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The PATH Through Life Project:
The Early Impact of COVID-19 and Lockdowns on Health Outcomes for a Cohort of Older Adults

Acknowledgements

ACKNOWLEDGMENT OF COUNTRY

ACT Health acknowledges the Traditional Custodians of the land, the Ngunnawal people. ACT Health respects their continuing culture and connections to the land and the unique contributions they make to the life of this area. ACT Health also acknowledges and welcomes Aboriginal and Torres Strait Islander peoples who are part of the community we serve.

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Executive summary

The PATH Through Life project is a large, population-based, longitudinal cohort study. Participants were randomly sampled from the electoral roll of the ACT and neighbouring town of Queanbeyan, NSW in 1999/2000 and followed up approximately every 4 years. The time interval between the 4th and 5th waves was 5–7 years. At baseline, the study included 7,485 adults in three narrow age cohorts of 20–24 (birth years 1975–1979; 20s cohort), 40–44 (birth years 1956–1960; 40s cohort) and 60–64 years (birth years 1937–1941; 60s cohort). The PATH survey includes demographic questions as well as multiple measures of mental and physical health.

Throughout 2019 and 2020, 1,069 participants aged 59–65 years completed an online PATH survey as part of the fifth wave of data collection. Data collection commenced prior to the 2019/2020 bushfires and COVID-19 outbreak. Consequently, it was possible to examine the impact of these events on the study cohort. This report focuses on the impact of the COVID-19 outbreak and the initial lockdown period in early 2020 on health and wellbeing.

Key findings:

1. On average, mental and physical health were not negatively affected throughout the early stages of the COVID-19 lockdowns in the ACT.

2. Greater impact of COVID-19 on participants was associated with poorer mental health outcomes.

3. Direct exposure to the 2019/20 bushfires was associated with poorer coping during the lockdown periods.

Overall, little difference was found in mental and physical health outcomes among participants who were surveyed before and during the 2020 COVID-19 pandemic. No significant differences were found for physical health measures or the majority of the mental health measures. However, alcohol use did increase during the pandemic. Furthermore, suicidality and psychological trauma was lower during COVID-19. This may have been a result of recovering to baseline levels following the 2019/20 bushfires which preceded the pandemic.

Higher COVID-19 impact was however, associated with poorer mental health. Specifically, higher scores on the COVID-19 questionnaire were correlated with higher levels of anxiety, depression, and suicidality, and poorer general mental health, and sleep quality. However, no statistically significant associations were found between COVID-19 scores and physical health and substance use.

Lastly, when the effects of both the bushfires and COVID-19 were examined together, participants who were directly exposed to bushfires reported increased negative effects of COVID-19 compared to those who were not or were only indirectly exposed to the fires. As such, there may be multiple disaster effects resulting from the temporal proximity of the bushfires and COVID-19.

1. Introduction

In March 2020, the World Health Organisation declared an outbreak of the Coronavirus Disease 2019 (COVID-19). The pandemic drastically altered people's lives as well as multiple aspects of the global and public economy. The uncertainty and fears associated with the virus outbreak, along with mass lockdowns may have increased mental health disorders worldwide.

Impacts on the mental health of Australians were seen following the introduction of government policies and physical distancing measures aimed at limiting disease spread. Early studies found that symptoms of depression and anxiety were significantly higher than normative data during the first month of the pandemic in Australia (Fisher et al., 2020). Furthermore, rates of post-traumatic stress disorder, psychological distress, and stress were greater during the COVID-19 pandemic worldwide (Xiong et al., 2020). These effects were largely attributed to social isolation, job insecurity, and uncertainty about the future.

Notably, Australia's entry into the COVID-19 pandemic was unique, having gone through one of the most devastating bushfires in the country's history. Between September 2019 and March 2020, bushfires continuously burned across the country's eastern coast for 19 weeks, with 18.6 million hectares of land burnt and air quality hitting hazardous levels. The mental and physical health impacts of the bushfires were evident, as published in the [2023 ACT Health Report on bushfires](#). Importantly, recent work has shown that exposure to multiple community-level disasters has an additive effect on mental health (Harville, Shankar, Dunkel Schetter, & Lichtveld, 2018). As such, the impact of the COVID-19 pandemic should be considered in the context of the 2019/2020 bushfires.

Gathering evidence on the impacts of COVID-19 is vital for informing health service delivery and planning for future pandemics. This study aimed to examine the impact of the COVID-19 pandemic and subsequent lockdowns on the physical and mental health of PATH participants. Furthermore, this study examined the impact of multiple disasters by exploring whether different levels of exposure to bushfires affected experiences with the pandemic. The study used data from the PATH Through Life Project.

1.1. PATH Through Life Project

The PATH Through Life project is a large, population-based, longitudinal cohort study. Participants were randomly sampled from the electoral roll of the ACT and nearby city of Queanbeyan in 1999/2000 and have since been followed up every 4 years for waves 2–4. The time interval between the 4th and 5th wave was 5–7 years. At baseline, the study included 7,485 adults in three narrow age cohorts of 20–24 (birth years 1975–1979; '20s cohort'), 40–44 (birth years 1956–1960; '40s cohort') and 60–64 years (birth years 1937–1941; '60s cohort'). The first four waves of the study have been described previously (Anstey et al., 2020; Anstey et al., 2012).

1.2. Methodology

Throughout 2019 and 2020, 1,069 participants aged 59–65 years (birth years 1956–1960; referred to as the '40s cohort') completed an online survey as part of the fifth wave of data collection for this cohort. Data collection commenced prior to the 2019/2020 bushfires and COVID-19 outbreak.

Health outcomes were assessed according to when participants completed the PATH survey. The sample was split into two groups: those who completed the PATH survey before the COVID-19 lockdowns, and those who completed the PATH survey during the COVID-19 lockdowns. The selected cut-off date was 24th April 2020, exactly one month after the closure of all non-essential activities and businesses in the ACT. Scores for health outcomes were then averaged and compared between the two groups. A total COVID-19 score was formed by summing responses to the COVID-19 questionnaire (see Appendix 5.1) and its associations with health outcomes were examined.

This report examined whether there was an association between bushfire exposure and the impacts of the COVID-19 pandemic. Participants were split by whether they were directly exposed to the bushfires or indirectly/not exposed to the bushfires. Those who completed the PATH survey during or after the fires and responded "Yes" to any of the following questions were allocated to the "directly exposed" group:

- Involved fighting in the fires
- Worked directly in fighting the fires
- Own home, possessions or workplace was damaged by the fires
- Experienced health issues as a result of the fires

Participants who completed the PATH survey during or after the fires but did not respond "Yes" to the above questions were allocated to the "indirectly exposed" group.

Scores on the COVID-19 questionnaire were then averaged across the two exposure groups. Statistical difference between the groups were reported.

1.3. Study timeline

The PATH data collection period indicates the date from when the first participant submitted their PATH survey until the date when the last participant filled out the survey, which is from 3rd September 2019 to 14th June 2020. The bushfire period began when catastrophic fire danger level was declared for NSW (12th November 2019) and concluded when the ACT removed the state of emergency as the bushfires died down (27th February 2020). The COVID-19 period began when ACT first enforced lockdowns and announced the closure of non-essential businesses and activities. This period was from 24th April 2020 to 14th June 2020.

Figure 1 Timeline of PATH data collection, 2019/2020 bushfires, and COVID-19
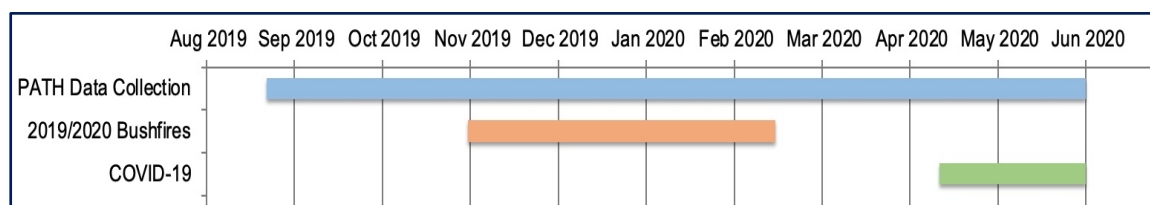
1.4. Measures of mental and physical health

Mental and physical health was measured using numerous validated questionnaires. Details about each questionnaire and their clinical cut-offs are summarised in Appendix 5.2. Unless otherwise specified, higher scores indicate poorer outcomes.

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2. Acute health outcomes during COVID-19

2.1. Health outcomes before and during COVID-19 lockdowns

Table 1 shows that scores on the majority of mental and physical health outcomes were not significantly different between those who completed the PATH survey before the COVID-19 lockdowns and those who completed the survey during the lockdowns. Outcomes that were significantly different between the two groups were suicidality, alcohol use, smoking, and psychological trauma. Alcohol use was greater during the pandemic, whereas there was a decrease in suicidality, smoking, and psychological trauma.

Table 1: Health outcomes before and during the COVID-19 pandemic

Outcome variables	Before COVID-19 (n = 766) M (SD)	During COVID-19 (n = 174) M (SD)	Significance
Anxiety (GAS)	2.87 (2.61)	2.49 (2.41)	
Depression (GDS)	1.95 (2.15)	1.65 (2.09)	
Depression (PHQ-9)	3.15 (3.74)	3.00 (3.98)	
Mental health (MCS)	52.09 (8.55)	52.99 (8.47)	
Suicidality	0.27 (0.82)	0.11 (0.52)	**
Physical health (PCS)	49.03 (9.61)	48.83 (9.59)	
Sleep quality (ISI)	4.55 (5.13)	3.83 (4.40)	
Physical activity (min/week)	522.92 (507.29)	519.16 (535.59)	
Alcohol use (AUDIT)	4.54 (4.42)	5.54 (5.63)	*
Smoking status	1.96 (0.19)	1.91 (0.29)	*
Marijuana	0.05 (0.22)	0.07 (0.26)	
Social network (LSNS)	17.35 (5.36)	17.12 (5.55)	
Volunteering (hrs/wk)	5.20 (7.44)	3.98 (4.71)	
Resilience (CD-RISC)	67.39 (12.69)	69.31 (15.61)	
Mastery	22.19 (3.47)	22.40 (3.30)	
Trauma (TSQ)	1.62 (2.15)	0.54 (1.34)	**

*P<0.05, **p<0.01

Note: please see Supplementary Table 2 for more information on each outcome measure

In summary, it appears that PATH participants from the 40s cohort (aged between 59–65 years) fared relatively well during the early stages of the COVID-19 pandemic. Similar mental and physical health outcomes were reported before and during the lockdowns. These results may be because participants were surveyed early into lockdown and the detrimental impacts of extended lockdowns had not yet taken effect. Furthermore, COVID-19 case numbers in the ACT were low at the time.

Alcohol use was found to be higher during the pandemic among PATH participants. This result aligns with national survey data where 14.4% of Australians reported an increase in alcohol consumption (AIHW, 2020). Furthermore, our study observed lower suicidality in PATH participants during the pandemic. These results corroborate findings worldwide, where suicide rates in high-income countries either stayed the same or decreased during the early stage of the pandemic (Pirkis et al., 2021). Our study also found lower rates of smoking and psychological trauma during the pandemic. These health improvements may be a return to baseline following spikes driven by the earlier bushfires. It is also important to note that this sample consisted of older adults aged in their 60s and different patterns may be found in younger populations.

2.2. Correlation between COVID-19 score and health outcomes

The following analyses examined the correlation between scores on the COVID-19 questionnaire (see appendix 5.1) and health outcomes. The COVID-19 questionnaire assessed participants' thoughts, feelings and actions related to the COVID-19 pandemic. COVID-19 scores ranged from 0 to 24 and higher scores on the questionnaire indicated greater COVID-19 anxiety and personal impact of the pandemic. The distribution of scores on the COVID-19 questionnaire is negatively skewed with the majority of respondents scoring highly, as shown in Figure 2.

Figure 2. Distribution of COVID-19 scores
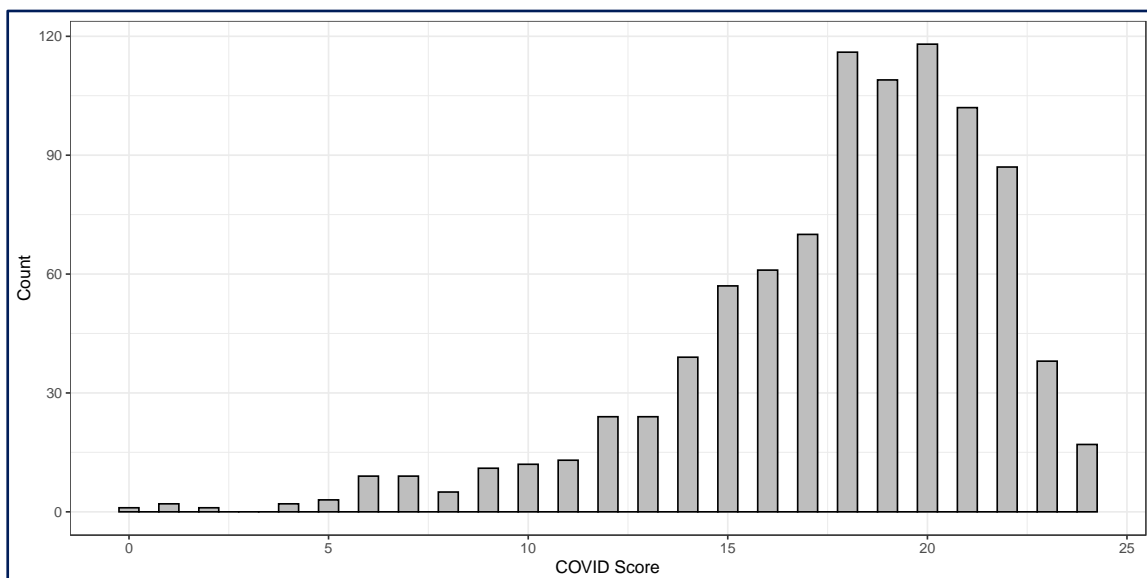
Simple linear regression was used to measure the correlation between COVID-19 impact and health outcomes. Each outcome was run as a separate model.

Higher COVID-19 questionnaire scores were correlated with worse outcomes on anxiety, depression, overall mental health, suicidality, sleep quality, physical activity and sense of mastery (see Table 2). As such, feeling more impacted by the pandemic was associated with poorer mental health outcomes. Poorer mental health may also be linked with reduced sleep quality and less time spent exercising.

No significant associations were observed between COVID-19 scores and overall physical health, substance use, social network size, volunteering, and resilience.

Table 2. Correlations between COVID-19 questionnaire score and health outcomes

Outcome Variables	Correlation (r2)	Std. error	t-statistic
Anxiety (GAS)	0.04	0.04	4.07**
Depression (GDS)	0.05	0.03	4.27**
Depression (PHQ-9)	0.04	0.05	4.03**
Mental health (MCS)	0.02	0.12	-2.73**
Suicidality	0.01	0.01	2.40*
Physical health (PCS)	0.01	0.13	-1.68
Sleep quality (ISI)	0.02	0.07	2.86**
Physical activity	0.01	8.42	-1.94*
Alcohol use (AUDIT)	0.01	0.06	-1.70
Smoking status (yes)	0.00	0.00	-0.55
Marijuana (yes)	0.00	0.00	-0.22
Social network (LSNS)	0.00	0.08	-0.15
Volunteering (hrs/wk)	0.00	0.10	-1.52
Resilience (CD-RISC)	0.01	0.18	-1.66
Mastery	0.02	0.05	-2.77*
Anxiety (GAS)	0.04	0.04	4.07**

*P<0.05, **p<0.01

2.3. Exposure to bushfires and impacts of COVID-19

People who reported being directly exposed to bushfires scored significantly higher on the COVID-19 questionnaire compared to those who did not/were indirectly exposed to the fires. As such, greater exposure to the bushfires may have exacerbated the negative impacts of the COVID-19 pandemic. This may be evidence of the cumulative impact of exposure to multiple disasters leading to greater health risks compared with exposure to a single disaster (Leppold, Gibbs, Block, Reifels, & Quinn, 2022).

Table 3. COVID-19 scores grouped by exposure to the bushfires

	Indirect/Not exposed	Directly exposed	Significance
COVID-19 score (M,SD)	17.61 (4.07)	18.44 (3.47)	**

**$p<0.01$

3. Conclusion

This report investigated the impact of the COVID-19 outbreak and the initial lockdown period in early 2020 on the health and wellbeing of a cohort of older adults (aged 59–65 years). On average, mental and physical health outcomes were not negatively affected during the early stages of the COVID-19 lockdowns. It should be noted that PATH participants were living in the ACT or surrounding regions where the pandemic case numbers were low, and respondents may not have felt the effects of the lockdown at the time of data collection early in the COVID-19 pandemic. Further investigation examining the long-term effects of the COVID-19 pandemic should be carried out.

Greater impacts of COVID-19 on participants were associated with poorer mental health outcomes. Furthermore, those with direct exposure to the 2019/20 bushfires reported greater impact of the COVID-19 pandemic compared with those who were not affected or were only indirectly affected by the fires. This suggests a cumulative effect of multiple disasters resulting from the temporal proximity of the bushfires and COVID-19.

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5. Appendix

5.1. COVID-19 questionnaire

Supplementary Table 1. *COVID-19 questionnaire*

The following questions relate to your thoughts, feelings and actions relating to the Coronavirus Disease 2019 (COVID-19) pneumonia, which is referred to below as 'Coronavirus disease'.

	Very little (0)	(1)	(2)	(3)	Very much (4)
To what extent are you concerned about Coronavirus disease?					
How likely is it that you could become infected with Coronavirus disease?					
If you did become infected with Coronavirus disease, to what extent are you concerned that you will become severely ill?					
To what extent has the threat of Coronavirus disease influenced your decisions to be around people?					
To what extent has the threat of Coronavirus disease influenced your travel plans?					
To what extent has the threat of Coronavirus disease influenced your use of safety behaviours (e.g. hand sanitiser)?					

5.2. Outcome measures

Supplementary Table 2. *Descriptions of health outcomes*

	Value range	Time period	Clinical cut-off	Cut-off definition	Scale and notes
MENTAL					
Anxiety (GAS)	0-9	Last 4 weeks	≥ 7	High probability of anxiety disorder	Goldberg Anxiety Scale
Depression (GDS)	0-9	Last 4 weeks	≥ 5	High probability of any depressive disorder	Goldberg Depression Scale
Depression (PHQ-9)	0-27	Last 2 weeks	≥ 8	Moderate depressive symptoms	Patient Health Questionnaire
Mental health (MCS)	0-100	Last 4 weeks	≤ 42	Indicative of clinical depression	Mental Health Component of the Short Form Survey (SF-12). Lower score is poorer mental health
Suicidality	0-6	Last year	n/a	n/a	Suicidal ideation section of the Columbia Suicide Severity Rating Scale
Trauma (TSQ)	0-10	Last week	≥ 6	Higher probability of trauma	Trauma Screening Questionnaire
PHYSICAL					
Physical health (PCS)	0-100	Last 4 weeks	≤ 50	Indicative of a physical condition	Physical Health Component of the Short Form Survey (SF-12). Lower score is poorer physical health
Sleep quality (ISI)	0-28	Last 2 weeks	≥ 15	Clinical insomnia (moderate severity)	Insomnia Severity Index

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	Value range	Time period	Clinical cut-off	Cut-off definition	Scale and notes
Physical activity	mins	Last 1 week	<150	0 = sedentary, <150mins = insufficient	Active Australia survey Q1-8. Score = walktime + modtime + (2 x vigtime)
SUBSTANCE USE					
Marijuana use	yes/no	Varies (year)	n/a	n/a	
Tobacco use	yes/no	Last 4 weeks	n/a	n/a	
Alcohol use (AUDIT)	0-40	Varies	≥ 16	High risk of alcohol problem	Alcohol Use Disorders Identification Test
SOCIAL HEALTH					
Social network size (LSNS)	0-30	Current	≤ 12	At risk for social isolation	Lubben Social Network Scale
Volunteering	n/a	Last 12 months	n/a	n/a	Hours spent volunteering per week
PSYCHOLOGICAL CORRELATES					
Resilience (CD-RISC)	0-100	Last 4 weeks	≤ 55	Bottom quartile in resilience	Connor-Davidson Resilience Scale
Mastery (PM)	7-28	Current	n/a	n/a	Pearlin Mastery Scale. Higher score means greater level of mastery

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