The Psychological Impact of Hypertension During COVID-19 Restrictions: Retrospective Case Control Study

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Submitted to: JMIRx Med
on: December 14, 2020

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Abstract

Background: It is unclear how people with hypertension are responding to the COVID-19 pandemic given their increased risk, and whether targeted public health strategies are needed.

Objective: This study aimed to explore differences in psychological and behavioural responses to COVID-19 restrictions between people with and without hypertension in the community.

Methods: Design: This retrospective case-control study compared people with hypertension to matched healthy controls during COVID-19 lockdown, to determine whether they have higher risk perceptions, anxiety and prevention intentions. Baseline data from a national survey were collected in April 2020 during COVID-19 lockdown. Of 4362 baseline participants, 466 people reported hypertension with no other chronic conditions, and were randomly matched to healthy controls with similar age, gender, education and health literacy. A subset (n=1369) was followed-up at 2 months after restrictions eased, including 147 participants with hypertension only. Risk perceptions, prevention intentions and anxiety were measured.

Results: At baseline, perceived seriousness was high for both hypertension and control groups. The hypertension group had higher anxiety than controls; and were more willing to have the influenza vaccine. At follow-up, these differences were no longer present in the longitudinal sub-sample. Perceived seriousness and anxiety had decreased, but vaccine intentions for both influenza and COVID-19 remained high (>80%).

Conclusions: Anxiety was above normal levels during the COVID-19 lockdown. This was higher in the hypertension group, who also had higher vaccination intentions. Locations with prolonged restrictions may require targeted mental health screening for vulnerable groups. Despite a decrease in perceived risk and anxiety after 2 months of lockdown restrictions, vaccination intentions for both influenza and COVID-19 remained high, which is encouraging for future prevention of COVID-19. Clinical Trial: N/A

(JMIR Preprints 14/12/2020:25610)
DOI: https://doi.org/10.2196/preprints.25610

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ABSTRACT

Objectives: It is unclear how people with hypertension are responding to the COVID-19 pandemic given their increased risk, and whether targeted public health strategies are needed.

Design: This retrospective case-control study compared people with hypertension to matched healthy controls during COVID-19 lockdown, to determine whether they have higher risk perceptions, anxiety and vaccine intentions.

Methods: Baseline data from a national survey were collected in April 2020 during COVID-19 lockdown in Australia. Of 4362 baseline participants, 466 people (10.7%) reported hypertension with no other chronic conditions, and were randomly matched to healthy controls with similar age, gender, education and health literacy. A subset (n=1369) was followed-up at 2 months after restrictions eased, including 147 participants with hypertension (10.7%). Risk perceptions, anxiety and vaccine intentions were measured in April and June.

Results: At baseline, perceived seriousness was high for both hypertension and control groups. The hypertension group had higher anxiety than controls; and were more willing to have the influenza vaccine but COVID vaccine intentions were similar. At follow-up, these differences were no longer present in the longitudinal sub-sample. Perceived seriousness and anxiety had decreased, but vaccine intentions for both influenza and COVID-19 remained high across groups (>80%).

Conclusions: Anxiety was above normal levels during the COVID-19 lockdown. This was higher in the hypertension group, who also had higher vaccination intentions. Groups that are more vulnerable to COVID-19 may require targeted mental health screening during periods of greater risk. Despite a decrease in perceived risk and anxiety after 2 months of lockdown restrictions, vaccination intentions remained high, which is encouraging for future prevention of COVID-19.

Keywords: Covid-19, Hypertension, Anxiety, Case-control

ACKNOWLEDGEMENTS

This study was not specifically funded, but in-kind support was provided by authors with research fellowships. The SHeLL group thanks the participants of the longitudinal COVID-19 survey for their participation in this research.

CB is supported by a National Health and Medical Research Council (NHMRC)/Heart Foundation Early Career Fellowship (#1122788).

CS is the recipient of a National Health and Medical Research Council (NHMRC) Practitioner Fellowship (#1154992).

RD is supported by a University of Sydney fellowship (#197589).

KM is supported by a National Health and Medical Research Council (NHMRC) Principal Research Fellowship (#1121110).

DATA AVAILABILITY

Data are available on reasonable request subject to ethics approval.

INTRODUCTION

Although research is constantly evolving on COVID-19 outcomes, there is consistent evidence that people with cardiovascular disease (CVD) risk factors are more likely to experience severe complications, and are more likely to die if they acquire COVID-19[1]. People with CVD are more likely to have risk factors that may complicate the response to COVID-19, and COVID-19 can itself cause cardiovascular damage[2]. Early in the pandemic there was prominent media about the risk of hypertension in particular, and there were concerns that people with CVD risk factors were not presenting to GPs and hospitals for management and new symptoms due to fear of contracting COVID-19[3,4]. People with CVD risk factors or established CVD can access prescriptions via telehealth in Australia, but this was very new at the time of the study[5]. As well as potential access issues, many people with chronic conditions do not believe they are at increased risk, which may affect their uptake of prevention measures[6]. This may be reinforced by beliefs based on misinformation about the severity of COVID-19, spread as part of anti-vaccination movements[7].

As well as concern about increased risk for this population, there has been debate in the medical community about whether common medications used to manage risk for people with CVD, hypertension and diabetes contribute to worse COVID-19 outcomes[8,9]. At the time of this study there was insufficient evidence to cease their use, prompting the National Heart Foundation to release a statement confirming this[10]. However, there continues to be research on the role of ACE inhibitors and angiotensin II type I receptor blockers (ARBs), with arguments both for and against the continued use of such medications[11,12] during the COVID-19 pandemic in different population groups.

There has also been debate about the respiratory versus cardiovascular nature of COVID-19.

Emerging research suggests that virus complications and their treatment could be regarded as cardiovascular in nature[13,14], which may explain the devastating outcomes experienced by some people who contract the virus. It is unclear what this means for managing people with multiple CVD risk factors associated with worse COVID-19 outcomes (e.g. hypertension and diabetes)[8]. Initial concerns promoted in national media included both respiratory conditions such as asthma[15], and cardiovascular conditions including hypertension[16], early in the Australian pandemic response.

As a result of this evolving and conflicting research, as well as widespread misinformation, people with hypertension in the community may have received mixed messages in the media about how they should manage both CVD risk and COVID-19 risk during the pandemic. It is unknown whether people with hypertension responded differently to the pandemic and associated restrictions compared to the general population, and whether a tailored communication approach is needed to address the needs of this group.

This study investigated whether people with hypertension have higher risk perceptions, anxiety and prevention intentions during COVID-19 restrictions, to inform targeted public health messaging for this group.

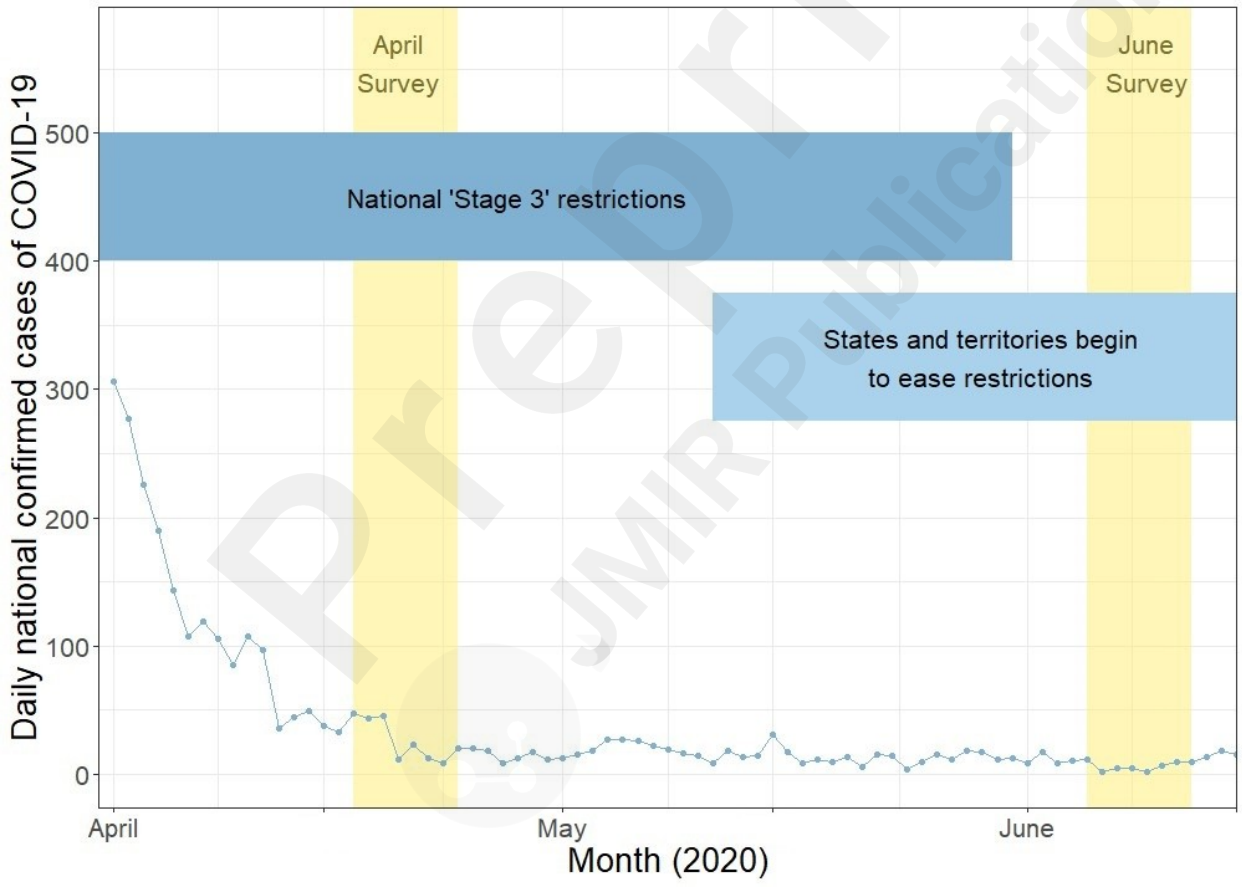
METHODS

Setting

In Australia, the COVID-19 pandemic has been well controlled compared to many other countries around the world. However, in April 2020 cases and community transmissions were rising exponentially and the country was placed under lockdown restrictions, including closing schools and workplaces and restricting gatherings and movement. Citizens were required to stay home except for

essential purposes (e.g. work, essential shopping, exercise). In June 2020 cases were under control and many regulations were eased, although some restrictions remained such as small gathering sizes, which varied from state to state. A second wave occurred in the state of Victoria shortly after this, requiring new restrictions such as mandatory masks and curfews, but our data were collected before this. Thus the comparison of April and June data presents an opportunity to look at the effect of a short-term lockdown between a time of strong COVID-19 restrictions and good control. See Figure 1.

Figure 1. COVID-19 in Australia during study period



Data collection

Data from a national Australian survey were used to conduct the retrospective case-control analyses comparing hypertension and control groups. Baseline data were collected from all states/territories in April 2020 during COVID-19 lockdown, with a subsample followed-up in June 2020 when restrictions eased. Of 4362 baseline participants, 466 reported hypertension with no other chronic conditions (10.7%). A subset of 1369 participants from the original survey cohort were followed-up after 2 months, including 147 participants with hypertension only (10.7%). Ethics approval was obtained from the University of Sydney Human Research Ethics Committee (#2020/212).

Measures

The survey measures and full sample results are reported elsewhere[17,18], including the Health Literacy single item screener[19], CHAI patient activation measure[20], and State-Trait Anxiety Inventory (STAI)[21]. Participants were asked if they had any of the following conditions: asthma, COPD (chronic obstructive pulmonary disease), high blood pressure (hypertension), cancer, heart disease, stroke, diabetes, depression, anxiety; and whether they take any prescription medication (not specified). The single-item screener provides a brief measure of health literacy, the skills needed to engage in health; the CHAI provides a measure of patient activation, the extent that a person actively involves themselves in decisions to manage one's health[20]. Risk perceptions and prevention behaviours (including vaccine intentions) were measured using Likert and categorical scales (Table 1). Items pertaining to risk perception were based on items developed for an earlier US COVID-19 study; individual items are shown in Table 2. The perceived seriousness of threat from COVID-19 was captured using a 10-point scale (1 = no threat at all; 10: very serious public health threat). The social distancing score reflects perceived importance of social distancing. This outcome is based on four items, each answered using a 7-point Likert scale. The items were adapted from existing vaccine attitude instruments to instead reflect on social distancing (Social distancing is important for my

family's health; Social distancing is important for the health of others in my community; When everyone else is socially distancing, I don't need to; I socially distance to protect people with a weaker immune system). Perceived seriousness was asked generally at baseline, but at follow-up participants were asked about the public health risk generally from COVID-19, globally and in Australia specifically, given the divergent pattern of control across countries.

Matching procedure

Individuals with hypertension and no other comorbidities (n=466) were retrospectively matched without replacement to healthy controls (with no comorbidities; n=2251) using the *calipmatch* function in Stata[22]. For each case, potential controls were initially identified based on age (±3 years) and exactly matching on gender, education, and health literacy adequacy (selected given observed differences as a function of these variables in COVID-19 related knowledge, attitudes, awareness and behaviours in our baseline survey[17]). One matching control is then randomly selected for the case and removed from the list of available controls for subsequent cases. Because the search strategy for controls is greedy (i.e., selecting cases for matching in random order, and removing controls without replacement for subsequent case matching), some cases may be left unmatched. The initial matching run resulted in 95.7% of cases (446/466) successfully matched to a control. The constraints for matching were iteratively relaxed (e.g., allowing age to vary by ±10 years; education level to differ by one category) until all remaining cases were paired to a control. The matching procedure was repeated for the follow-up sample.

Analysis

Analyses were conducted using Stata/IC v16.1 (StataCorp, College Station, TX, USA). Pairwise comparisons of baseline demographic characteristics were undertaken to confirm the appropriateness of the matching procedure of cases to controls, and to identify potential differences in demographic

characteristics between those who were invited and returned for follow-up compared to those who were not followed-up. Regression models with robust error variances to account for clustering within pairs, and adjusted for matching variables (age, gender, education, and health literacy adequacy) were used to analyse outcome variables. Linear models were used for continuous outcomes (risk perceptions, STAI anxiety, perceived importance of social distancing) to estimate marginal mean differences (MMD); generalised linear models with a modified Poisson approach[23] were used for the dichotomous outcome (not feeling stressed due to COVID-19) generating adjusted prevalence ratios (aPR); and ordinal logistic regression models for ordered categorical outcomes (frequency leaving home, vaccination intentions) resulting in adjusted odds ratios (aOR). Separate models were conducted for each time point. All estimates are provided with 95% confidence intervals. A P-value of .05 was used as the threshold for statistical significance.

RESULTS

Table 1 describes the case versus control samples for all baseline outcomes, and Table 2 shows details of the regression models comparing the two groups at this timepoint. Table 3 provides a description of cases and controls included in the follow-up sample, with Table 4 detailing the outcome of the regression models at follow-up.

Description of sample

The hypertension sample included 466 people reporting only high blood pressure and no other chronic health conditions, to isolate effects of hypertension. The average age was 54 years [SD 15.5], with 52% female, 47% male and 1% unspecified. The majority had a university degree (61%) and adequate health literacy (92%). The average patient activation score was comparable to other patient populations (mean scaled CHAI 74.9). Most were taking anti-hypertensive medications (77%), with

45% obtaining a refill during lockdown, 5% switching to a longer prescription, and only 1 person stopping medication. As seen in Table 1, the sample descriptive characteristics were comparable between individuals with hypertension and matched controls. There was no statistical difference on age (p=0.33), gender (p=1.0), education (p=0.97), or health literacy adequacy (p=0.63) between cases and controls. Cases who were invited and returned for follow-up were similar for age and gender, but had higher levels of education (p=0.023), and were more likely to have adequate health literacy (p=0.009) than those who were not followed-up.

Risk perceptions

At baseline the perceived seriousness of threat from COVID-19 in the hypertension group was high (mean 7.72/10), but similar to controls (7.66/10). On average the hypertension sample thought that 7% of people who get COVID-19 would die as a result, and 63% would only experience mild symptoms (asked separately). There were no statistically significant differences between the hypertension group and matched controls at baseline. At follow-up, those with hypertension perceived a greater threat (6.12/10) than controls (5.52/10) when asked about Australia [marginal mean difference MMD: 0.60, 95%CI: 0.05 to 1.15; p=0.032] but not generally/globally.

Anxiety

At baseline, 76% of the hypertension group had felt nervous or stressed about COVID-19 in the past week at least some of the time. On average the mean STAI was 1.90 units higher [95%CI: 0.19 to 3.61, p=0.03, Cohen's d=0.13] for those with hypertension (40.75) than matched controls (38.85). At follow-up there was no longer a significant difference between the hypertension (37.02) and control (36.08) groups [MMD: 0.94, 95%CI: -2.57 to 4.45; p=0.60, Cohen's d=0.06].

Prevention behaviours

At baseline the hypertension group had a social distancing score of 6.48/7 indicating strong agreement with the importance of social distancing for ones' own health and the health of the public; which was similar to controls (6.42/10). Most people were leaving home a few times a week (38%) or once a day (33%) during lockdown. Overall, 83% agreed they would get the influenza vaccine and 87% would get the COVID-19 vaccine. Compared to healthy matched controls, the hypertension group was more likely to agree that they would (or have already) received the influenza vaccine this year [adjusted odds ratio aOR: 1.52, 95%CI: 1.10 to 2.11, p=0.01]. There were no significant differences in willingness to vaccinate for COVID-19 (if it became available), perceived importance of social distancing, or frequency of leaving the house. At follow-up there was no longer a significant difference between the hypertension and control groups for influenza vaccination intentions [aOR: 1.90, 95%CI: 0.93, 3.90, p = 0.08], with intentions remaining high for both influenza and COVID-19 vaccination (>80% for both groups).

Table 1. Baseline descriptive statistics and unadjusted outcomes for hypertension cases versus matched healthy controls. Data are displayed as n (%) unless otherwise specified.

	Hypertension (n=466)	Control (n=466)
Sample description		
Age (years), mean (SD)	53.5 (15.5)	52.5 (15.3)
Age group		
18 to 25 years	26 (6%)	34 (7%)
26 to 40 years	83 (18%)	78 (17%)
41 to 55 years	105 (23%)	117 (25%)
56 to 90 years	252 (54%)	237 (51%)
Gender		
Male	220 (47%)	220 (47%)
Female	243 (52%)	243 (52%)
Not specified / other	3 (1%)	3 (1%)
Education		
High school or less	115 (25%)	112 (24%)
Certificate I-IV	69 (15%)	69 (15%)
University	282 (61%)	285 (61%)
Adequate health literacy^	427 (92%)	431 (92%)
Do you take any prescription medicine?	359 (77%)	195 (42%)
Consumer Health Activation Index (CHAI), mean (SD) [score 0-100 where 100 is more active]	75.83 (14.19)	77.17 (12.77)
Risk perception		
Seriousness of threat, mean (SD) [0(low)-10 (high)]	7.72 (2.25)	7.66 (2.18)
What percentage of people who get COVID-19 will die as a result? mean (SD) [open]	6.50 (13.49)	5.72 (12.45)
What percentage of people who get COVID-19 will experience only mild symptoms? mean (SD) [open]	62.88 (26.36)	62.37 (27.12)
Anxiety		
STAI, mean (SD) [score range 20-80; normal 34-36]	40.62 (14.95)	38.98 (14.38)
Never (in the past week) felt nervous or "stressed" because of COVID-19 [categorical]	113 (24%)	115 (25%)
Prevention behaviours		
Perceived importance of social distancing, mean (SD) [average of 4 items from 1-7, where 7 is more important]	6.48 (0.74)	6.42 (0.82)
How often are you leaving home?		
Less than once per week	45 (10%)	42 (9%)
Once per week	53 (11%)	53 (11%)
A few times per week	176 (38%)	150 (32%)
Once per day	154 (33%)	176 (38%)
Multiple times per day	38 (8%)	45 (10%)
I have or I will get the flu vaccine this year		
Strongly Disagree/Disagree	50 (11%)	72 (15%)
Neither agree nor disagree	30 (6%)	39 (8%)

Strongly Agree/Agree	386 (83%)	355 (76%)
If a COVID-19 vaccine becomes available, I will get it		
Strongly Disagree/Disagree	17 (4%)	29 (6%)
Neither agree nor disagree	45 (10%)	42 (9%)
Strongly Agree/Agree	404 (87%)	395 (85%)

^ based on single-item health literacy screener

Note: people reporting high blood pressure and no other conditions were matched to healthy controls with no reported cardiovascular or respiratory conditions.

Table 2. Multivariable* regression model estimates comparing hypertension cases (n=466) versus matched healthy controls (n=466) at baseline.

	Estimate (95% CI)	p-value
Risk perception		
Seriousness of threat [MMD]	0.05 (-0.23, 0.34)	0.71
What percentage of people who get COVID-19 will die as a result? [MMD]	0.75 (-0.87, 2.37)	0.36
What percentage of people who get COVID-19 will experience only mild symptoms? [MMD]	0.71 (-2.77, 4.18)	0.69
Anxiety		
STAI [MMD]	1.90 (0.19, 3.61)	0.03
Never (in the past week) felt nervous or "stressed" because of COVID-19? [aPR]	0.96 (0.77, 1.19)	0.69
Prevention behaviours		
Perceived importance of social distancing [MMD]	0.06 (-0.04, 0.17)	0.21
How often leaving home?^ [adjusted odds ratio [aOR]	0.84 (0.66, 1.06)	0.14
I have or I will get the flu vaccine this year^ [aOR]	1.52 (1.10, 2.11)	0.01
If a COVID-19 vaccine becomes available, I will get it^ [aOR]	1.21 (0.84, 1.73)	0.31

***** all multivariable models controlled for age (in years), gender, health literacy adequacy, and education; MMD: marginal mean difference (from linear regression model); aPR: adjusted prevalence ratio (from generalised linear model using a modified Poisson approach); aOR: adjusted odds ratio (from ordinal logistic regression).

Table 3. Follow-up descriptive statistics and unadjusted outcomes for hypertension cases versus matched healthy controls. Data are displayed as n (%) unless otherwise specified.

	Hypertension (n=147)	Control (n=147)
Sample description[#]		
Age (years), mean (SD)	54.8 (14.9)	52.8 (14.2)
Age group		
18 to 25 years	7 (5%)	8 (5%)
26 to 40 years	22 (15%)	22 (15%)
41 to 55 years	36 (24%)	45 (31%)
56 to 90 years	82 (56%)	72 (49%)
Gender		
Male	61 (41%)	61 (41%)
Female	85 (58%)	85 (58%)
Not specified / other	1 (1%)	1 (1%)
Education		
High school or less	26 (18%)	18 (12%)
Certificate I-IV	19 (13%)	21 (14%)
University	102 (69%)	108 (73%)
Adequate health literacy^	142 (97%)	143 (97%)
Do you take any prescription medicine?	114 (78%)	56 (38%)
Consumer Health Activation Index (CHAI), mean (SD) [score 0-100 where 100 is more active]	75.48 (14.32)	77.10 (12.95)
Risk perception		
Seriousness of threat in general, mean (SD) [0(low)-10 (high)]	7.51 (2.42)	7.03 (2.58)
Seriousness of threat globally, mean (SD) [0(low)-10 (high)]	8.74 (1.76)	8.65 (1.81)
Seriousness of threat in Australia, mean (SD) [0(low)-10 (high)]	6.14 (2.38)	5.50 (2.49)
Anxiety		
STAI, mean (SD) [score range 20-80; normal 34-36]	36.94 (15.31)	36.49 (13.93)
Never (in the past week) felt nervous or "stressed" because of COVID-19 [categorical]	58 (39%)	64 (44%)
Prevention behaviours		
Perceived importance of social distancing, mean (SD) [average of 4 items from 1-7, where 7 is more important]	6.49 (0.78)	6.34 (0.90)
I have or I will get the flu vaccine this year		
Strongly Disagree/Disagree	13 (9%)	24 (16%)
Neither agree nor disagree	2 (1%)	2 (1%)
Strongly Agree/Agree	132 (90%)	121 (82%)
If a COVID-19 vaccine becomes available, I will get it		
Strongly Disagree/Disagree	7 (5%)	13 (9%)
Neither agree nor disagree	9 (6%)	10 (7%)
Strongly Agree/Agree	131 (89%)	124 (84%)

[#] as measured at baseline; ^ based on single-item health literacy screener.
Note: people reporting high blood pressure and no other conditions were matched to healthy controls with no reported cardiovascular or respiratory conditions.

Table 4. Multivariable* regression model estimates comparing hypertension cases (n=147) versus matched healthy controls (n=147) at follow-up.

	Estimate (95% CI)	p-value
Risk perception		
Seriousness of threat in general [MMD]	0.50 (-0.08, 1.08)	0.09
Seriousness of threat globally [MMD]	0.07 (-0.31, 0.46)	0.71
Seriousness of threat in Australia [MMD]	0.60 (0.05, 1.15)	0.032
Anxiety		
STAI [MMD]	0.94 (-2.57, 4.45)	0.60
Never (in the past week) felt nervous or "stressed" because of COVID-19? [aPR]	1.03 (0.94, 1.12)	0.55
Prevention behaviours		
Perceived important of social distancing [MMD]	0.16 (-0.03, 0.35)	0.11
I have or I will get the flu vaccine this year [aOR]	1.90 (0.93, 3.90)	0.08
If a COVID-19 vaccine becomes available, I will get it [aOR]	1.72 (0.82, 3.58)	0.15

***** all multivariable models controlled for age (in years), gender, health literacy adequacy, and education; MMD: marginal mean difference (from linear regression model); aPR: adjusted prevalence ratio (from generalised linear model using a modified Poisson approach); aOR: adjusted odds ratio (from ordinal logistic regression).

DISCUSSION

The main difference observed in this study was anxiety, with a significant difference between hypertension only and matched controls, and all groups reporting higher than 'normal' levels. This is consistent with the Australian Bureau of Statistics finding that anxiety in the general population was double the rate in April 2020 compared to a survey in 2017-18[24]. Prioritising mental health screening for more vulnerable clinical groups with higher anxiety may be warranted, when local community transmission rates are high.

Overall, there were few differences between people with hypertension and healthy matched controls. No significant differences were found for COVID-19 risk perceptions, or perceived importance of social distancing behaviours. This is consistent with another study finding 20% of people with chronic conditions did not perceive greater risk[6], but differs from other survey reports that people with different chronic conditions are more likely to engage in COVID-19 prevention behaviours and perceive COVID-19 as a serious threat [18,25] . This may be due to the hypertension population itself being more similar to the general population, or it may be a result of our method of matching cases to controls rather than comparing groups without such adjustment. Another Australian survey found similarly high risk perceptions, so there may also be a ceiling effect in Australia across community groups[26].

There was a difference in response to the flu vaccine, where those with hypertension were more likely to intend to take this up compared to healthy controls. It is possible this is due to greater exposure to the health system where doctors may mention the flu vaccine each year. This difference does not appear to transfer to higher uptake of COVID-19 vaccine intentions, but this may be due to

a ceiling effect with high acceptance rates in Australia[27] compared to other countries such as France[28]. It should be noted that vaccine acceptance rates are changing over time as new information (and misinformation) becomes available about the varying vaccines[29] now being used around the world. No COVID-19 vaccinations were available to Australians at the time of the study in 2020.

Differences in medication use were found between groups but this was to be expected given preventive medication is recommended for hypertension. We were surprised to find no differences in access difficulties or changes to medication. The ABS reported in April 2020 that almost half (47%) of respondents with a chronic condition had used telehealth[24], including electronic prescriptions; this was not a focus of our survey but may explain why little change was detected.

Strengths & limitations

The strengths of this study include a large national sample with data during and after lockdown restrictions, that enabled matched case-control analyses between participants with self-reported hypertension and healthy controls and the use of established well validated measures.

The sample was recruited via an online research panel and social media, and has a low proportion of culturally and linguistically diverse participants; so different results may be found in these populations. We are currently conducting a separate survey of these communities in their preferred language. The survey involved non-stratified sampling without targeted recruitment of specific health conditions, and only a subset were included in the longitudinal sub-study. Future research could explore the influence of multimorbidity, and differences between social media users and other community members given misinformation concerns in Australia[30].

Conclusion

Anxiety was above normal levels for all groups during the COVID-19 lockdown. This was higher

amongst people with hypertension, who also had higher influenza vaccination intentions but similar COVID-19 vaccination intentions. In Australia, where lockdown effectively reduced the spread of COVID-19 and restrictions eased relatively quickly, these differences dissipated after 2 months, but locations with prolonged restrictions may require targeted psychological screening for vulnerable groups. Despite a decrease in perceived seriousness and anxiety after 2 months of lockdown restrictions, vaccination intentions for both influenza and COVID-19 remained high (80%), which is encouraging for future prevention of COVID-19.

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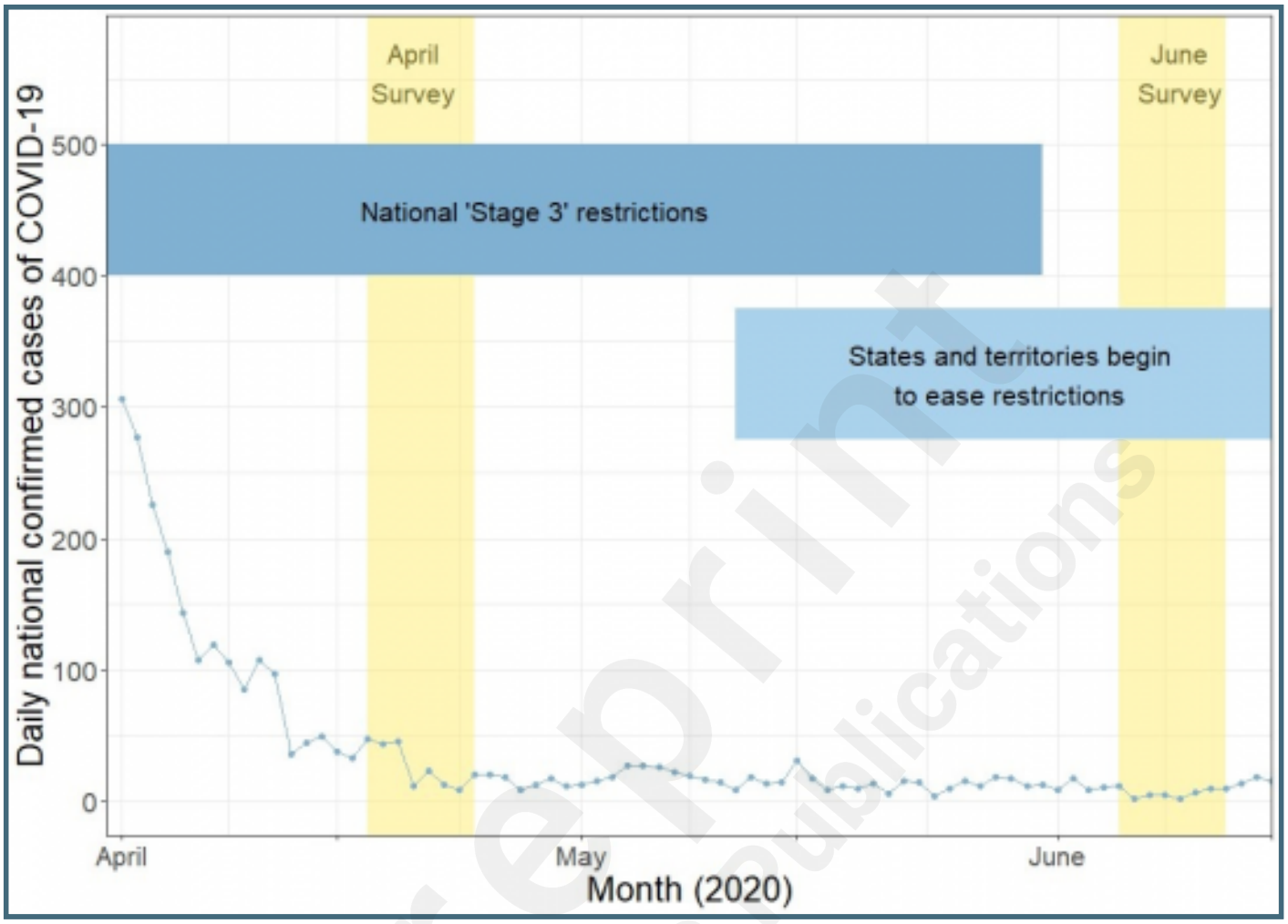
Supplementary Files

Figures

COVID-19 in Australia during study period.



Related publication(s) - for reviewers eyes onlies

Response to points with additional analysis paper (not in manuscript).
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