disagreed that:

- My local area is a safe place to live (used previously in studies including Pawson and Herath 2015)
- It is unsafe to walk outside in my local area at night (used in the ACT General Health Survey, with very similarly phrased measures used in multiple surveys)
- It is unsafe to walk outside in my local area during the day (used in the ACT General Health Survey, with very similarly phrased measures used in multiple surveys).

Answers were grouped to identify the proportion who disagreed (score of 1-3), agreed (score of 5 to 7) or were neutral or unsure (score of 4 or 'don't know').

This measure examines how safe a person finds the local area they live in, rather than safety in the household: this is an important distinction as answers to these measures do not reflect whether a person feels safe in their own household.

14.1.3 Key findings – ACT adults

Overall, 87.1% of ACT adults find their local area a safe place to life, while only 15.7% feel that it is unsafe to walk outside in their local area at night and 6.2% feel it is unsafe to walk outside in their local area during the day (Figure 38).

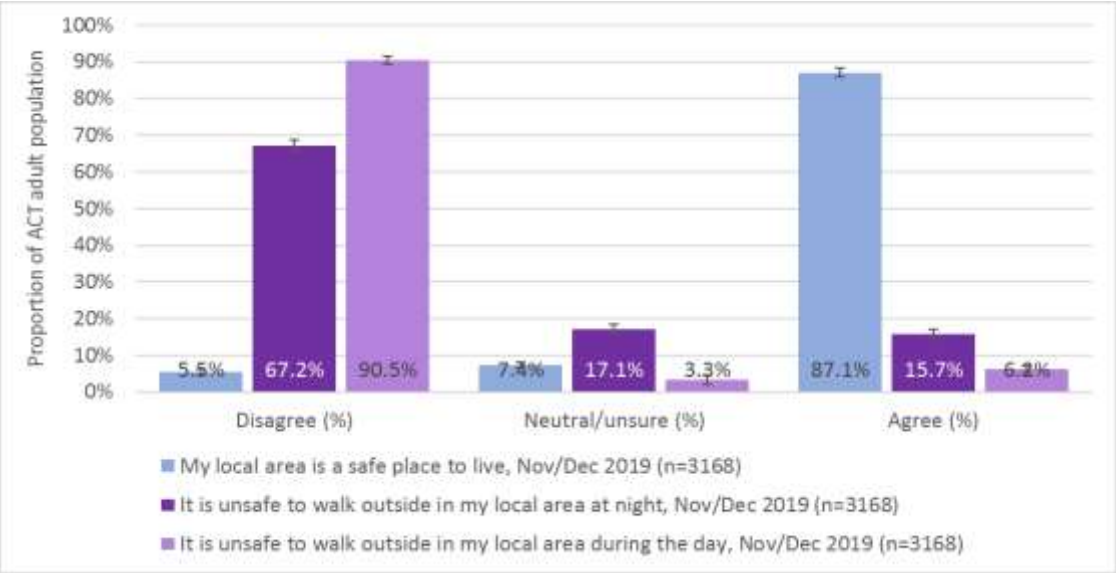

Figure 38 Perceived safety of local area, proportions – 2019

14.1.4 Key findings – population groups

The groups less likely to report finding their local area a safe place to live (compared to the 87.1% of ACT adults) were:

- Females (83.8%)
- Those with moderate or severe disability (83.8%)
- Carers (81.5%)
- Those living in Tuggeranong South (75.0%)
- Those living in Weston Creek and Molonglo (80.4%).

Similar findings occurred when examining those who felt unsafe walking outside at night. The following groups were more likely to feel it was unsafe to walk outside at night in their local area (compared to 17.1% of ACT adults):

- Females (21.6%)
- Those aged 65 and older (21.1%)
- Carers (22.1%)
- Those with moderate or severe disabilities (24.7%).

With the large majority of people feeling safe to walk outside during the day, there were few differences between groups, and the differences that did exist were generally small.

14.1.5 Recommendations & conclusions

Overall, most residents find the local area of the ACT they live in a safe place to live, although women are somewhat less likely to feel safe than men, as are carers (who are more likely to be female than male), and those living in Tuggeranong South and Weston Creek and Molonglo (although the latter varied depending on the measure of safety used).

There is limited variation in response to two of the measures. Consideration should be given to modifying measures to better reflect safety when walking alone, consistent with some other surveys conducted in Australia, and to examining a wider range of situations in which people may feel more or less safe.

14.2 Community resilience to emergencies

14.2.1 Indicator context and purpose

This indicator seeks to 'measure our community's perceptions of their readiness and resilience to emergency events over time' (ACT Government 2020, p. 23).

14.2.2 Description of measure

Emergency preparedness was examined by asking survey participants whether:

- If a bushfire, severe storm or flooding causes damage to my home, I know what to do
- I've discussed our emergency plan with others in my household in the last 12 months
- Copies of my important documents are stored in a safe place in case of emergency
- There is an emergency kit in my household with things such as a radio, flashlights and batteries
- My household has a written plan for emergencies such as storm, flood or fire

These items were originally used by Schirmer and Yabsley (2018) as part of examining resilience to climate change in the ACT. For each item, respondents could answer 'no', 'sort of' or 'yes'. The 'sort of' option was provided as testing of these measures by Schirmer and Yabsley (2018) found that many people reported they had done a little preparation but described themselves as being 'sort of' prepared rather than being fully confident that they were prepared.

14.2.3 Key findings – ACT adults

Between 2019 and 2020, the proportion of ACT residents who discussed their emergency plan with others, stored their documents in a safe place, and had an emergency kit and written emergency plan, increased significantly (Figure 39[4]). This was expected, with the experience of bushfires during the 2019-20 summer in particular expected to be associated with increased engagement in emergency planning.

However, even after the bushfires, fewer than half of ACT adults had an emergency kit or written emergency plan, and of these many reported 'sort of' having a kit or plan, rather than being confident in the extent to which their kit/plan was suitable. There was no significant change in the proportion who felt they knew what to do in an emergency, with 42.9% being confident they knew what to do, and 47.5% 'sort of' confident.

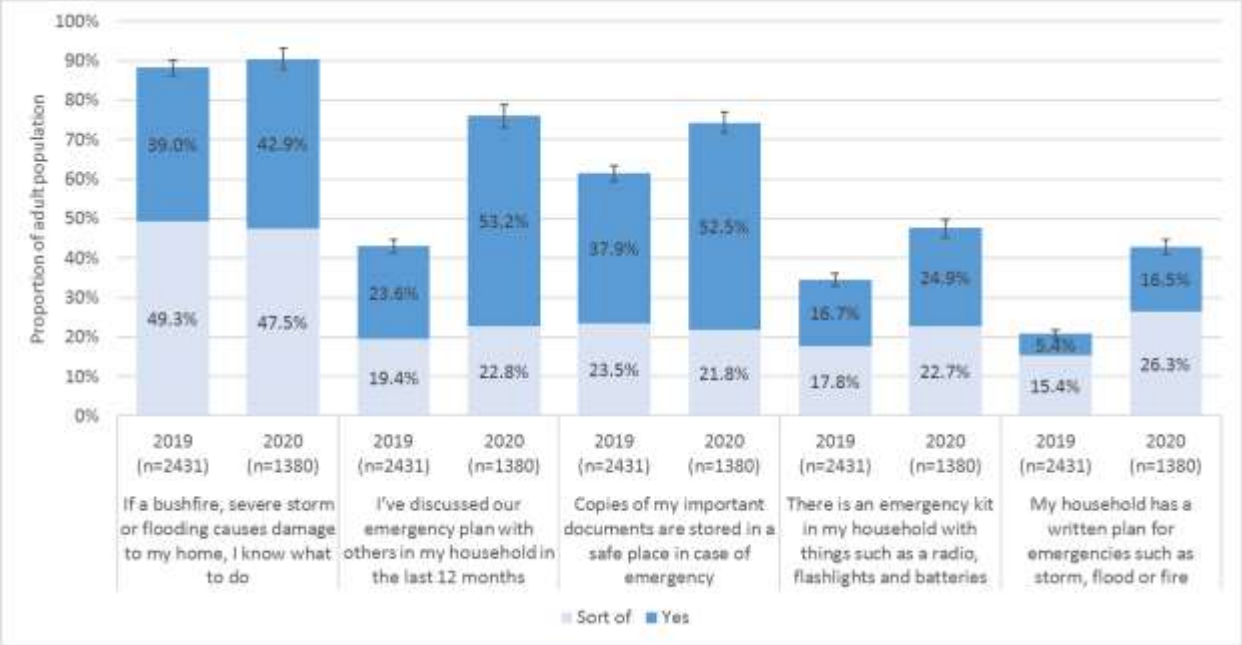

Figure 39 Emergency preparedness, 2019 and 2020[4]

14.2.4 Key findings – population groups

Different groups appear to have changed their level of preparedness in sometimes differing ways between 2019 and 2020. Table 6 compares proportions who answered 'no' and 'yes' (the remainder answered 'sort of'. In general, preparedness increased across all groups, but not by the same amounts, and there was variation between those in different age groups, living in different types of households, and living in different locations.

- Women and men varied in 2019 in their confidence about knowing what to do in a bushfire, with women being less confident, but in 2020 did not differ significantly

[4] To enable easier comparison of groups, the 'no' response is not shown in Figure 39: including it would mean each column added to 100%.

Table 6 Emergency preparedness – comparison of groups

Group (data only shown if group significantly different ACT adult average)	If a bushfire, severe storm or flooding causes damage to my home, I know what to do				My household has a written plan for emergencies such as storm, flood or fire				I've discussed our emergency plan with others in my household in the last 12 months				There is an emergency kit in my household with things such as a radio, flashlights and batteries				Copies of my important documents are stored in a safe place in case of emergency			
	2019		2020		2019		2020		2019		2020		2019		2020		2019		2020	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
ACT adults	11.8%	39.0%	9.6%	42.9%	79.1%	5.4%	57.1%	16.5%	57.0%	23.6%	24.0%	53.2%	65.6%	16.7%	52.4%	24.9%	38.5%	37.9%	25.7%	52.5%
Females	15.8%	33.0%																		
Males	7.2%	45.6%																		
Aged 18 to 29	27.4%	17.0%	15.6%	37.0%					70.2%	14.8%			81.5%	5.4%	63.7%	24.8%				
Aged 30 to 49																				
Aged 50 to 64	3.0%	55.0%	2.9%	53.0%							11.3%	66.2%	57.9%	22.0%						
Aged 65 +	4.4%	56.9%	5.9%	51.4%							34.5%	47.9%	49.3%	30.9%			26.0%	55.1%		
Main language not English			21.8%	38.9%			50.4%	24.6%							45.6%	35.7%	47.3%	26.3%		
Lived in ACT 3 years or less	21.4%	20.8%					40.0%	43.8%							49.9%	36.9%				
Lived in ACT 5 years or less	23.1%	24.1%					47.3%	31.3%	67.2%	17.8%					50.4%	36.3%				
Children aged 0-4 in home			15.5%	27.3%					43.5%	33.2%										
Children aged 5-17 in home									49.4%	31.6%										
Single parents							72.6%	7.4%									52.0%	28.3%	46.7%	39.5%
Carers	11.3%	50.3%											54.6%	28.2%						
Freestanding house	8.9%	45.2%																		
Townhouse	18.2%	24.2%																		
Unit/apartment	19.0%	22.6%							76.5%	11.3%										
Home owned outright	5.8%	53.2%	4.9%	51.0%																
Renter	21.9%	28.4%	17.1%	39.1%					65.5%	18.7%	33.0%	46.9%	47.2%	33.8%						
Inner North	28.6%	21.2%																		
Tugg. North	5.1%	51.0%											54.7%	24.2%			26.6%	50.2%	10.2%	67.9%
Tugg.South	9.3%	48.6%	15.9%	42.7%							9.5%	69.7%							16.1%	67.6%
Weston Creek	5.7%	52.1%	18.3%	47.3%							23.4%	67.1%	49.5%	32.4%			33.7%	49.8%		

- Younger people (aged 18-29) were less likely to feel confident they knew what to do, to discuss emergency plans with others, and to have an emergency kit
- Those aged 50 and older were more likely to feel confident they knew what to do, and to have an emergency kit in their home in 2019. Those age 65 and older were more likely to store documents in safe places. Those aged 50 to 64 were more likely to report having discussed their emergency plan with others in 2020, while those aged 65 and older were less likely to have
- Those whose main language was not English appear to have been more likely to improve their preparedness between 2019 and 2020, and to some extent so were those who had lived in the ACT for a shorter time
- Single parents were less likely than others to have a written emergency plan or copies of important documents stored in safe places
- Renters were less likely to feel they knew what to do in emergencies or have discussed emergency plans with others
- Those in Tuggeranong North, Tuggeranong South and Weston Creek were more likely to have engaged in some of the five preparedness actions, although confidence in knowing what to do fell between 2019 and 2020 in Tuggeranong South and Weston Creek.

14.2.5 Recommendations & conclusions

The measures used each have quite different ranges of responses, and some changed in different ways between 2019 and 2020 – discussion of emergency plans increased significantly, while confidence in knowing 'what to do' did not, for example. While there was some increase in aspects of emergency preparedness, particularly in active discussion of emergency planning within households and document storage, there remains limited engagement in use of more formal plans or household emergency kits.

There is a need for continue investing in validating and improving these measures, particularly through identifying how well they predict better outcomes when emergencies do occur (less damage to property and life), and whether it is possible or appropriate to combine these into a single index of emergency preparedness. Some questions were also asked about use of insurance in the *Living well* survey, and should be explored further in future to expand the range of preparation actions examined.

15.0 Social connection domain

It is increasingly recognised that social connection is critical to a person's quality of life, and to the wellbeing of communities more generally (no attempt at reviewing the extensive literature in this area is made in this report, however some discussion is provided in Schirmer et al. 2016). The ACT Wellbeing Framework includes four indicators of social connection, each examining a different dimension of connection: sense of social connection, levels of loneliness, levels of volunteering, and participation in community events and activities.

15.1 Sense of social connection

15.1.1 Indicator context and purpose

The 'sense of social connection' indicator is described as measuring 'Canberrans' self-rated sense of social connection to their family, friends and the community' (ACT Government 2020, p. 24).

15.1.2 Description of measures

Social connection was measured using both 'traditional' measures of connecting socially, and new measures focusing on online connection:

- Social connection – traditional: This was measured by asking people how frequently they typically (i) spend time doing things with family members who don't live with me, (ii) Spend time with friends who don't live with me (face to face); or "Chat with my neighbours'. They could answer from 1 (never) to 7 (all the time). These questions do not seek to identify the quality of interactions, but rather whether a person feels their social connection is frequent or infrequent relative to their desired levels of social connection. These measures are used in the Regional Wellbeing Survey, which in turn adapted them from a series of previous studies using similar measures (see for example Berry et al. 2007, Dekker 2007). In the Regional Wellbeing Survey, these three items have been combined into a single scale since 2013.
- Social connection – phone and online: This was measured by asking people how frequently they typically (i) Talk to family members or friends by phone (not including messages), (ii) Catch up with what my friends are doing online; or (iii) Take part in online groups with people I never or rarely see face to face e.g. discussion groups about a particular topic, gaming. They could answer from 1 (never) to 7 (all the time). These questions were used for the first time in the *Living well* survey. They should ideally be further validated to ensure they are suitable for longer term use; the findings presented here are preliminary.

For both measures, participants were categorised as having low social connection (defined as an average score of 3 or less), moderate social connection (a score of 4 to 5) or high social connection (a score of 6 or 7).

These measures were examined in the 2019 survey and will be repeated subsequently. In 2020, new participants were asked to recall how often they did these things prior to COVID-19, however due to likely recollection bias, a decision was made not to use these data.

15.1.3 Key findings – ACT adults, traditional social connection

Overall, in 2019, 44.3% reported infrequent (low) social connection with family, friends and neighbours; 47.4% moderate frequency of social connection, and 8.3% high frequency of social connection (Figure 40). This translated to an average score of 3.7 (on a scale of 1 to 7) for the overall scale of traditional social connection. This compares to an average score of 4.4 for Australian adults recorded in the 2018 Regional Wellbeing Survey (Regional Wellbeing Survey 2020), and suggests ACT adults may on average have lower engagement in traditional social connection compared to the Australian average.

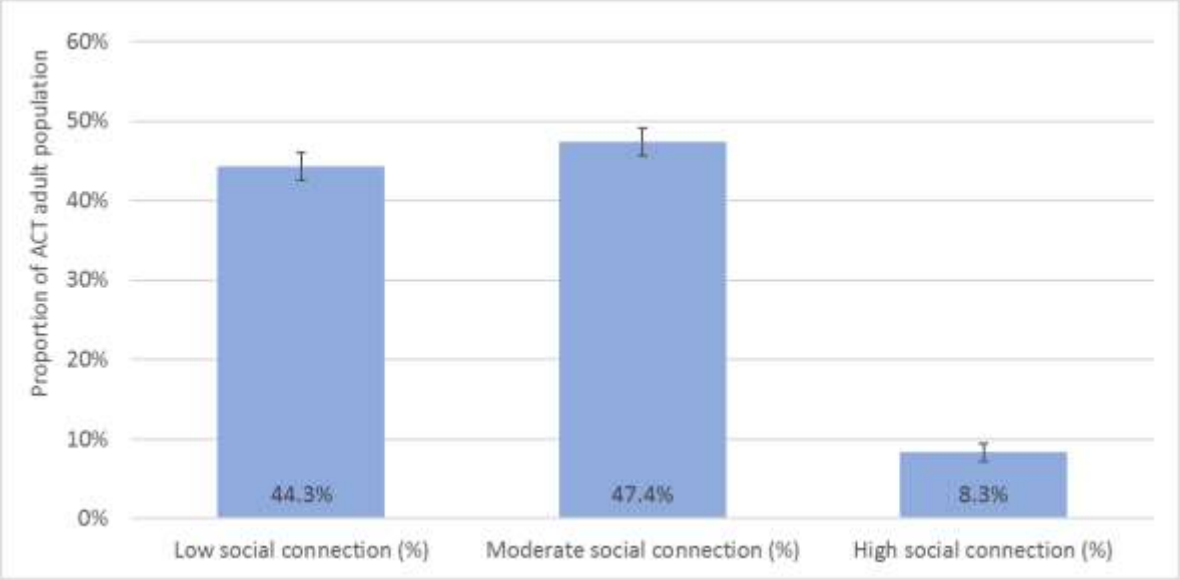

Figure 40 Social connection – traditional (staying in touch with family, friends and neighbours) - proportions, 2019 (n=3098)

15.1.4 Key findings – ACT adults, online social connection

Phone and online social connection were somewhat higher than traditional social connection, with an average score of 4.0 (out of a possible 1 to 7) in 2019. Overall, in 2019, 37.9% reported infrequent (low) social connection, 45.8% moderate frequency of social connection, and 16.3% reported high levels of social connection (Figure 41). What is not known is whether this higher frequency of phone/online connection compensates for the lower than average engagement in traditional social connection activities: further work is needed to identify this over time and understand whether phone/online connection is similarly effective for supporting wellbeing as traditional social connection.

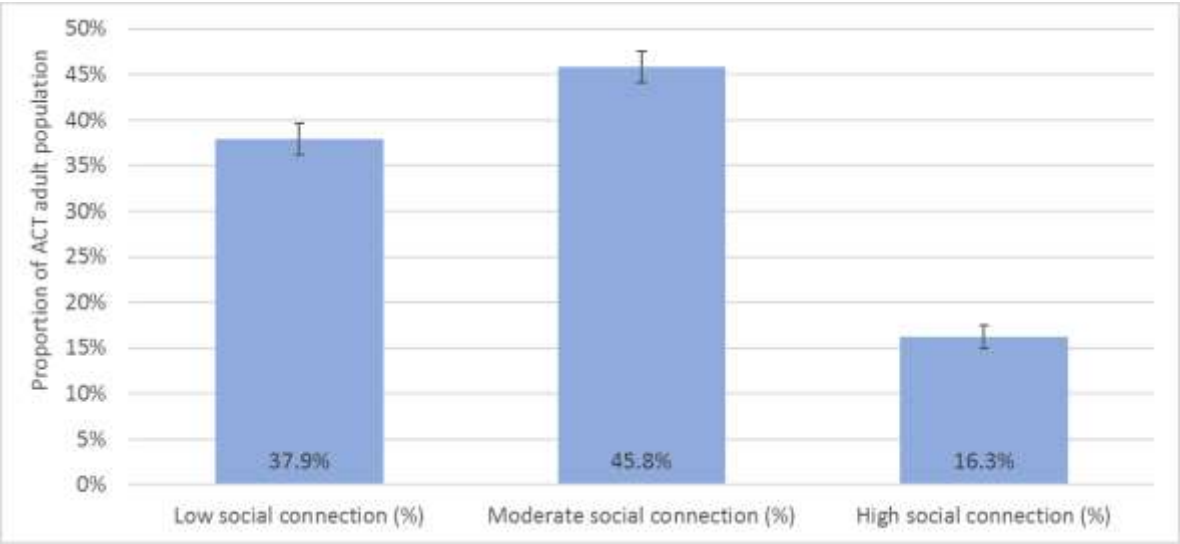

Figure 41 Social connection – phone and online – proportions, 2019 (n=3098)

15.1.5 Key findings – population groups

The groups who were significantly more likely to report low levels of traditional social connection in 2019, compared to the average of 44.3% of ACT residents, were those identifying as LGBTIQA+ (73.2%), those who had lived in the ACT 3 years or less (67.0%) or five years or less (57.8%), those

living in units/apartments (60.8%), single parents (57.8%), renters (57.0%), those aged 18-29 (55.4%) and those living in the Inner North (51.9%). Those less likely to report low social connection were those aged 65 and older (29.6%), and those living in Weston Creek & Molonglo (33.2%).

The groups who were significantly more likely than the ACT average of 37.9% to report low levels of phone/online social connection were males (44.6%), those with moderate or severe disability (43.2%), and those aged 65 and older (47.5%). The groups more likely to report moderate to high levels of phone/online social connection were women (only 31.7% reported low levels compared to 37.9% of all adults), those aged 18-29 (25.4%), those who had lived in the ACT five years or less (26.6%), those with children aged 0-17 in the household (32.9%), and those living in Gungahlin (32.5%).

15.1.6 Recommendations & conclusions

The findings overall suggest that two groups who report low levels of traditional social connection engage in higher than typical levels of phone/online social connection (those who have not lived in the ACT for a long time, and those aged 18-29). This finding needs further exploration, as it suggests a need to better understand the extent to which maintaining social connection using phone/online interaction supports wellbeing compared to traditional forms of social connection.

15.2 Levels of loneliness

15.2.1 Indicator context and purpose

The 'levels of loneliness' indicator recognises that being 'lonely, distant from others or like an outsider has a proven connection to low wellbeing and poor resilience. This indicator will measure how frequently Canberrans' experience loneliness' (ACT Government 2020, p. 24).

15.2.2 Description of measure

Levels of loneliness were measured by asking survey respondents (i) How often do you feel you lack companionship, (ii) How often do you feel left out, and (iii) How often do you feel isolated from others. Response options were (i) Never, (ii) Hardly ever, (iii) Occasionally/sometimes, (iv) Often, or (v) All of the time. The mean scores of the three items were combined to form the index of loneliness. These measures are based in the validated three-item loneliness scale, which is used in a number of studies, some of which use slightly different variants of the response scale, but which have all shown good characteristics for the scale (see Hughes et al. 2004, Matthews-Ewald and Zullig 2013, Snape and Martin 2018). While not known to be used in key long-term surveys in Australia currently, this measure will be included in the Regional Wellbeing Survey from 2020.

15.2.3 Key findings – ACT adults

Overall levels of loneliness increased significantly in the ACT between 2019 and 2020, from an average score of 2.3 to 2.7 out of a possible 5 (where 1 = low levels of loneliness and 5 = high levels of loneliness). The proportion reporting they were hardly ever lonely fell from 56.9% to 37.6%, while the proportion reporting they were sometimes lonely increased from 29.4% to 36.8% and the proportion who were frequently lonely grew from 13.6% to 25.6% (Figure 42). This is likely to reflect isolation associated with COVID-19 in particular, although it is also possible experiences of bushfire contributed to this change. However, caution is needed in assuming this, with some studies finding no increase in overall levels of loneliness during initial months of COVID-19 (for example, Luchetti et al. 2020).

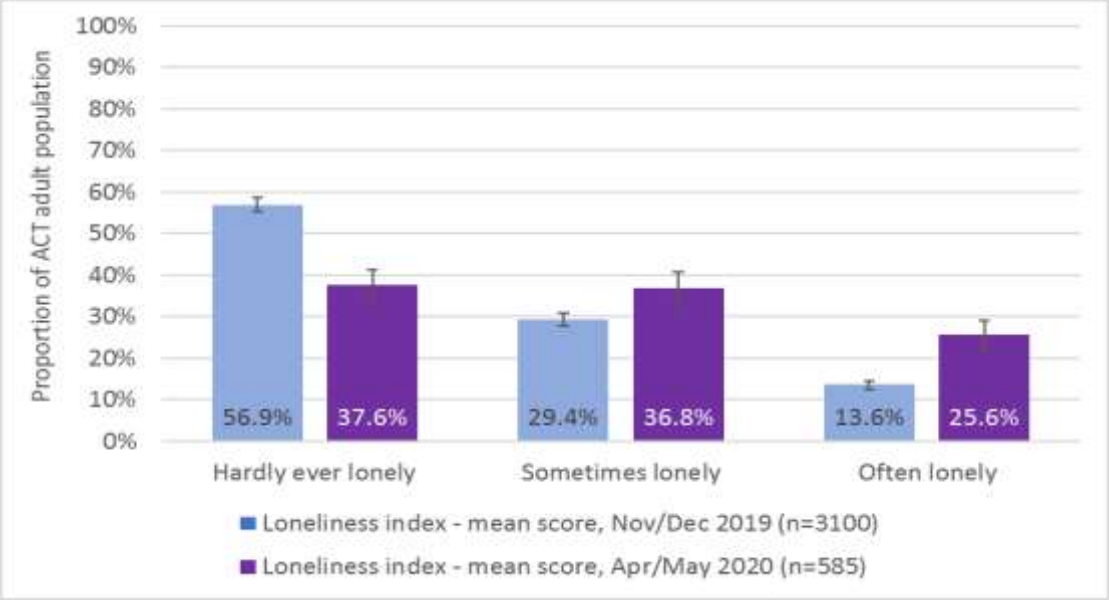

Figure 42 Loneliness index, proportions 2019-2020

15.2.4 Key findings – population groups

The groups significantly more likely to report *often* experiencing loneliness in 2019 were:

- Those aged 18-29 (21.8% reporting frequent loneliness compared to 13.6% of all ACT adults)
- Those identifying as LGBTIQA+ (28.8%)
- Those who have lived in the ACT three years or less (27.2%)
- Single parents (26.6%)
- Sole person households (18.9%)
- Those living in share/group households (24.2%)
- Carers with 15 hours or more a week of caring obligations (19.0%)
- Those living in units/apartments (26.6%)
- Renters (21.8%)
- Those who were unemployed (32.5%)
- Those living in the Inner South (23.4%).
- Those with moderate or severe disability (23.6%).

While smaller sample sizes in 2020 limited ability to compare groups, some groups did experience a large increase in rates of loneliness, particularly those aged 18-29, those living in units and apartments, and renters. This is consistent with other studies in 2020: a consistent finding is that risk of loneliness is higher for those who are younger and that older people are at lower risk of experiencing loneliness (e.g. Li and Wang 2020, Luchetti et al. 2020, Palgi et al. 2020).

15.2.5 Recommendations & conclusions

Experience of loneliness increased in the ACT between 2019 and 2020. Many groups are at higher risk of loneliness compared to the average, particularly those who are younger, renting, have high caring obligations, have not lived in the ACT for a long time, or who experience barriers to daily functioning due to disability. The loneliness measure used is well validated in previous studies, and suitable for use.

15.3 Levels of volunteering

15.3.1 Indicator context and purpose

Volunteering is often recognised as having a critical role for supporting quality of life in communities in a range of ways. This indicator is intended to 'measure levels of volunteering in the ACT and the types of volunteering opportunities people are undertaking in our community' (ACT Government 2020, p. 24).

15.3.2 Description of measures

Participation in volunteering was measured by asking survey participants to select from one of three categories:

- In the last 12 months, I have volunteered my time unpaid. This can include anything from being in a volunteer fire brigade to helping out at a sports club or school canteen
- I used to volunteer, but have not done so in the last 12 months
- I have never volunteered my time for a group or organisation

Those who answered that they volunteered were then asked to identify the type/s of volunteering they engaged in. This measure is used in the Regional Wellbeing Survey. It is slightly more detailed than the measure used in the ABS Census of Population and Housing, which asks if a person in the last 12 months spent 'any time doing voluntary work through an organisation or group' and directs people to 'include voluntary work for sporting teams, youth groups, schools or religious organisations' (ABS 2016).

15.3.3 Key findings – ACT adults

In 2019, 37.7% of adults living in the ACT reported having done some form of volunteering in the previous 12 months, while 36.6% reported they had volunteered in the past but not in the last 12 months, and 25.6% had never volunteered (Figure 43).

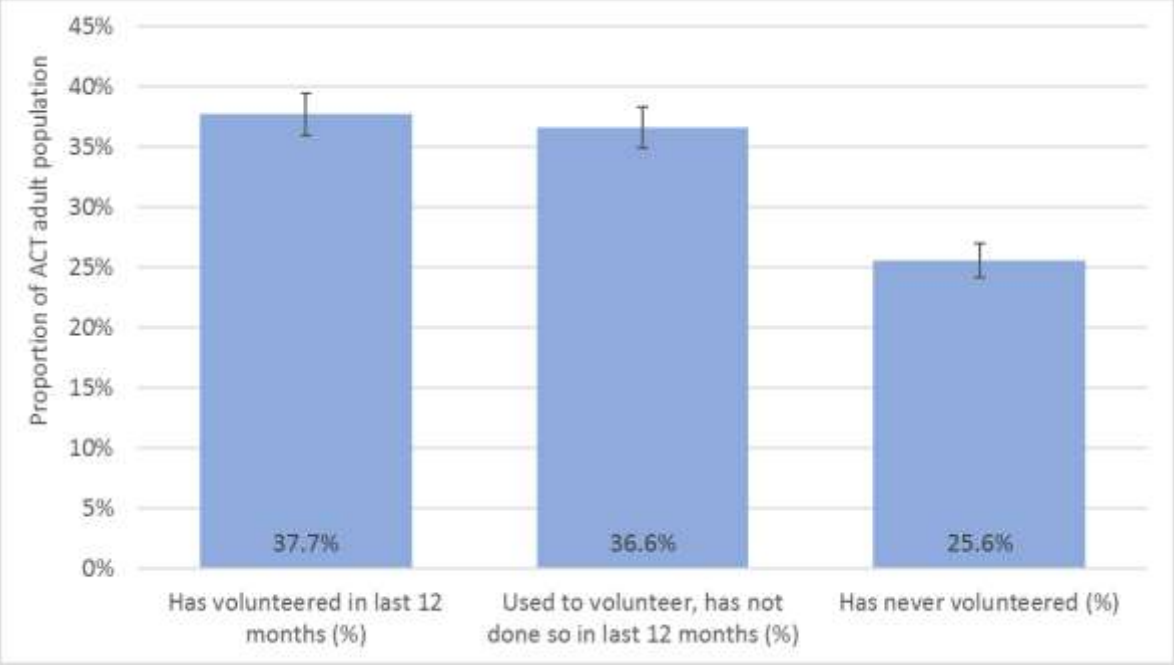

Figure 43 Participation in volunteering in the last 12 months, 2019 (n=3063)

The most common types of volunteering reported were volunteering for sports or outdoor recreation groups (41.9% of volunteers), followed by community events (34.4%), school-related

volunteering (33.3%) and church/religious organisation volunteering (27.1%) (Figure 44). An important emerging group of volunteers is those who volunteer online, by moderating online community groups, with 20.7% of volunteers reporting doing this (often likely in combination with other forms of volunteering – for example, some may be managing online forums for groups such as sporting groups, or environmental volunteering groups.

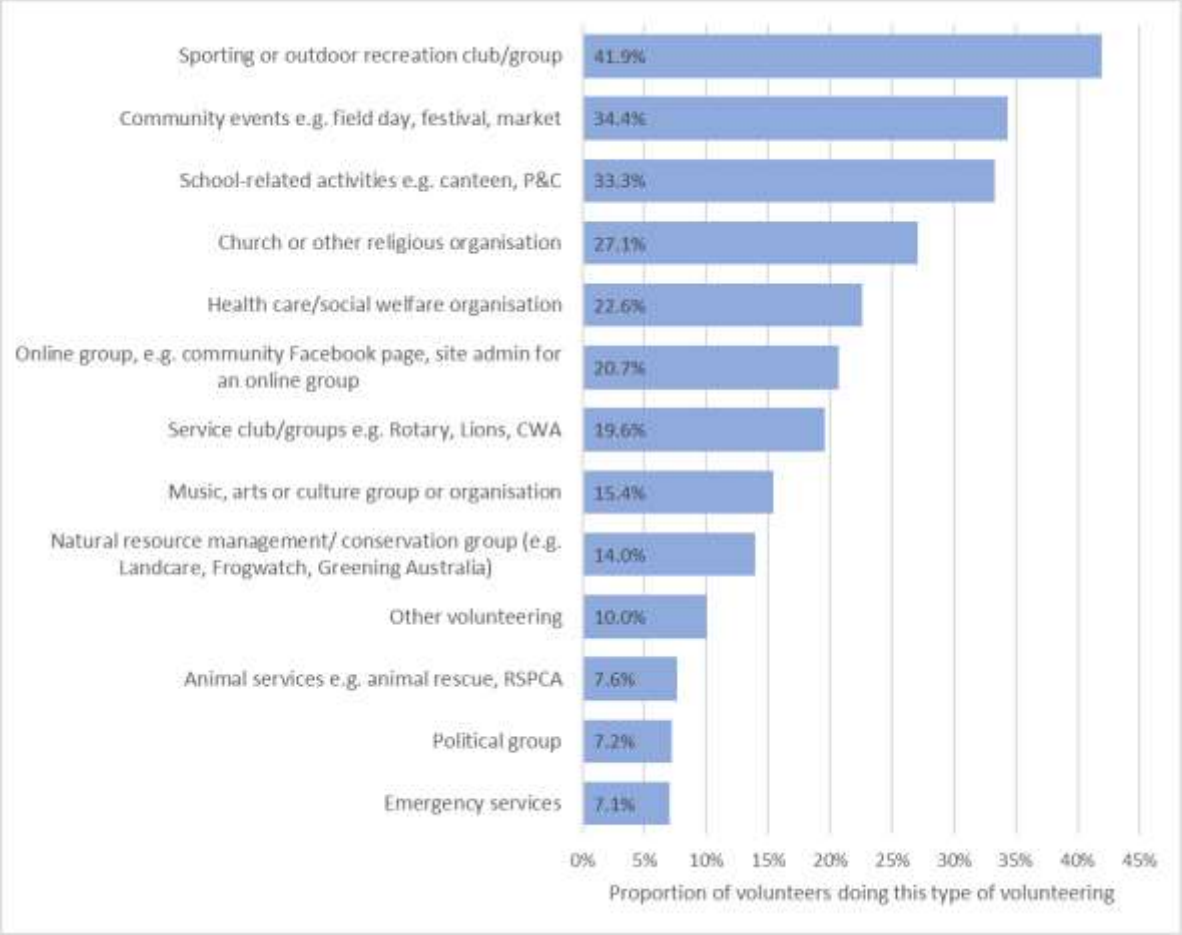

Figure 44 Types of volunteering engaged in by volunteers, 2019

15.3.4 Key findings – population groups

The groups more likely to report volunteering in the last 12 months were:

- Those with children aged 5-17 living in their household (50.4%)
- Carers (46.5%)
- Those who owned their home outright (42.3%)
- Those living in Inner Belconnen (n=46.3%)
- To some extent, older people, with 40.6% of those aged 65 and over volunteering compared to 32.3% of those aged 18 to 29.

The groups less likely to report volunteering in the last 12 months were:

- Those who had lived in the ACT for 3 years or less (24.3%)
- Those living in Gungahlin (30.7%) and Tuggeranong South (29.6%)

15.3.5 Recommendations & conclusions

This measure is useful and has been used previously. Care is needed to ensure the types of activities considered to constitute volunteering are carefully defined, and that this definition does not change over time without also implementing methods to enable comparability over time despite any change in definition.

15.4 Participation in community events and activities

15.4.1 Indicator context and purpose

This indicator examines how frequently ACT residents participate in events, meetings and activities ranging from sports events to arts and culture, hobbies and social clubs, churches and spiritual places (ACT Government 2020, p. 24).

15.4.2 Description of measure

Participation in community events and activities was measured by developing an index of community participation. This index was calculated based on the extent to which a person reported participating in any of four different types of activity: community events; sports groups; local community clubs or hobby groups; local online community groups e.g. local area Facebook group.

These measures are based on similar measures used in the Regional Wellbeing Survey, however a new experimental method for developing an index was developed as part of the *Living well* survey. Existing indexes, such as that used in the Regional Wellbeing Survey have typically summed total participation across multiple types of group, based on an assumption that greater participation is necessarily 'better'. This may not be the case and, especially when multiple types of participation are asked about, can give a misleading picture of participation. It is possible that different types of participation are relatively substitutable in terms of providing benefit for wellbeing – meaning that rather than assume a person needs to engage in multiple types of participation, wellbeing may in reality be supported through engaging in preferred types of activities.

To reflect the idea of a person being able to achieve sufficient participation in the types of events/activities they prefer, the average score of participation was added across the four items to give a score from 1 (no participation in any of these 4) to 7 (frequent participation in all 4). A score of 1-1.5 was considered low participation, 1.6-3.4 moderate participation, and 3.5 or above high participation, as a person was considered to only need to participate frequently in one activity or more, or moderately in two or more, to have a high level of community participation.

This is an experimental index and may require further exploration and development to better understand what thresholds are appropriate for defining low, moderate and high levels of community participation.

15.4.3 Key findings – ACT adults

Overall, 19.2% of ACT adults reported low participation in community activities in 2019, meaning they rarely participated in any of the types of activity included in the index. Just over half (53.2%) participated moderately, while 27.6% were frequent participants in one or more community events/activities (Figure 45). Participation in community activities was not examined in detail in the 2020 survey, as at the time many activities were not able to be held due to COVID-19.

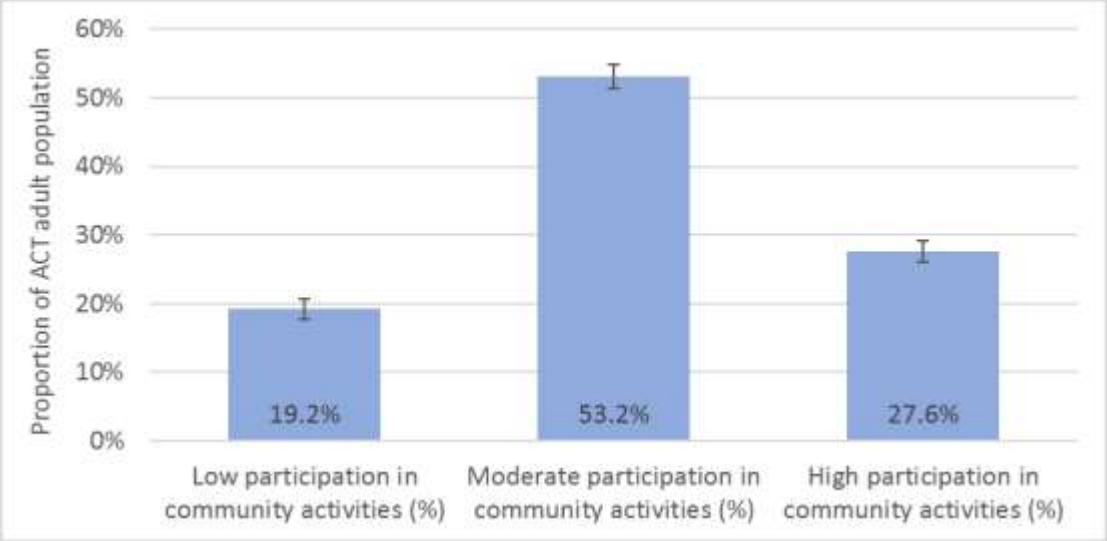

Figure 45 Participation in community events and activities, 2019

15.4.4 Key findings – population groups

The groups more likely to report low participation in community activities were:

- Those aged 65 and older (24.7% reported low participation, compared to 19.2% of all ACT adults), with similar findings amongst groups with large proportions of people aged 65 and older (those with no children in the household, and who own their home outright)
- Those with a moderate or severe disability (27.6%)
- Sole person households (28.2%)
- Carers with 15 or more hours of caring obligations (28.9%)
- Those living in the Inner South (31.3%) and Tuggeranong South (26.9%)

The groups more likely to report high participation in community activities were:

- Those aged 18-29 (30.8% reporting high participation, compared to 27.6% of ACT adults, a small but statistically significant difference) and those aged 30-49 (31.8%)
- Those whose main language at home is not English (38.7%)
- Couples with children living at home (32.3%), particularly children aged 5-17 (36.1%)
- Those living in a townhouse (39.8%)
- Those living in a home with a mortgage (30.3%, only slightly higher than the ACT average)
- Those living in Gungahlin (34.3%), the North (32.4%) and Weston Creek and Molonglo (34.3%).

15.4.5 Recommendations & conclusions

While further development of this measure is needed, this initial measure identified differences in the participation of different groups in community activities. Further development should more specifically examine differences in the types of community activities and events engaged in, as well as identifying a stronger basis for selecting thresholds that define whether a person should be considered to be engaging in low, moderate or high levels of community participation.

16.0 Time domain

The 'time' domain of the ACT Wellbeing Framework examines how ACT residents use and have time available, by examining indicators of (i) quality of time, (ii) work-life balance, (iii) time spent travelling within Canberra, and (iv) unpaid work including caring.

16.1 Quality of time

16.1.1 Indicator context and purpose

The 'quality of time' measure examines 'the amount of time Canberrans spend doing activities that benefit their wellbeing' (ACT Government 2020 p. 25). Evaluating quality of time use is challenging in a range of ways, as different people vary in how they wish to spend their time. Some will likely gain greater relative benefit than others from particular time uses, such as spending time in paid work, or volunteering. While some time use surveys exist, most seek to measure *how much* time a person spends doing different activities, rather than to seek an assessment of the overall quality of a person's time use. Gershuny (2011), in a review of time-use surveys and measurement of national well-being, reviewed a range of instruments, all of which focused on measuring frequency rather than quality of time use. Others have suggested that the self-reported quality of time use is likely to better correlated with wellbeing outcomes than objective measures of time use in some studies (see for example Lawton et al. 1999, Rose 2017).

16.1.2 Description of measure

A new measure was developed for the *Living well* survey. The 'quality of time use' measure is calculated by recording a person's ratings of whether in the last month they felt they spent (i) less time than desired, (ii) about the right amount of time, or (iii) more time than desired, doing the following activities: paid work, commuting to work, caring for family members or friends the person is a carer for, volunteering or informally helping out local groups, housework/chores other than gardening, time spent outdoors (including gardening), time spent with family/friends, sleep time and time spent exercising. For each of the activities a person answered, they were given a score of 1 for every activity they reported doing about the right amount of, and 0 for each they reported doing too much or too little of. The average score was then calculated across all items, giving a score from 0 to 1, where 1 represents the best possible quality of time use. Proportions of the population with very low quality of time use (score 0-0.44), moderate quality of time use (0.45-0.54) and high quality of time use (0.55 or higher) were then reported.

This measure was developed for the first time as part of the *Living well survey*, and further validation should be undertaken to better demonstrate utility of the measure, and identify appropriate thresholds for defining low, moderate and high quality of time use.

16.1.3 Key findings – ACT adults

Between 2019 and 2020, the proportion of ACT residents reporting they had poor quality of time use increased from 48.9% to 59.5% (Figure 46), while the proportion reporting a high quality of time use declined from 20.9% to 9.7%.

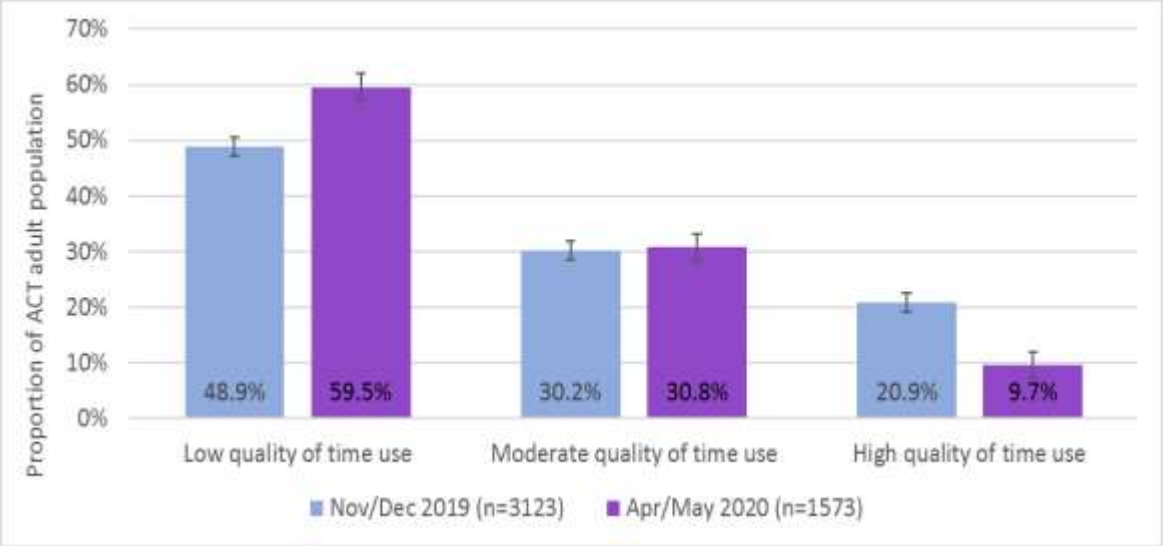

Figure 46 Quality of time use, 2019 and 2020

16.1.4 Key findings – population groups

The groups more likely to report having low quality of time use in 2019 were:

- Women (53.0% reported low quality of time use, compared to 48.9% of ACT adults, ad 44.5% of men)
- Those aged 18-29 (59.7%)
- Those who had lived in the ACT region for five years or less (62.5%)
- Carers with less than 15 hours a week of caring obligations (62.6%)
- Those living in townhouses (58.7%) and units/apartments (62.3%)
- Those who owned their home outright (56.4%) or had a mortgage (62.4%)
- Those who were employed in paid work of any kind (as opposed to being retired or otherwise not in the workforce or unemployed) (74.0%)

In 2020, a much wider range of groups reported poor quality of time use, with growth in the proportion reporting poor quality of time use across all groups. In particular, those with moderate and severe disability were more likely to report poor quality of time use (increasing from 51.3% reporting low quality of time use in 2019 to 68.0% in 2020), potentially reflecting that many in this group may have higher vulnerability to COVID-19 and have been self-isolating to reduce risk.

16.1.5 Recommendations & conclusions

While this measure appears useful, further work should better examine whether all nine dimensions of time use currently included in the quality of time index should be included. Further work should explore the utility of including and excluding different aspects of time use, to develop a more precise measure of overall quality of time use. Some specific aspects of quality of time are examined in subsequent sections and were examined in other indicators such as that on satisfaction with sleep, providing some initial insight into how satisfaction with key individual aspects of time use changed between 2019 and 2020.

16.2 Work-life balance

16.2.1 Indicator context and purpose

One specific aspect of quality of time use often discussed is a person's work-life balance. While not relevant to all people, achieving a good work-life balance can help support the wellbeing of many people. Both having less work than desired, and more work hours than desired, can have negative impacts on wellbeing (see for example Cole et al. 2009, Angrave and Charlwood 2015). Importantly, some previous studies have identified that self-rated under-employment and over-employment are more directly associated with subjective wellbeing levels than are the objective levels of work hours (Angrave and Charlwood 2015). This may reflect that individuals have differing work hour needs and preferences, meaning that working a given number of hours will not have the same influence on wellbeing for different people. Reflecting this recognition of the importance of rating work-life balance relative a to a person's needs and preferences, this indicator measures 'whether we think we spend too much, too little, or enough time at work' (ACT Government 2020, p. 25).

16.2.2 Description of measure

The 'work-life balance' measure was examined by asking survey participants whether in the last month they spent less time than desired, about the right amount of time, or more time than desired, doing paid work, as described in Section 16.1. This measure was used for the first time in the *Living well* survey.

16.2.3 Key findings – ACT adults

In 2019, 22.6% of ACT adults reported doing less paid work than they wanted in the last four weeks – effectively, being under-employed compared to their desired level of work. Just over half (51.5%) reported they did about the right amount of work, while 25.9% reported spending more time doing paid work than desired (Figure 47). Between 2019 and 2020 this changed significantly, with an increase in those reporting they did less paid work than desired to 34.5%, and a decline in those doing more work than desired, to 18.1%. This change is highly likely to reflect the impacts of COVID-19 on the employment of many people.

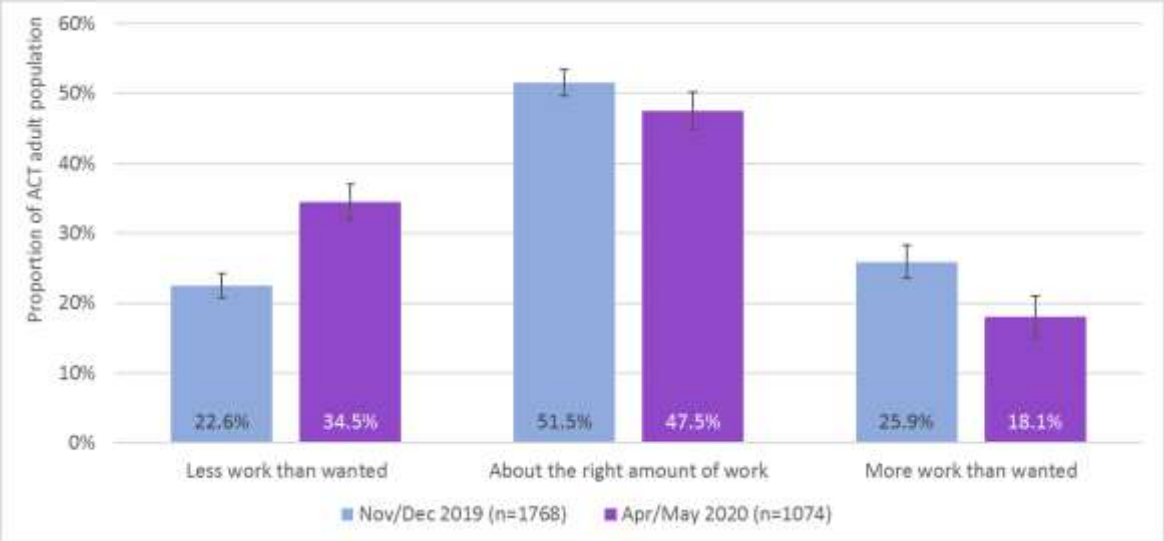

Figure 47 Work-life balance, 2019 and 2020

16.2.4 Key findings – population groups

When different groups were compared, the following groups were more likely to report being underemployed in 2019 (compared to the ACT average of 22.6%):

- Those living with moderate or severe disabilities (36.4%)
- Those aged 18-29 (29.4%)
- Those aged 65 and older (29.2%)
- Those who identified as LGBTIQA+ (32.2%)
- Those who had lived in the ACT three years or less (47.1%) or five years or less (38.7%)
- Single parents (33.3%)
- Sole person households (30.6%)
- Those living in units/apartments (37.7%)
- Renters (31.7%)

In 2020, those significantly more likely to report being underemployed (compared to the ACT average of 34.5% in 2020) were:

- Those aged 18-29 (50.0%)
- Those with moderate or severe disabilities (48.2%)
- Those whose main language at home was not English (46.9%)
- Those who had lived in the ACT three years or less (55.5%) or five years or less (47.6%)
- Those living in share/group households (62.9%)
- Renters (47.9%).

The following groups were more likely to report working more hours than desired in 2019 (compared to the ACT average of 25.9%):

- Males (29.1%)
- Those aged 30-49 (29.6%)
- Those living with children in the home aged under 18 (29.8%)
- Those who were carers (29.2%)
- Those who owned their home outright (26.8%) or had a mortgage (30.5%)

In 2020, only one group was more likely to report working greater hours than desired (compared to the ACT average of 18.1%): carers, with 31.3% reporting working more hours of paid work than desired.

16.2.5 Recommendations & conclusions

Self-reported work-life balance changed significantly between 2019 and 2020, with younger people, renters, those from non-English speaking backgrounds and those with moderate or severe disability experiencing high rates of growth in underemployment during this time. This suggests that the employment impacts of the initial months of COVID-19 were disproportionately experienced by some specific groups, something examined further in Part 2 of this report.

This measure should be further validated, but initially appears to have useful properties and to show change when a major shift in the labour market occurs, as occurred in 2020 due to restrictions put in place to reduce spread of COVID-19 resulting in reduced work availability for many. Further validation work should occur at a time when less rapid change in employment status is likely to be occurring.

16.3 Time spent travelling within Canberra

16.3.1 Indicator context and purpose

The 'time spent travelling within Canberra' indicator examines 'the amount of time people in the ACT spend travelling to work or study and their levels of satisfaction with this' (ACT Government 2020, p. 25).

16.3.2 Description of measures

Two measures were explored:

- Average commute time, with participants asked to identify the average number of minutes it took them to commute to their place of work or study
- Satisfaction with commute time, with participants asked to identify whether in the last month they spent less time than desired commuting, about the right amount of time, or more time than desired, as part of the set of items described in Section 16.1.

Both measures were designed for the *Living well* survey, however quite similar questions to the first measure are asked in a number of surveys, usually involving asking how many minutes a person takes for their daily commute.

16.3.3 Key findings – ACT adults

Only data from the 2019 survey were analysed, as during the 2020 data collection large proportions of people were working from home and not able to participate in a usual commute, with responses highly varied as a result. Longer-term, change in satisfaction with commute times should be examined, together with understanding how this relates to changes in the proportion of people working from home versus from a work location.

Average commute time

As of Nov/Dec 2019, of those who have a consistent commuting time (some workers travel to a range of different places as part of their work and do not have a consistent commute time), 74.1% reported their average time spent commuting one-way to work or study was 30 minutes or less, while for 25.9% it was longer than 30 minutes (Figure 48).

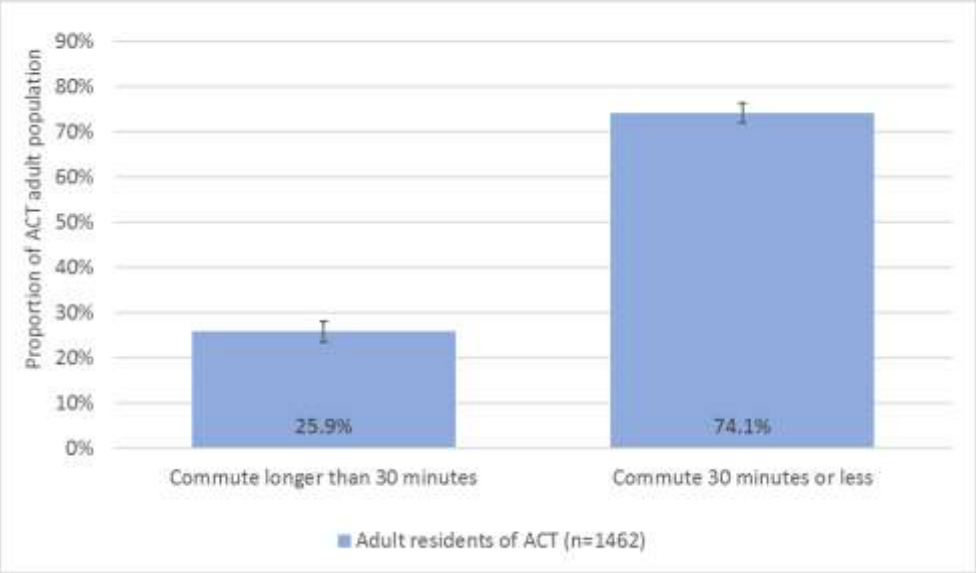

Figure 48 Proportion of people reporting a commute time of 30 minutes or less and more than 30 minutes, 2019

Satisfaction with commute time

In total, 64.3% of those who commuted reported they felt they spent about the right amount of time commuting, 26.9% reported spending more time commuting than desired, and 8.8% spent less time commuting than desired (Figure 49).

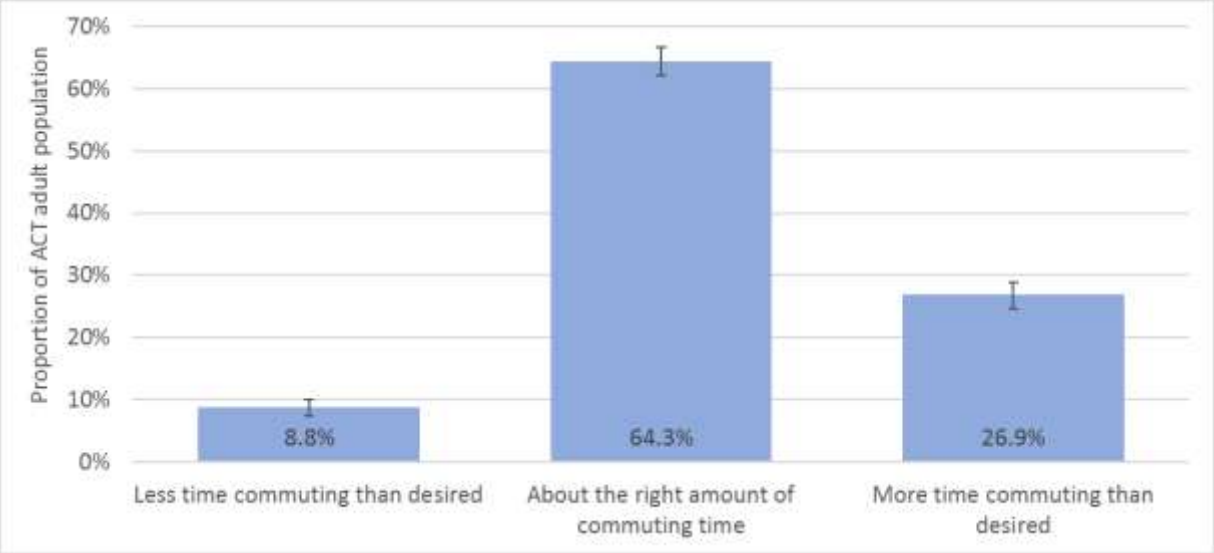

Figure 49 Satisfaction with time spent commuting, 2019 (n=1598)

Association between commute time and commute time satisfaction

There was a strong association between reported time spent commuting, and satisfaction with the amount of time spent commuting. As shown in Table 7, 57.7% of those who had a one-way commute longer than 30 minutes reported spending more time than desired commuting, compared to only 18.2% of those with a commute time of 30 minutes or less.

Table 7 Commute time and satisfaction with time spent commuting

	Less time commuting than desired	About the right amount of commuting time	More time commuting than desired	Total
One-way commute longer than 30 minutes	4.1%	38.3%	57.7%	100%
One-way commute 30 minutes or less	3.7%	78.1%	18.2%	100%

16.3.4 Key findings – population groups

Some groups were more likely than average to report having a commute time that was longer than 30 minutes:

- Those with children aged 0-4 in their household (37.0% reported a commute time of 30 minutes or more, compared to 25.9% of all ACT adults)
- Carers (37.2%)
- Those living in a townhouse (36.3%)

- Those with a moderate or severe disability (34.9%)
- Those living in Gungahlin (35.9%) and Outer Belconnen (39.3%)
- Those living in Tuggeranong South were also more likely to report having a commute time of longer than 30 minutes (34.1%), although the difference was not statistically significant.

Somewhat different groups were more likely than average to report that they spent more time commuting than desired were:

- Those aged 30-49 (34.0% compared to 26.9% of all adult ACT residents)
- Those who identified as LGBTIQA+ (38.8%)
- Carers with high levels of caring obligations (39.4%).

16.3.5 Recommendations & conclusions

Most ACT residents have a commute time of 30 minutes or less, and most are satisfied with the amount of time spent commuting. Longer commute times were not only associated with particular geographic locations, but also with overall life stages and obligations: those with young children or people they cared for were more likely to report long commute times, potentially reflecting a more complex commute involving dropping children at child care or other factors. While overall there was high correlation between length of commute (based on time) and satisfaction, almost 40% of those who had a commute longer than 30 minutes reported being satisfied with their commute time, and the groups reporting longer than average commute times were often different to those reporting low satisfaction with their commute time. Future work should better explore what a commute time reflects for different people, given that for some commuting involves more than simply driving from home to work. It should also explore satisfaction with commuting time amongst those using different modes of transport.

17.0 Recommendation and conclusions

17.1 Wellbeing of the ACT population: what do subjective measures tell us?

For many wellbeing indicators, ACT adults as a whole have overall positive levels of wellbeing.

However, as with any population, examining the average for the population does not reflect the experiences of many groups within that population. Different population groups in the ACT have a range of different wellbeing resources and challenges. These are summarised in Table 8. It is important to note that the findings in Table 8 show whether a group has a has a higher proportion of individuals with positive or negative levels for different wellbeing measures. Even where a group as a whole has higher than average wellbeing, some members of that group will be experiencing poorer than average levels of wellbeing – just fewer than is the case for other groups. Additionally, some groups are not represented in Table 8 that should be, particularly Aboriginal and Torres Strait Islander peoples, as noted in the introduction to this report. Future reports will seek to include this group.

The finding show that different groups have very different wellbeing challenges and opportunities. Some groups have poorer wellbeing across multiple domains, particularly single parents, those with moderate or severe disability, those identifying as LGBTIQA+, carers (particularly those with higher caring obligations), and renters. To some extent, those living in Tuggeranong South were more likely to have lower/poorer wellbeing across multiple domains than those in other areas. Many of these are well recognised as groups who commonly experience greater than average challenges to maintaining wellbeing, however renters are not as commonly recognised as experiencing this.

For most other groups, some wellbeing challenges were identified, but fewer than for the groups listed above, and wellbeing challenges varied. Young people were less likely to feel a strong sense of belonging, to have poorer mental health, to feel lonely and lack some social connection and be underemployed, but more likely to participate in community activities, use green spaces and connect socially using phone or online communication. Those aged 65 and older were more likely to have high wellbeing, find living costs affordable, volunteer and have high levels of traditional social connection, but less likely to have good job opportunities, to access nature, or use non-traditional forms of social connection. There were in general greater differences between groups with different socio-demographic characteristics than there were between those living in different geographic locations across the ACT.

As noted throughout this report, the membership of the different groups compared overlaps: for example, those aged 65 and older form a large proportion of the group who own their homes outright in the ACT. This means some caution is needed in interpreting data for different groups, as the underlying drivers of differences may not be the particular characteristic being examined. The indicators point to where there are groups who, irrespective of the underlying causal drivers, are experiencing on average higher or lower rates of positive wellbeing for different indicators. This important as it assists in identifying where further attention is warranted.

Table 8 Comparing wellbeing indicators for different groups

Group	Categories examined	Lower/poorer than average (data based on 2020 where available, otherwise on 2019)	Higher/better than average
Gender	Female	Personal wellbeing, access to nature, heatwave resilience, feeling safe, quality of time use	Valuing and recognising Traditional Custodians, social connection (phone/online)
	Male	Valuing and recognising Traditional Custodians	Access to nature, heatwave resilience, quality of time use, work-life balance
Age	Aged 18-29	Mental health, belonging, emergency preparedness, social connection (traditional), loneliness, quality of time use, underemployment	Use of local green spaces, social connection (phone/online), community participation
	Aged 30-49	Personal wellbeing, mental health, healthy lifestyle – sleep hours, overcrowding, work-life balance	
	Aged 50-64	Cost of living	
	Aged 65+	Job opportunities, access to nature, use of local green spaces, valuing and recognising Traditional Custodians, social connection (phone/online), community participation	Personal wellbeing, cost of living, social connection (traditional), volunteering, quality of time use
Language spoken at home	Main home language not English	Heatwave resilience, mental health, discrimination, underemployment	Community participation
LGBTIQA+	LGBTIQA+	Personal wellbeing, heatwave resilience, overall health, mental health, access to some health services, belonging, inclusion, discrimination, connection to Canberra, social connection, loneliness	Use of local green spaces
Recent residents	ACT resident for 3 year or less	Heatwave resilience, belonging, discrimination, cost of living, social connection, loneliness, volunteering, underemployment	
	ACT resident for 5 year or less	Mental health, access to some health services, belonging, discrimination, social connection, quality of time use, underemployment	
Household comp-osition	Single parent	Personal wellbeing, other institutions, feeling that voice and perspective matter, overall health, mental health healthy lifestyle – sleep hours, overcrowding/ suitable housing, social connection, loneliness	
	Couple with children	Overcrowding	Community participation
	Couple, no children		Personal wellbeing
	Sole person household	Access to transport, job opportunities, access to nature, loneliness, community participation	
	Share/group household	Opportunities to increase skills and knowledge, heatwave resilience, inclusion, connection to Canberra, loneliness, underemployment	
Children in household	No children living in household		
	Children living in household aged <17	Personal wellbeing, housing suitability, work-life balance	Social connection (phone/online), volunteering (those with children aged 5-17)
	Children living in household aged 0-4, 5-14, 15-17 and 18-24	Mental health (those with children aged 5-14) healthy lifestyle – sleep hours (children aged 0-4), cost of living (children aged 5-17), commute time (children aged 0-4)	Liveability, use of local green spaces, other institutions (those with children aged 0-4)
People with a disability	Disability – moderate/ severe	Personal wellbeing, transport, job opportunities, use of local green spaces, feeling that voice and perspective matter, overall health, mental health, access to some health services, housing suitability, belonging, inclusion, discrimination, feeling safe,	

Group	Categories examined	Lower/poorer than average (data based on 2020 where available, otherwise on 2019)	Higher/better than average
		social connection (phone/online), loneliness, community participation, underemployment, commute time	
Carers	Carer <15 hours of caring /week	Personal wellbeing, access to transport, overall health, mental health, access to health services, housing suitability, feeling safe, quality of time use, work-life balance, commute time	Volunteering
	Carer >15 hours of caring/ week	Personal wellbeing, access to transport, job opportunities, use of local green spaces, feeling that voice and perspective matter, overall health, mental health, access to health services, healthy lifestyle – sleep hours, housing suitability, feeling safe, loneliness, community participation, work-life balance, commute time	Volunteering
Home type	House		
	Townhouse	Heatwave resilience, mental health, commute time	Community participation
	Unit/ apartment	Personal wellbeing, heatwave resilience, mental health, overcrowding, belonging, social connection, loneliness	
Home tenure	Home owned outright	Quality of time use, work-life balance	Personal wellbeing, cost of living, volunteering
	Home has mortgage	Quality of time use, work-life balance	Community participation
	Home rented	Personal wellbeing, access to transport, opportunities to increase skills and knowledge, heatwave resilience, overall health, mental health healthy lifestyle – sleep hours, belonging, inclusion, discrimination, cost of living, social connection, loneliness, underemployment	
Employ-ment	Un-employed	Personal wellbeing, access to transport, job opportunities, opportunities to increase skills and knowledge, access to nature, mental health, inclusion, connection to Canberra, loneliness	Use of local green spaces
Regions	Belconnen East	Job opportunities, access to nature	Cost of living
	Gungahlin	Volunteering, commute time	Other institutions, community participation
	Inner Belco.	Job opportunities, heatwave resilience	Other institutions
	Inner North	Heatwave resilience, social connection	Access to nature
	Inner South	Inclusion, loneliness, community participation	
	North	Transport	Valuing and recognising Traditional Custodians, community participation
	Outer Belco.	Feeling that voice and perspective matter, commute time	Access to nature
	Tugg. North		Access to nature, emergency preparedness
	Tugg. South	Access to nature, other institutions, feeling that voice and perspective matter, healthy lifestyle – sleep hours, feeling safe, volunteering, community participation, commute time (to limited extent)	Emergency preparedness
	Weston Creek & Molonglo	Other institutions, overall health, cost of living, feeling safe	Liveability (WC), emergency preparedness, social connection, community participation
	Woden Valley	Other institutions	Personal wellbeing, liveability, access to nature

17.2 Did wellbeing change between Nov/Dec 2019 and Apr/May 2020?

Change over time was measured for some measures and not others. This was because the second survey asked a number of specific questions about impacts of bushfires, hailstorm and COVID-19, and some measures were not included in order to create space for these other questions.

When change was examined, we examined cross-sectional data (meaning data collected from all survey participants who answered the question, rather than only those who completed both waves of the survey). Section 17.3 further discusses why this is more appropriate for measuring wellbeing of the ACT population as a whole over the longer term than analysing only the longitudinal component of the sample. However, as the *Living well* survey is in early stages of development, only changes that were also observable when analysing the longitudinal sample were included in this report, to ensure that there was the highest possible confidence that the changes reported were not a result of differences in sample size or sample characteristics between the two surveys.

Personal wellbeing declined significantly between the two surveys. The proportion of ACT adults with low wellbeing grew from 20.7% to 28.4%, while the proportion with higher than typical wellbeing fell from 33.7% to 26.9%. Some groups had much lower than average wellbeing in 2019, and this did not decline substantially but remained lower than average, including carers and those with moderate or severe disability. For others, wellbeing was low in 2019 and worsened significantly between 2020, particularly those identifying as LGBTIQA+, single parents, chose with children agreed 5-17 in their household, and renters. Others did not have lower than average wellbeing in 2019, but did in 2020: women, those aged under 50, those with all ages of children under 17 (including children aged 0-4), mortgage holders and employed people. This suggests that the events of 2020 are impacting different people in differing ways: new groups are emerging that have a high risk of low wellbeing, while those already had high risk experienced differing types of wellbeing change in the early months of the pandemic. As the data collected reflect what was occurring in early months of the pandemic, it is important to continue regularly monitoring wellbeing change, so that the groups at risk of long-term wellbeing decline can be better identified, versus those who may experience a short-term decline in wellbeing followed by reasonably rapid recovery of wellbeing levels.

Confidence in business conditions for ACT businesses declined significantly between 2019 and 2020, as expected given the impacts of COVID-19 on business activity. In future surveys, it will be possible to track whether and how rapidly confidence in business conditions changes, with the data in Apr/May 2020 collected at the time when many retail businesses were closed as a result of COVID-19-related restrictions. With many businesses reopening later in 2020, the findings of this indicator are likely to change when data are next collected in November 2020.

Use of local green spaces (a nature connection indicator) increased between 2019 and 2020, potentially highlighting increased use of local nature areas for recreation. An improved measure will be used in November 2020 to better measure frequency of use.

Heatwave resilience, connection to Canberra, and **confidence in being able to have a say and be heard (voice and perspective indicator)** did not change significantly between the two surveys.

Self-assessed overall health declined significantly between the two surveys, with the proportion reporting very good or excellent health declining from 48.1% to 40.2% and those reporting fair or poor health increasing from 20.5% to 27.8%. The decline was particularly large for those with disabilities, carers, single parents, renters and those living in Weston Creek.

Mental health declined significantly between the two surveys, with an increase in rates of moderate and high psychological distress and decline in self-rated mental health. This decline was particularly experienced by those aged 18-29 and 30-49, those with children aged 5 to 14, those whose main language at home was not English, those who had lived in the ACT five years or less, those

identifying as LGBTIQA+, single parents, carers, those with disabilities, those living in units/apartments, renters, the unemployed, and to some extent those living in the Inner South.

Sleep hours changed in different ways for different groups: overall, there was little change in the proportion of ACT adults achieving healthy sleep hours between 2019 and 2020. However, this 'average' masked that those aged 30-49 were more likely to have too little sleep in 2020 compared to 2019, as were renters, while those aged 18-29 and 65 and older were more likely to report healthy sleep hours in 2020 than in 2019.

Overcrowding appears to have increased between 2019 and 2020, although further work is needed to identify whether this reflected conditions specifically to the point in time data were collected in 2020, where large proportions of people were working from home and home-schooling children, and have since change; or whether some of this change is seen longer-term.

Cost of living worsened between 2019 and 2020, particularly for those with children. **Financial position** worsened only slightly between the two surveys, potentially reflecting the initial effects of financial support measures such as rent and mortgage deferrals, and the JobKeeper and JobSeeker packages.

Emergency preparedness increased between 2019 and 2020, although confidence in knowing what to do in a bushfire, severe storm or flood did not. In particular, many people had discussed emergency plans and more had stored copies of important documents in safe places; however even after the increase in preparedness, less than half of households had an emergency kit or written emergency plan.

Loneliness increased between 2019 and 2020, and this is particularly the case for those in younger age groups, living in units and apartments, and renters.

Quality of time use overall and **work-life balance** decreased between 2019 and 2020, particularly for those with disabilities, with more work needed to understand the complex ways in which quality of time use changed in 2020 for different groups. Importantly, while over-work decreased by just 7.8%, the proportion of people experiencing underemployment grew 11.9%, meaning that while many people had fewer work hours, for most this was not a desirable outcome and did not improve their preferred work-life balance.

It is important to understand what the changes identified here mean. While the proportion of different groups who experienced change in wellbeing varied, some members of all the groups examined will have experienced change in their wellbeing. This means that while parents of primary-school aged children were more likely to report a decline in wellbeing, not all parents experienced this, and not all to the same extent. Similarly, while loss of wellbeing was less common amongst those aged 65 and older, some people within this age group did experience significant and profound decline in their wellbeing. With the groups examined in this report being broad, and having some overlapping membership, it is important to carefully interpret findings.

17.3 Methods and measures – key considerations

This section further discusses key considerations for collecting data for the types of measures explored in this report. This is done as key considerations include not only what questions are asked on a survey or how a measure is calculated from the responses given to those question, but also considerations related to broader sampling methods and the current rapidly evolving worldwide evidence-base for wellbeing measures.

17.3.1 Evaluating change over time: longitudinal versus cross-sectional approaches

The ACT Wellbeing Framework needs to evaluate the wellbeing of the ACT population as a whole. This population changes often rapidly over time, and this means that using longitudinal analysis alone (in which the same group of people are followed over time) is not suitable to meet the needs

of reporting indicators for the Wellbeing Framework. A longitudinal approach would, for example, mean that within three years the sample included no people who had lived in the ACT for less than three years – a group that is a significant proportion of the adult ACT population.

A cross-sectional approach (in which a representative sample of the population as of a given point in time is examined, without aiming to deliberately track the same people over time) or a refreshing panel (in which some people are tracked over time but new participants are recruited into each survey to ensure the sample is representative of the population) are more appropriate approaches for measuring change over time that can be considered representative of the ACT population. The *Living well* survey will use a refreshing panel methodology, with the first four waves of the survey used to recruit initial participants and identify the most appropriate methods for recruiting the 'refreshed' part of the panel in each wave from the fifth wave onwards.

17.3.2 Recommendations for use and further development of measures

Table 9 summarises recommendations for the use and development of the specific measures tested in this report. Of the 41 measures examined in this report, 27 are recommended for use in their current form with a reasonable degree of confidence: these 27 are mostly well validated, and many have comparison data outside the ACT available. However, some of the 27 could benefit from additional validation work. The types of validation vary depending on the indicator, and for most, the indicator is likely to be used, with validation work primarily improving ability to appropriately interpret results of the measure. A further 12 may be suitable for use but require further development and investigation to confirm this: the properties of these measures should be further evaluated before making any decision on longer term use. Two measures are not recommended for further use.

This survey explores subjective measures of wellbeing, that examine people's self-reported experiences. Best practice approaches to the design of subjective wellbeing measures is evolving rapidly worldwide. Given this, ideally the *ACT Wellbeing Framework* measures should be designed to enable the use of improved measures as knowledge on best practice changes over time. This however needs to be placed against the need to generate comparable data over time by ensuring consistency in the measures used. Initially, it may be useful to collect data for a larger range of measures than will ultimately be reported, giving greater ability to subsequently identify those shown to be of higher validity and usefulness for the *Framework*'s needs. Attempting to narrow the set of measures used too early may result in selection of poor quality measures that are subsequently replaced by others, resulting in gaps in time series data.

A key need is to better understand the effect of survey mode on the distribution of responses. It is well established that for some of the measures examined in this report, the mode of the survey (whether a person is talking to another person to be surveyed, or completes the survey on paper or online without interacting with an interviewer) has an influence on average scores. It is likely that mode effects are relevant for other subjective measures beyond those for which it was identified as a consideration in this report. Ideally, consistent survey modes should be used to measure subjective indicators unless there is clear evidence that distributions of responses do not typically vary with survey mode.

Table 9 Summary of recommendations for future use of measures examined in this report

Domain	Indicator	Measure	Suitable for use?	Comparison data available?	Further work needed?	Additional/ alternative measures recommended to be able to suitably measure this indicator?
Personal wellbeing	Personal wellbeing	Personal Wellbeing Index	Yes	Yes	No	Yes – to enable comparison to wider range of surveys, recommend also measuring (i) Global Life Satisfaction and potentially (ii) Cantril Ladder
Access and connec-tivity	Access to services	No measure yet developed using Living well survey – to be examined in subsequent waves				
	Liveable city	My local area is very liveable	Possibly	No	Yes	Yes – there is high similarity to the measure used for the indicator 'Connection to Canberra'; consider combining these or developing more specific measures.
		The ACT in general is a very liveable city		No		
	Transport use and access	Self-rated ability to get to places person needs to	Yes	Yes	No	No
Economy	Business conditions and economic diversity	Businesses in the ACT region are doing well	Yes	Yes	No	No
		There are many job opportunities for me in the ACT	Yes	No	Yes	No
Education and lifelong learning	Learning for life	Access to opportunities to increase skills and knowledge	Not in current form	No	Yes	Yes – development of alternative measures recommended
Environ-ment and climate	Connection to nature	Access to nature in ACT region	Possibly	No	No	Yes – develop alternative, more sensitive measures
		Access to nature in local area	Possibly	No	No	Yes – consider developing measures examining desirability of using green space instead of walking time to green space
		Use of local green spaces	Yes	No	Yes	Yes – expand measure to better identify changes in frequency of use
	Climate resilient environment and community	Heatwave resilience index	Yes	No	Yes	No
		Extreme weather preparedness	See Safety domain			
Gover-nance and instit-utions	Trust in government	Further development of appropriate measures to be undertaken in subsequent Living well surveys				
	Trust in other institutions	Confidence in effectiveness of ACT community groups and organisations	Possibly	Yes	Yes	Yes – develop more specific measures examining different types of institutions

Domain	Indicator	Measure	Suitable for use?	Comparison data available?	Further work needed?	Additional/ alternative measures recommended to be able to suitably measure this indicator?
	Feeling that voice and perspective matter	Having a say and being heard index	Yes	Yes	Yes	No
	Human rights	Human rights index	Possibly	Limited	Yes	Further work is needed to validate this measure and identify whether index is suitable for use
Health	Overall health	General health	Yes	Yes	No	No
	Mental health	K6	Yes	Yes	No	No
		Self-rated mental health	Possibly	No	Yes	No
	Access to health services	Self-rated ease of accessing different types of health service	Yes	No	Yes	No
	Healthy lifestyle	Sleep hours	Yes	Limited	No	Yes – explore broader measures of sleep quality in addition to sleep hours
		Self-rated sleep satisfaction	No	No	Yes	Replace with more suitable indicator of quality of sleep
Housing and home	Housing suitability	Overcrowding	Yes	No	Yes	Yes - explore measures of overcrowding using data on ratio of occupants to rooms in home
		Housing suitability index	Yes	No	Yes	Yes – more detailed work examining best measures of housing suitability recommended to further identify if this initial index can be further developed/ improved
Identity and belonging	Sense of belonging and inclusion	Sense of belonging	Yes	Yes	Yes	Yes – a range of measures of sense of belonging and inclusion are being developed internationally; their potential use should be assessed as this field of measurement continues to evolve.
		Sense of inclusiveness	Possibly	No	Yes	
		Experience of discrimination	Yes	Yes	No	No
	Support for multiculturalism	Welcoming city measures	Possibly	Limited	Yes	Yes – continue to develop measures that can be combined into a single scale measuring whether the ACT is a welcoming city
	Connection to Canberra	Recommend the ACT region to others as a good place to live	Yes	Yes	No	Yes – same as 'Liveability' indicator.
	Valuing Aboriginal and Torres Strait Islander cultures and recognising	Valuing Aboriginal and Torres Strait Islander cultures	Possibly	Yes	Possibly	The initial findings of these measures need to be reviewed and discussed by Traditional Custodians before final recommendations for their use can be made.
		Engaging with Traditional Custodians and Aboriginal and Torres Strait Islander cultures	Possibly	No	Possibly	

Domain	Indicator	Measure	Suitable for use?	Comparison data available?	Further work needed?	Additional/ alternative measures recommended to be able to suitably measure this indicator?
	our Traditional Custodians	Awareness of Traditional Custodians of the ACT region	Possibly	No	Possibly	
Living standards	Cost of living	Living costs are affordable here	Yes	Yes	No	No
	Financial position	Self-rated household financial position	Yes	Yes	No	No
Safety	Feeling safe	Three measures of self-rated safety of local area and walking in it at day and night	Yes	Limited	Yes	Yes – continue evaluating over time which of the three measures is most suited for long-term use; identify any measures that have available comparators in national data sets and test their use.
	Community resilience to emergencies	Five measures of different aspects of emergency preparedness	Yes	No	Yes	Yes – continue to identify which types of preparation are best predictors of people coping well with emergencies and recovering well from them.
Social connection	Sense of social connection	Social connection – traditional	Yes	Yes	Yes	Yes – as types of social connection are changing rapidly at a societal level, ongoing review of these measures should occur to ensure they best reflect the ways ACT residents connect to those they are close to
		Social connection – phone and online	Possibly	Limited	Yes	
	Levels of loneliness	3-item loneliness scale	Yes	Limited	No	Yes – continue monitoring the rapid development of measures of loneliness internationally, and evaluate whether any change in measure is needed as knowledge of this emerging area of study increases.
	Levels of volunteering	Participation in volunteering	Yes	Yes	Yes	Yes – continue identifying how volunteering is changing to ensure all types of volunteering are included in measure.
	Participation in community events/activities	Frequency of participation in community events and activities	Yes	Limited	Yes	Yes – continue to develop appropriate scoring system that reflects how people choose frequency of participation and links between this and wellbeing.
Time	Quality of time	Self-assessed quality of time index	Yes	Limited	Yes	Yes – continue monitoring developments in field of measuring quality of time use
	Work-life balance	Self-assessed work-life balance	Yes	Limited	Yes	
	Time spent travelling within Canberra	Average commute time	Yes	Limited	No	No
		Satisfaction with commute time	Possibly	Limited	Yes	

17.4 Conclusions

This initial exploration of subjective wellbeing measures highlights both that on average, adults living in the ACT – where comparison data are available – have higher levels of personal wellbeing, better financial position and better access to transport than the Australian average, but higher cost of living and somewhat lower levels of social connection. Over time, it will be possible to include more comparison of the ACT to other parts of Australia. However, care is needed not to focus only on the 'average' as this hides the wide diversity of wellbeing within the ACT. Groups at particularly high risk of experiencing low wellbeing include single parents, those with moderate or severe disability, those identifying as LGBTIQA+, carers (particularly those with higher caring obligations), and renters. For other groups, results are more complex, with different wellbeing strengths and challenges experienced by most: in the elderly, high wellbeing and affordable living costs are counterbalanced by lack of job opportunities and lower use of non-traditional social connection. For younger groups, participation in community activities and high social connection online and by phone are counterbalanced by high rates of distress, loneliness, low sense of belonging and underemployment, amongst others. The events of 2020 appear to have led to rapid changes in aspects of wellbeing for some groups, and ongoing work tracking how this change progresses is essential to further understanding the impacts of bushfires and COVID-19 on Canberrans.

The measures explored in this report are useful, but several can benefit from further development. Ideally, initial use of measures in the *ACT Wellbeing Framework* will include collection of data for a wider range of measures than is used in the longer term. This will give the best opportunity to ensure the highest quality measures can be identified and reported, as knowledge improves over time about how best to measure different wellbeing indicators.

8.0 References

ABS (Australian Bureau of Statistics). (2016). 2016 Census of Population and Housing – questionnaire. Australian Bureau of Statistics, Canberra.

ABS (Australian Bureau of Statistics). (2017). 'Weights'. In *Household Expenditure Survey and Survey of Income and Housing, User Guide, Australia, 2015-16.* Catalogue No. 6503.0. Australian Bureau of Statistics, Canberra. URL: https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/6503.0~2015-16~Main%20Features~Weights~15 Accessed 31/3/2020

ABS (Australian Bureau of Statistics). (2018). National health survey: first results. ABS, Canberra. URL: https://www.abs.gov.au/statistics/health/health-conditions-and-risks/national-health-survey-first-results/latest-release#about-the-national-health-survey

ABS (Australian Bureau of Statistics). (2020). General Social Survey. ABS, Canberra. URL: https://www.abs.gov.au/statistics/people/people-and-communities/general-social-survey-summary-results-australia/latest-release#data-download

ACT Government (2020). ACT Wellbeing Framework. Chief Minister, Treasury and Economic Development Directorate, ACT Government, Canberra. URL: http://www.act.gov.au/wellbeing.

Andrews, G., & Slade, T. (2001). Interpreting scores on the Kessler psychological distress scale (K10). *Australian and New Zealand journal of public health*, *25*(6), 494-497.

Angrave, D., & Charlwood, A. (2015). What is the relationship between long working hours, over-employment, under-employment and the subjective well-being of workers? Longitudinal evidence from the UK. *Human Relations*, *68*(9), 1491-1515.

Australian Bureau of Statistics. (2016). Census of Population and Housing, TableBuilder Pro. ABS Canberra, data accessed during May and June 2020.

Baker, R., Brick, J. M., Bates, N. A., Battaglia, M., Couper, M. P., Dever, J. A., Gile, K. J., & Tourangeau, R. (2013). Summary report of the AAPOR task force on non-probability sampling. Journal of Survey Statistics and Methodology, 1(2), 90-143

Berkes, F., & Ross, H. (2013). Community resilience: toward an integrated approach. *Society & Natural Resources*, *26*(1), 5-20.

Berry, H. L., Rodgers, B., & Dear, K. B. (2007). Preliminary development and validation of an Australian community participation questionnaire: types of participation and associations with distress in a coastal community. *Social science & medicine*, *64*(8), 1719-1737.

Bi, P., Williams, S., Loughnan, M., Lloyd, G., Hansen, A., Kjellstrom, T., ... & Saniotis, A. (2011). The effects of extreme heat on human mortality and morbidity in Australia: implications for public health. *Asia Pacific Journal of Public Health*, *23*(2_suppl), 27S-36S.

Biddle, N., Edwards, B., Gray, M., & Sollis, K. (2020). Hardship, distress, and resilience: The initial impacts of COVID-19 in Australia. Centre for Social Research and Methods, Australian National University, Canberra.

Blake, K. S., Kellerson, R. L., & Simic, A. (2007). Measuring overcrowding in housing. *Washington, DC: Department of Housing and Urban Development, Office of Policy Development and Research*.

Brown, D. (2009). Good practice guidelines for indicator development and reporting. Paper contributed to the Third World Forum on 'Statistics, Knowledge and Policy' Charting Progress, Building Visions, Improving Life. OECD. URL: https://www.oecd.org/site/progresskorea/43586563.pdf

Carpenter, S.R., Arrow, K.J., Barrett, S., Biggs, R., Brock, W.A., Crépin, A.S., Engström, G., Folke, C., Hughes, T.P., Kautsky, N. and Li, C.Z., 2012. General resilience to cope with extreme events. *Sustainability*, *4*(12), pp.3248-3259.

Cerin, E., Conway, T. L., Saelens, B. E., Frank, L. D., & Sallis, J. F. (2009). Cross-validation of the factorial structure of the Neighborhood Environment Walkability Scale (NEWS) and its abbreviated form (NEWS-A). *International Journal of Behavioral Nutrition and Physical Activity*, *6*(1), 32.

Cheung, F., Lucas, R.E., (2014). Assessing the validity of single-item life satisfaction measures: results from three large samples. Qual. Life Res. 23, 2809–2818. https://doi.org/10.1007/s11136-014-0726-4

Christensen, A. I., Ekholm, O., Glümer, C., & Juel, K. (2014). Effect of survey mode on response patterns: comparison of face-to-face and self-administered modes in health surveys. *The European Journal of Public Health*, *24*(2), 327-332.

Cole, K., Daly, A., & Mak, A. (2009). Good for the soul: The relationship between work, wellbeing and psychological capital. *The Journal of Socio-Economics*, *38*(3), 464-474.

Cummins, R. A., Eckersley, R., Pallant, J., Van Vugt, J., & Misajon, R. (2003). Developing a national index of subjective wellbeing: The Australian Unity Wellbeing Index. *Social indicators research*, *64*(2), 159-190.

Cummins, R. A., & Wooden, M. (2014). Personal resilience in times of crisis: The implications of SWB homeostasis and set-points. *Journal of happiness studies*, *15*(1), 223-235.

Dekker, K. (2007). Social capital, neighbourhood attachment and participation in distressed urban areas. A case study in The Hague and Utrecht, the Netherlands. *Housing studies*, *22*(3), 355-379.

Diener, E., Lucas, R., Schimmack, U., & John Helliwell. (2009). *Well-being for public policy*. Oxford University Press.

Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. (1999). Subjective well-being: Three decades of progress. *Psychological Bulletin*, *125*(2), 276–302. doi:10.1037/0033-2909.125.2.276

Diener, E., Inglehart, R., & Tay, L. (2013). The validity of life satisfaction measures. Social Indicators Research, 112(3), 497–527

Dolan, P., & Kavetsos, G. (2016). Happy talk: Mode of administration effects on subjective well-being. *Journal of Happiness Studies*, *17*(3), 1273-1291.

Eckersley, R. (2009). Population measures of subjective wellbeing: How useful are they?. *Social Indicators Research*, *94*(1), 1-12.

Eid, M., & Diener, E. (2004). Global Judgments of Subjective Well-Being: Situational Variability and Long-term Stability. *Social Indicators Research*, 65.

Forgeard, M.J.C., Jayawickreme, E., Kern, M.L., Seligman, M.E.P., 2011. Doing the Right Thing: Measuring Well-Being for Public Policy. Int. J. Wellbeing 1. https://doi.org/10.5502/ijw.v1i1.15Harding, A., McNamara, J., Daly, A., & Tanton, R. (2009). Child Social Exclusion: An Updated Index From the 2006 Census. *Australian Journal of Labour Economics*, *12*(1), 41–64. http://www.business.curtin.edu.au/files/266hardingFINAL.pdf

Gallopín, G. C. (2006). Linkages between vulnerability, resilience, and adaptive capacity. *Global environmental change*, *16*(3), 293-303.

Gershuny, J. (2011). Time-use surveys and the measurement of national well-being. *Centre for Time Use Research, University of Oxford, Swansea, UK, Office for National Statistics*.

Gui, Y., Safdar, S., & Berry, J. (2016). Mutual Intercultural Relations among University Students in Canada. *Frontiers: The Interdisciplinary Journal of Study Abroad*, *27*, 17-32.

Helliwell, J.F., Layard, R., Sachs, J.D., De Never, J-E. (eds). (2020). World Happiness Report 2020. Sustainable Development Solutions Network, New York. URL: https://happiness-report.s3.amazonaws.com/2020/WHR20.pdf

Hirshkowitz, M., Whiton, K., Albert, S. M., Alessi, C., Bruni, O., DonCarlos, L., ... & Neubauer, D. N. (2015). National Sleep Foundation's sleep time duration recommendations: methodology and results summary. *Sleep health*, *1*(1), 40-43.

Hu, Y., Stewart-Brown, S., Twigg, L., & Weich, S. (2007). Can the 12-item General Health Questionnaire be used to measure positive mental health?. *Psychological medicine*, *37*(7), 1005.

Hughes, M. E., Waite, L. J., Hawkley, L. C., & Cacioppo, J. T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on aging*, *26*(6), 655-672.

International Wellbeing Group (2013). Personal Wellbeing Index: 5th Edition. Melbourne: Australian Centre on Quality of Life, Deakin University

Jovanović, V., 2016. The validity of the Satisfaction with Life Scale in adolescents and a comparison with single-item life satisfaction measures: a preliminary study. Qual. Life Res. 25, 3173–3180. https://doi.org/10.1007/s11136-016-1331-5

Kahneman, D., & Krueger, A. B. (2006). Developments in the Measurement of Subjective Well-Being. *Journal of Economic Perspectives*, *20*(1), 3–24. doi:10.1257/089533006776526030

Keeter, S., Hatley, N., Kennedy, C. and Lau, A. (2017). What low response rates mean for telephone surveys. Pew Research Center. URL: http://assets.pewresearch.org/wp-content/uploads/sites/12/2017/05/12154630/RDD-Non-response-Full-Report.pdf Accessed 29 July 2020

Lawton, M. P., Winter, L., Kleban, M. H., & Ruckdeschel, K. (1999). Affect and quality of life: Objective and subjective. *Journal of aging and health*, *11*(2), 169-198.

Li, L. Z., & Wang, S. (2020). Prevalence and predictors of general psychiatric disorders and loneliness during COVID-19 in the United Kingdom. *Psychiatry research*, *291*, 113267.

Lucas, R. E. (2007). Adaptation and the set-point model of subjective well-being: Does happiness change after major life events?. *Current directions in psychological science*, *16*(2), 75-79.

Luchetti, M., Lee, J. H., Aschwanden, D., Sesker, A., Strickhouser, J. E., Terracciano, A., & Sutin, A. R. (2020). The trajectory of loneliness in response to COVID-19. *American Psychologist*.

Matthews-Ewald, M. R., & Zullig, K. J. (2013). Evaluating the performance of a short loneliness scale among college students. *Journal of College Student Development*, *54*(1), 105-109.

Mazza, C., Ricci, E., Biondi, S., Colasanti, M., Ferracuti, S., Napoli, C., & Roma, P. (2020). A nationwide survey of psychological distress among italian people during the COVID-19 pandemic: Immediate psychological responses and associated factors. *International Journal of Environmental Research and Public Health*, *17*(9), 3165.

OECD (Organization for Economic Cooperation and Development). (1976). Measuring social wellbeing. OECD, Paris.

OECD (Organisation for Economic Co-operation and Development). (2013). *OECD guidelines on measuring subjective well-being*. OECD Publishing.

OECD (Organization for Economic Cooperation and Development). (2020). How's Life? 2020: Measuring Well-being, OECD Publishing, Paris, https://doi.org/10.1787/9870c393-en.

Palgi, Y., Shrira, A., Ring, L., Bodner, E., Avidor, S., Bergman, Y., ... & Hoffman, Y. (2020). The loneliness pandemic: Loneliness and other concomitants of depression, anxiety and their comorbidity during the COVID-19 outbreak. *Journal of Affective Disorders*.

Pawson, H. and Herath, S. (2015) Disadvantaged places in urban Australia: residential mobility, place attachment and social exclusion, AHURI Final Report No.243. Melbourne: Australian Housing and Urban Research Institute. Available from: https://www.ahuri.edu.au/__data/assets/pdf_file/0010/2260/AHURI_Final_Report_No243_Disadvantaged-places-in-urban-Australia-residential-mobility,-place-attachment-and-social-exclusion.pdf

Pierce, M., Hope, H., Ford, T., Hatch, S., Hotopf, M., John, A., ... & Abel, K. M. (2020). Mental health before and during the COVID-19 pandemic: a longitudinal probability sample survey of the UK population. *The Lancet Psychiatry*.

Qiu, J., Shen, B., Zhao, M., Wang, Z., Xie, B., & Xu, Y. (2020). A nationwide survey of psychological distress among Chinese people in the COVID-19 epidemic: implications and policy recommendations. *General psychiatry*, *33*(2).

Rafferty, A., Walthery, P. and King-Hele, S. (2015). Analysing change over time: repeated cross-sectional and longitudinal survey data. UK Data Service, University of Essex and University of Manchester. URL: https://www.ukdataservice.ac.uk/media/455362/changeovertime.pdf

Rahman, M. A., Hoque, N., Alif, S. M., Salehin, M., Islam, S. M. S., Banik, B., ... & Cross, W. (2020). Factors associated with psychological distress, fear and coping strategies during the COVID-19 pandemic in Australia. *Globalization and Health*, *16*(1), 1-15.

Reconciliation Australia. (2019). 2018 Australian Reconciliation Barometer. Survey conducted by Polity Research and Consulting. URL: https://www.reconciliation.org.au/wp-content/uploads/2019/02/final_full_arb-full-report-2018.pdf

Regional Wellbeing Survey. (2014 to 2018). Data tables. Data cited were drawn from the data tables available at www.regionalwellbeing.org.au, for 2014 to 2018.

Regional Wellbeing Survey. (2020). 2018 Regional Wellbeing survey data tables – Australian general population. January 2020, version 1.02. University of Canberra, Canberra. Available at https://www.canberra.edu.au/__data/assets/excel_doc/0005/1795937/Australian-General-Population-ver1.02.xlsx

Richardson, B., Tyszkiewicz, M. D. F., Tomyn, A. J., & Cummins, R. A. (2016). The psychometric equivalence of the Personal Wellbeing Index for normally functioning and homeostatically defeated Australian adults. *Journal of Happiness Studies*, *17*(2), 627-641.

Rose, J. (2017). "Never enough hours in the day": Employed mothers' perceptions of time pressure. *Australian Journal of Social Issues*, *52*(2), 116-130.

Saelens, B.E. and Sallis, J.F. (2002). Neighborhood environment walkability survey (NEWS) & Neighborhood Environment Walkability Survey – Abbreviated (NEWS-A). Active Living Research. URL: https://activelivingresearch.org/neighborhood-environment-walkability-survey-news-neighborhood-environment-walkability-survey-%E2%80%93

Schirmer, J. and Peel, D. (2020). *Living well in the ACT region survey: data user guide and survey methods.* University of Canberra, Canberra.

Schirmer, J., & Yabsley, B. (2018). Living well with a changing climate. Report prepared for the ACT Government. University of Canberra, Canberra. URL: https://www.environment.act.gov.au/__data/assets/pdf_file/0019/1316521/Longitudinal-Survey-ACT-Resilience-to-Climate-Change-Report.pdf

Schirmer, J., Yabsley, B., Mylek, M. & Peel, D. (2016). *Wellbeing, Resilience and Liveability in Regional Australia: the 2015 Regional Wellbeing Survey*. University of Canberra. http://www.regionalwellbeing.org.au

Snape, D. and Martin, G. (2018). Measuring loneliness: guidance for use of the national indicators on surveys. Office for National Statistics, United Kingdom. URL: https://www.ons.gov.uk/peoplepopulationandcommunity/wellbeing/methodologies/measuringlonelinessguidanceforuseofthenationalindicatorsonsurveys

Tanton, R., Mohanty, I., & Hogan, A. (2012). Reasons for homeostatic failure in subjective wellbeing. *Canberra: The National Centre for Social and Economic Modelling*.

Ura, K., Alkire, S., Zangmo, T., & Wangdi, K. (2012). *An extensive analysis of GNH index*. The Centre for Bhutan Studies, Thimphu, Bhutan

VIP Reval (2018). Data weighting – raking vs post-stratification weights. http://www.vipreval.com/data-weighting-raking-vs-post-stratification-weights/

Walker, B. H., Abel, N., Anderies, J. M., & Ryan, P. (2009). Resilience, adaptability, and transformability in the Goulburn-Broken Catchment, Australia. *Ecology and Society*, *14*(1), 12.

Wang, C., Pan, R., Wan, X., Tan, Y., Xu, L., Ho, C. S., & Ho, R. C. (2020). Immediate psychological responses and associated factors during the initial stage of the 2019 coronavirus disease (COVID-19) epidemic among the general population in China. *International journal of environmental research and public health*, *17*(5), 1729.

Ware Jr, J. E., & Sherbourne, C. D. (1992). The MOS 36-item short-form health survey (SF-36): I. Conceptual framework and item selection. *Medical care*, 473-483.

Winton. (2018). The Canberra Omnibus Survey. Winton Sustainable Research Strategies. URL: https://www.communityservices.act.gov.au/__data/assets/pdf_file/0008/1232099/Surveys-2017-and-2018.pdf

Zhang, J., Lu, H., Zeng, H., Zhang, S., Du, Q., Jiang, T., & Du, B. (2020). The differential psychological distress of populations affected by the COVID-19 pandemic. *Brain, behavior, and immunity*.

Appendix 1: Weighting methods & definitions of ACT regions

This Appendix describes the process used to create statistical weights used in the analysis underpinning this report.

Four sets of weights were calculated. These were:

- Weights for all ACT respondents completing wave 1a of the survey
- Weights for all ACT respondents completing wave 1b of the survey
- Weights for ACT respondents completing the survey for the first time in wave 1b (i.e. did not complete 1a)
- Weights for ACT respondents who completed both waves 1a and 1b of the survey

It was necessary to calculate four sets of weights to account for the different composition of the samples in each of the four waves. This enables consistent reporting of results across survey items that were answered by people in samples with different demographic characteristics. A separate set of weights were calculated for respondents who had completed both wave 1a and wave 1b of the survey to ensure that each respondent was weighted the same way in each wave, allowing responses to be compared by wave without the risk that the differences were due to different weighting approaches.

Weighting approach

The method used to calculate the weights is known as 'raking'. It involves weighting the sample in an iterative way where the sample is adjusted to match each of the demographic benchmarks sequentially. This method has a number of advantages and is preferred as it allows the weights to be calculated in a relatively simple and easily reproducible way, without being limited by the availability of cross-tabulated data for each weighting variables. Furthermore, raking minimises the "design effect" of the weights compared to other approaches VIP Reval 2018). An applied example of this is provided below in the *Calculating weights* section.

Identifying benchmark characteristics for weighting

Weights were calculated in a single stage that adjusts the sample to match known population benchmarks. This addresses both sampling design – some regions were sampled more intensively than others – and differences in the distribution of responses obtained (e.g. the sample had a higher proportion of women than the ACT population). This is an appropriate method for reducing bias in non-probability and blended samples (such as this) where the probability of an individual being selected into the survey may not be known (Baker et al., 2013).

An initial inspection of the dataset was performed with reference to benchmarks obtained from the census to identify sources of potential bias (Table A1).

Table A1 Comparison of 1a, 1b and longitudinal (1a & 1b) samples to benchmarks from 2016 census (note: includes NSW respondents)

Region	1a n	1a - %	1b - n	1b - %	1a & 1b n	1a & 1b %	B'mark n	B'mark %
Belconnen E.	197	6.3%	107	6.6%	67	560.0%	14537	4.8%
Gungahlin	395	12.6%	219	13.5%	128	1070.0%	46523	15.3%
Inner Belconnen	346	11.0%	210	12.9%	118	987.0%	31157	10.3%
Inner North	166	5.3%	83	5.1%	52	435.0%	24847	8.2%
Inner South	181	5.8%	88	5.4%	60	502.0%	22069	7.3%
Molonglo	36	1.1%	26	1.6%	12	100.0%	3537	1.2%
North	221	7.0%	118	7.3%	75	627.0%	20375	6.7%
Others - ACT	10	0.3%	3	0.2%	2	17.0%	1828	0.6%
Outer Belconnen	310	9.9%	179	11.0%	118	987.0%	29335	9.7%
Tuggeranong Nth	361	11.5%	178	10.9%	115	962.0%	30124	9.9%
Tuggeranong Sth	371	11.8%	178	10.9%	118	987.0%	34810	11.5%
Weston Creek	233	7.4%	106	6.5%	67	560.0%	17589	5.8%
Woden Valley	314	10.0%	132	8.1%	97	811.0%	27347	9.0%
Gender								
Female	1,991	54.2%	1,123	60.8%	622	5201.0%	156398	51.4%
Male	1,675	45.6%	709	38.4%	567	4700.0%	147675	48.6%
Other	8	0.2%	16	0.9%	6	50.0%	N/A	
Age group								
18-29	191	5.3%	201	11.0%	49	410.0%	73375	24.1%
30-39	337	9.3%	227	12.4%	85	711.0%	62411	20.5%
40-49	449	12.4%	234	12.8%	125	1045.0%	53735	17.7%
50-59	645	17.8%	343	18.8%	223	1865.0%	46055	15.2%
60-69	942	26.0%	409	22.4%	340	2843.0%	36020	11.9%
70-79	791	21.8%	325	17.8%	285	2383.0%	20536	6.8%
80-89	242	6.7%	85	4.7%	78	652.0%	9597	3.2%
90-100	32	0.9%	3	0.2%	3	25.0%	2315	0.8%
CALD								
Speaks English at home	3,307	90.0%	1,676	91.1%	1,129	9440.0%	219024	72.0%
Speaks another language at home	367	10.0%	164	8.9%	62	518.0%	85049	28.0%
Education								
Bachelor's degree or higher	2,171	59.1%	1,175	63.9%	777	6508.0%	117919	38.8%
No degree	1511	41.1%	673	36.6%	416	3484.0%	186154	61.2%

Based on an initial examination, we opted to develop weights based on sex, age, region, education and cultural background. These benchmarks were chosen because there were considerable differences between the sample proportions and those from the census, and the numbers in these categories were sufficient to reduce the risk of extremely high weights being calculated for individuals with uncommon demographic characteristics.

Education was assessed using university qualification, where there was considerable difference between our sample and the ACT population as a whole, rather than Year 12 completion as responses to the highest level of schooling completed survey item were inconsistent and due to the high rate of high school completion in the ACT.

Single parent status was not included in the weighting as the number of single parents was relatively small and the benchmark and sample proportions were relatively similar. A number of potential sources of bias could not be weighted for as no suitable benchmark data were available, including subjective wellbeing, mental health, personality type, etc. This is, however, an issue in all surveys of this type and is an acceptable risk.

Method

Weights were based on the following benchmarks from the 2016 Australian Bureau of Statistics Census of Population and Housing. Data were generated using the ABS *TableBuilderPro* application (ABS 2016b):

- Sex:
    - Male
    - Female
- Age in four groups:
    - 18-34
    - 35-54
    - 55-74
    - 75-100
- ACT regions (see description of suburbs included in each region at end of this Appendix)
    - Belconnen E.
    - Gungahlin
    - Inner Belconnen
    - Inner North
    - Inner South
    - North
    - Outer Belconnen
    - Tuggeranong Nth
    - Tuggeranong Sth
    - Weston Creek and Molonglo
    - Woden Valley
- Level of education:
    - Does not have bachelor's degree
    - Has bachelor's degree or higher
- Cultural background:
    - Born in an English-speaking country
    - Born in a non-English-speaking country

Benchmarks are based on ACT residents aged 18 to the oldest age in the Census.

As discussed earlier, weights were calculated using an iterative 'raking' approach. An example of this is provided below.

The first variable to be adjusted by was gender. The benchmark population was 51.54% female and 48.46% male, while the sample population in wave 1a was 53.77% female and 46.23% male. To adjust for this, the following formulae were applied:

$$Female\ gender\ weight\ 1 = (.5154/.5377)$$

$$Male\ gender\ weight\ 1 = (.4846/\ .4623)$$

After applying this weight, the proportion of male and female respondents in the sample matched the benchmark, but there were still differences in the other variables. The next variable to be adjusted for was age. To do this, proportions in each age group were calculated *with the gender weight applied* (note that this is not the weight used in Table 1). The benchmark population was 34.97% 18-34, 35.27% 35-54, 23.04% 55-74, and 6.71% 75-100. The weighted sample population was 9.28% 18-34, 25.35% 35-54, 49.20% 55-74, and 6.71% 75-100. To adjust for this, the following formulae were applied:

$$18\text{-}34\ age\ weight\ 1 = gender\ weight\ 1 * (\frac{.3497}{.0928})$$

$$35\text{-}54\ age\ weight\ 1 = gender\ weight\ 1 * (\frac{.3527}{.2535})$$

$$55\text{-}74\ age\ weight\ 1 = gender\ weight\ 1 * (\frac{.2304}{.4920})$$

$$75\text{-}100\ age\ weight\ 1 = gender\ weight\ 1 * (\frac{.0671}{.1617})$$

The age weight now adjusts the sample by age and gender. The above process is repeated for the next variable, region, then education, then background. Once the sample has been adjusted, the distribution of each weighted is compared to the benchmark and if it is not acceptably close the process is repeated. In Wave 1a of the ACT survey, four iterations were required to obtain the weights used in Tables A2 to A4 (on following pages).

Table A2 Benchmark and sample populations for weighting – Wave 1a – all ACT respondents

	Benchmark		Wave 1a - all ACT respondents				
	n	%	n	%	Weighted n	Weighted %	Diff.
Gender							
Female	155775	51.54%	1590	53.77%	1525	51.57%	-0.03%
Male	146475	48.46%	1367	46.23%	1432	48.43%	0.03%
Age							
18-34	105692	34.97%	278	9.40%	1034	34.96%	0.01%
35-54	106593	35.27%	756	25.57%	1043	35.26%	0.01%
55-74	69631	23.04%	1449	49.00%	682	23.05%	-0.01%
75-100	20285	6.71%	474	16.03%	199	6.72%	-0.01%
Region							
Belconnen E.	14537	4.81%	188	6.36%	142	4.80%	0.01%
Gungahlin	46523	15.39%	358	12.11%	455	15.39%	0.00%
Inner Belconnen	31157	10.31%	332	11.23%	305	10.30%	0.01%
Inner North	24847	8.22%	157	5.31%	243	8.22%	0.00%
Inner South	22069	7.30%	182	6.15%	216	7.30%	0.00%
North	20375	6.74%	210	7.10%	199	6.74%	0.00%
Outer Belconnen	29335	9.71%	302	10.21%	287	9.71%	0.00%
Tuggeranong Nth	30124	9.97%	342	11.57%	295	9.97%	0.00%
Tuggeranong Sth	34810	11.52%	341	11.53%	341	11.52%	0.00%
Weston Creek and Molonglo	21126	6.99%	249	8.42%	207	6.99%	0.00%
Woden Valley	27347	9.05%	296	10.01%	267	9.05%	0.00%
Education							
No degree	184550	61.07%	1147	38.79%	1806	61.06%	0.01%
Has degree	117667	38.93%	1810	61.21%	1151	38.94%	-0.01%
Background							
Born in English-speaking country	216067	71.49%	2618	88.54%	2114	71.49%	0.00%
Born in non-English speaking country	86150	28.51%	339	11.46%	843	28.51%	0.00%

Table A3 Benchmark and sample populations for weighting – Wave 1b – all ACT respondents

	Benchmark		Wave 1b - all ACT respondents				
	n	%	n	%	Weighted n	Weighted %	Diff.
Gender							
Female	155775	51.54%	902	62.04%	749	51.54%	0.00%
Male	146475	48.46%	552	37.96%	705	48.46%	0.00%
Age							
18-34	105692	34.97%	253	17.40%	508	34.97%	0.00%
35-54	106593	35.27%	396	27.24%	513	35.27%	0.00%
55-74	69631	23.04%	654	44.98%	335	23.04%	0.00%
75-100	20285	6.71%	151	10.39%	98	6.72%	-0.01%
Region							
Belconnen E.	14537	4.81%	97	6.67%	70	4.81%	0.00%
Gungahlin	46523	15.39%	189	13.00%	224	15.39%	0.00%
Inner Belconnen	31157	10.31%	197	13.55%	150	10.31%	0.00%
Inner North	24847	8.22%	71	4.88%	119	8.22%	0.00%
Inner South	22069	7.30%	76	5.23%	106	7.30%	0.00%
North	20375	6.74%	104	7.15%	98	6.74%	0.00%
Outer Belconnen	29335	9.71%	159	10.94%	141	9.71%	0.00%
Tuggeranong Nth	30124	9.97%	165	11.35%	145	9.97%	0.00%
Tuggeranong Sth	34810	11.52%	162	11.14%	167	11.52%	0.00%
Weston Creek and Molonglo	21126	6.99%	117	8.05%	102	6.99%	0.00%
Woden Valley	27347	9.05%	117	8.05%	132	9.05%	0.00%
Education							
No degree	184550	61.07%	514	35.35%	888	61.07%	0.00%
Has degree	117667	38.93%	940	64.65%	566	38.93%	0.00%
Background							
Born in English-speaking country	216067	71.49%	1320	90.78%	1040	71.49%	0.00%
Born in non-English speaking country	86150	28.51%	134	9.22%	414	28.51%	0.00%

Table A10 Benchmark and sample populations for weighting – Wave 1b – ACT single survey respondents

	Benchmark		Wave 1b – single survey respondents				
	n	%	n	%	Weighted n	Weighted %	Diff.
Gender							
Female	155775	51.54%	432	78.55%	283	51.41%	0.13%
Male	146475	48.46%	118	21.45%	267	48.59%	-0.13%
Age							
18-34	105692	34.97%	185	33.64%	193	35.01%	-0.04%
35-54	106593	35.27%	208	37.82%	194	35.22%	0.05%
55-74	69631	23.04%	143	26.00%	127	23.05%	-0.01%
75-100	20285	6.71%	14	2.55%	37	6.72%	-0.01%
Region							
Belconnen E.	14537	4.81%	37	6.73%	26	4.81%	0.00%
Gungahlin	46523	15.39%	80	14.55%	85	15.39%	0.00%
Inner Belconnen	31157	10.31%	85	15.45%	57	10.32%	-0.01%
Inner North	24847	8.22%	30	5.45%	45	8.22%	0.00%
Inner South	22069	7.30%	26	4.73%	40	7.28%	0.02%
North	20375	6.74%	38	6.91%	37	6.73%	0.01%
Outer Belconnen	29335	9.71%	57	10.36%	53	9.73%	-0.02%
Tuggeranong Nth	30124	9.97%	59	10.73%	55	9.97%	0.00%
Tuggeranong Sth	34810	11.52%	56	10.18%	63	11.52%	0.00%
Weston Creek and Molonglo	21126	6.99%	48	8.73%	38	6.98%	0.01%
Woden Valley	27347	9.05%	34	6.18%	50	9.04%	0.01%
Education							
No degree	184550	61.07%	214	38.91%	336	61.03%	0.04%
Has degree	117667	38.93%	336	61.09%	214	38.97%	-0.04%
Background							
Born in English-speaking country	216067	71.49%	476	86.55%	393	71.49%	0.00%
Born in non-English speaking country	86150	28.51%	74	13.45%	157	28.51%	0.00%

Region allocation

To weight data, respondents were allocated to regions based on the locational information provided in the following order:

- Where a valid full address was provided respondents were allocated to a region using the geographic coordinates of their address.
- When a respondent declined to provide their full address, but did provide the closest street intersection to their house, their location was imputed as the address nearest the intersection. This was then allocated to a region using the coordinates of that address.
- When a respondent provided a suburb only this was matched to a region using a list.

The very small number of ACT survey respondents who were not in one of these suburbs were allocated to their nearest region.

Gender

The survey allowed respondents to report their gender in four categories: female, male, other (e.g. gender-fluid, inter-gender, no gender), or they could decline to answer by selecting 'prefer not to answer'. Benchmark data available from the ABS only allowed us to weight by male or female, and those who did not select either of these could not be weighted using the standard method. Weights were allocated to these participants using a separate method described further below.

Age

Respondents were asked to provide their age in single years. Ages were coded to four age groups for weighting: 18-34, 35-54, 55-74, and 75-100.

Education

Respondents were asked to state if they had attained an undergraduate or postgraduate university qualification. Those who had either one of these were assumed to have attained a bachelor's degree or higher. Those who neither of these were assumed not to have.

Country of birth

Respondents were asked if they were born in Australia, and, if not, which country they were born in. These were coded to two groups for weighting: Australia and other main English-speaking countries and non-English speaking countries. Main English-speaking countries other than Australia are the UK, Ireland, New Zealand, Canada, the United States, and South Africa.

Definition of ACT regions

Suburbs located in each of the regions described in this report were:

- Belconnen East
    - Evatt, Giralang, Kaleen, Lawson, McKellar
- Gungahlin
    - Amaroo, Bonner, Casey, Crace, Forde, Franklin, Gungahlin, Harrison, Jacka, Mitchell, Moncrieff, Ngunnawal, Nicholls, Palmerston, Throsby
- Inner Belconnen
    - Aranda, Belconnen, Bruce, Cook, Florey, Hawker, Macquarie, Page, Scullin, Weetangera
- Inner North
    - Acton, Ainslie, Braddon, Campbell, Canberra City, Reid, Turner
- Inner South
    - Barton & Parkes, Deakin, Forrest, Griffith, Kingston, Narrabundah, Red Hill, Yarralumla
- North
    - Dickson, Downer, Hackett, Lyneham, O'Conner, Watson
- Outer Belconnen
    - Charnwood, Dunlop, Flynn, Fraser, Higgins, Holt, Latham, Macgregor, Melba, Spence
- Tuggeranong North
    - Fadden, Gowrie, Greenway, Kambah, Macarthur, Monash, Oxley, Wanniassa
- Tuggeranong South
    - Banks, Bonython, Calwell, Chisholm, Conder, Gilmore, Gordon, Isabella Plains, Richardson, Theodore
- Weston Creek and Molonglo
    - Chapman, Duffy, Fisher, Holder, Rivett, Stirling, Waramanga, Weston, Coombs, Denman Prospect, Molonglo, Stromlo, Wright
- Woden Valley
    - Chifley, Curtin, Farrer, Garran, Hughes, Isaacs, Lyons, Mawson, O'Malley, Pearce, Phillip, Torrens

Appendix 2: Cross-membership of groups compared in this report

Table A5 Comparison of proportion of ACT adults in different groups, using data from the Living well survey

		Household composition						Children in household				Carers		
		Single parent with children	Couple, children at home	Couple, no children at home	Sole person house-hold	Share/ group house-hold	Total	No children in house-hold	Children aged 0-4 in house-hold	Children aged 5-17 in house-hold	Total	Not a carer	Carer	Total
	Adult residents of ACT	6.0%	38.4%	32.1%	15.4%	8.0%	100.0%	62.6%	17.0%	20.4%	100.0%	88.6%	11.4%	100.0%
Gender	Female	8.2%	35.5%	27.9%	18.4%	10.0%	100.0%	61.2%	18.5%	20.3%	100.0%	86.8%	13.2%	100.0%
	Male	3.7%	41.5%	36.5%	12.4%	5.9%	100.0%	64.1%	15.5%	20.4%	100.0%	90.6%	9.4%	100.0%
Age - broad groups	Aged 18-29	8.6%	26.2%	21.3%	13.5%	30.3%	100.0%	79.3%	17.3%	3.5%	100.0%	94.8%	5.2%	100.0%
	Aged 30-49	6.4%	60.3%	21.9%	8.5%	2.8%	100.0%	37.8%	31.1%	31.0%	100.0%	91.8%	8.2%	100.0%
	Aged 50-64	7.5%	43.4%	30.3%	17.4%	1.4%	100.0%	65.0%	2.8%	32.3%	100.0%	79.4%	20.6%	100.0%
	Aged 65+	0.9%	5.7%	64.4%	28.1%	0.8%	100.0%	97.1%	1.4%	1.5%	100.0%	86.1%	13.9%	100.0%
CALD 2	Main language at home - English	5.6%	36.8%	33.5%	17.4%	6.7%	100.0%	64.0%	14.7%	21.3%	100.0%	88.0%	12.0%	100.0%
	Main language at home - not English	7.6%	44.2%	27.5%	8.2%	12.5%	100.0%	57.4%	25.2%	17.4%	100.0%	90.9%	9.1%	100.0%
LGBTIQA+	Not LGBTIQA+	5.6%	40.9%	32.1%	14.0%	7.5%	100.0%	61.9%	17.7%	20.4%	100.0%	88.5%	11.5%	100.0%
	LGBTIQA+	12.8%	16.8%	30.1%	21.7%	18.6%	100.0%	74.4%	6.3%	19.3%	100.0%	87.9%	12.1%	100.0%
Length of residence	Lived in ACT 3 year or less	1.2%	47.6%	29.5%	8.5%	13.2%	100.0%	62.5%	26.9%	10.6%	100.0%	96.8%	3.2%	100.0%
	Lived in ACT 5 year or less	2.4%	43.6%	27.4%	11.1%	15.5%	100.0%	63.1%	22.3%	14.6%	100.0%	96.3%	3.7%	100.0%

Table A5 (continued) Comparison of proportion of ACT adults in different groups, using data from the Living well survey

		Home type				Home tenure				
		Freestanding house	**Townhouse**	**Unit/apartment**	**Total**	**Home owned outright**	**Home has mortgage**	**Home rented**	**Does not pay rent or mortgage**	**Total**
	Adult residents of ACT	71.3%	14.2%	14.5%	100.0%	30.3%	37.2%	25.3%	7.2%	100.0%
Gender	Female	68.9%	15.9%	15.2%	100.0%	24.8%	40.1%	28.4%	6.6%	100.0%
	Male	73.9%	12.4%	13.7%	100.0%	36.1%	34.2%	22.0%	7.8%	100.0%
Age - broad groups	Aged 18-29	54.4%	17.8%	27.8%	100.0%	7.9%	16.8%	49.1%	26.2%	100.0%
	Aged 30-49	66.0%	17.2%	16.7%	100.0%	7.7%	59.4%	30.0%	2.9%	100.0%
	Aged 50-64	86.8%	8.2%	5.0%	100.0%	38.3%	48.1%	13.0%	0.6%	100.0%
	Aged 65+	82.4%	11.1%	6.5%	100.0%	87.0%	6.8%	4.4%	1.7%	100.0%
CALD 2	Main language at home - English	76.2%	12.4%	11.4%	100.0%	32.7%	37.2%	24.0%	6.1%	100.0%
	Main language at home - not English	53.8%	20.8%	25.4%	100.0%	21.4%	37.3%	30.2%	11.1%	100.0%
LGBTIQA+	Not LGBTIQA+	73.0%	13.2%	13.7%	100.0%	30.2%	39.0%	23.9%	7.0%	100.0%
	LGBTIQA+	49.7%	22.2%	28.2%	100.0%	10.4%	28.4%	47.7%	13.6%	100.0%
Length of residence	Lived in ACT 3 year or less	43.4%	12.0%	44.7%	100.0%	14.0%	20.2%	53.7%	12.1%	100.0%
	Lived in ACT 5 year or less	49.7%	13.6%	36.8%	100.0%	10.9%	29.6%	50.2%	9.2%	100.0%