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Rapid report 2: Symptoms of anxiety and depression during the first 12 weeks of the Coronavirus (COVID-19) pandemic in Australia

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ABSTRACT

Background: The MindSpot Clinic, funded by the Australian Government, is a national digital mental health service (DMHS) providing services to people experiencing anxiety and depression. We recently reported increased service use in the early weeks of the COVID-19 pandemic (19 March to 15 April 2020), and a small increase in anxiety symptoms. This follow-up paper examines trends in service use and symptoms, over 12 weeks from 19 March to 10 June 2020.

Methods: Demographics, symptoms, and psychosocial stressors were compared for participants starting an online assessment over four time-periods: A baseline "Comparison period" prior to the COVID-19 pandemic (1 to 28 September 2019), "Weeks 1–4" of the COVID-19 pandemic in Australia (19 March–15 April 2020), "Weeks 5–8" (16 April–13 May 2020) and "Weeks 9–12" (14 May–10 June). Responses to questions about the impact of COVID-19 and strategies used by participants to improve their mental wellbeing are also reported.

Results: A total of 5455 people started a mental health assessment with MindSpot from 19 March to 10 June 2020. The number of assessments per week rose steadily from 303 in week 1 to a peak of 578 in week 5. Symptoms of anxiety were highest in Weeks 1–4, declining steadily over subsequent weeks. Psychological distress and depression, as measured by the K-10 and PHQ-9 respectively, remained stable. Concern about COVID-19 was highest in the first week then steadily declined during the following weeks. The proportions of participants reporting changes to routine were consistent across the 12 weeks, and most participants reported adopting helpful strategies to improve their mental wellbeing.

Conclusions: We observed an initial increase in service use, which reduced over the 12 weeks. The initial rise in anxiety symptoms returned to baseline. Reported concern about the effect of COVID-19 declined steadily over 12 weeks. Symptoms of psychological distress and depression measured by the K-10 and PHQ-9, and the proportion reporting suicidal thoughts and plans did not change, and to date we have not identified indications of a mental health crisis. However, the long-term effects of COVID-19 on the economy and large sections of society are yet to be fully realised, indicating the importance of ongoing monitoring and reporting of trends as indicators of the mental health of the nation.

1. Introduction

To date, Australia has been comparatively successful in containing the Coronavirus (COVID-19) (Duckett and Stobart, 2020; Evershed and Nixon, 2020). However, the measures taken to prevent community transmission were extreme by the standards of liberal democracies, and included banning all social gatherings and non-essential travel and the closure of many service industries, enforced with the threat of large fines (Australian Government, 2020c). The sudden dislocation of social activity, and the consequences of closing large sections the economy were expected to be accompanied by an increase in psychological distress and mental health conditions (Asmundson and Taylor, 2020; Brooks et al., 2020; Wind et al., 2020; World Health Organization, 2020). At the same time, many face to face mental health services have had to temporarily

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Table 1
Demographic and symptom characteristics over 12 weeks of the COVID-19 pandemic in Australia.

	Baseline	Weeks 1–4	Weeks 5–8	Weeks 9–12	Significance
Demographic characteristics					
Mean age (SD), range	35.0 (13.5), 18–86	34.9 (13.6), 18–92 years	35.9 (14.3), 18–100 years	35.9 (13.9), 18–93 years	$F = 2.56$, $p = .05$
Proportion female	72.9%[a] (1203/1650)	76.9%[a,b] (1282/1668)	77.0%[b] (1613/2096)	75.2%[a,b] (1271/1690)	$\chi^2 = 10.13$, $p < .05$*
Capital city or surrounding suburbs	60.4%[a,b] (932/1544)	58.7%[b] (904/1541)	64.1%[a] (1245/1941)	60.5%[a,b] (926/1530)	$\chi^2 = 11.98$, $p < .01$**
Aboriginal or Torres Strait Islander	4.7% (55/1163)	3.3% (39/1188)	3.1% (59/1884)	2.9% (44/1521)	$\chi^2 = 7.31$, $p = .06$
University education	42.4% (654/1543)	41.2% (633/1535)	44.2% (855/1936)	42.3% (648/1531)	$\chi^2 = 3.17$, $p = .37$
Employed full or part time	60.8%[a] (939/1544)	52.8%[b] (811/1536)	55.8%[b,c] (1081/1939)	58.5%[a,c] (895/1530)	$\chi^2 = 22.82$ $p < .001$***
Married (registered or de facto)	36.9% (568/1541)	34.7% (534/1539)	35.5% (686/1934)	35.9% (548/1526)	$\chi^2 = 1.65$, $p = .65$
Psychological symptoms					
K-10 (mean and SD)	31.2 (7.6)	31.4 (7.8)	31.0 (7.6)	30.7 (7.4)	$F = 2.16$, $p = .09$
PHQ-9 (mean and SD)	14.3 (6.2)	14.4 (6.2)	14.4 (6.2)	14.1 (6.1)	$F = 0.52$, $p = .67$
GAD-7 (mean and SD)	12.1[a,b] (5.1)	12.5[b] (5.3)	12.2[a,b] (5.3)	11.9[a] (5.2)	$F = 3.23$, $p < .05$*
Self-reported depression	69.5% (1062/1528)	69.0% (1037/1502)	69.0% (1298/1887)	69.3% (1045/1509)	$\chi^2 = 0.24$, $p = .97$
Depression < two weeks	4.0%[a] (43/1062)	6.8%[b] (71/1037)	5.9%[a,b] (76/1298)	6.2%[a,b] (65/1045)	$\chi^2 = 8.15$, $p < .05$*
Self-reported anxiety	86.2% (1317/1528)	89.3% (1341/1502)	87.1% (1644/1887)	86.9% (1311/1509)	$\chi^2 = 7.21$, $p = .07$
Anxiety < two weeks	3.0%[a] (39/1317)	5.4%[b] (73/1341)	3.0%[a] (49/1644)	3.7%[a,b] (49/1311)	$\chi^2 = 14.03$, $p < .01$**
Suicidal thoughts	30.6% (423/1383)	27.5% (367/1334)	27.8% (476/1714)	26.9% (363/1350)	$\chi^2 = 5.50$, $p = .14$
Suicidal intentions or plans	3.7% (51/1383)	2.9% (39/1334)	2.2% (38/1714)	2.1% (29/1350)	$\chi^2 = 5.88$, $p = .12$

Comparison sample from 1 to 28 September 2019.
Each superscript letter denotes a subset of group categories whose proportions do not differ significantly from each other at the .05 level.
* Significant at $p < .05$.
** Significant at $p < .01$.
*** Significant at $p < .001$.

close or attempt to provide services remotely, either online or via the phone (Australian Government, 2020c).

Many people are likely to experience higher levels of anxiety or stress in response to the COVID-19 pandemic, and there have also been several reports warning of a looming mental health crisis (Bartone et al., 2020; Ryan et al., 2020). At least two studies have used online surveys to compare symptoms of anxiety and depression in the general public during the COVID-19 with baseline estimates from before this period (Fisher et al., 2020; van Agteren et al., 2020). Both studies reported a significant increase in the proportion of respondents with clinically significant scores on standardised symptom questionnaires, although Fisher and colleagues observed that these findings may indicate a normal psychological adjustment to abnormal circumstances. Encouragingly, there is also evidence that many people have implemented effective coping strategies to maintain their physical and emotional health during the COVID-19 restrictions (Scott and Kinsella, 2020; Trzebiński et al., 2020), and unprecedented Government spending on health care, employment, and housing may have reduced the stress experienced by many Australians (Berger and Reupert, 2020; Australian Government, 2020a).

We recently reported early findings regarding service use, symptoms and concerns, for users of the MindSpot Clinic during the first four weeks of the COVID-19 pandemic in Australia (Titov et al., 2020b). MindSpot (www.mindspot.org.au) is a national digital mental health service (DMHS) funded by the Australian Department of Health to provide assessment and treatment to Australian adults with anxiety and depression (Titov et al., 2017, Titov et al., 2020a, 2020b). In our initial study we observed a significant increase in demand for services, as reflected in a near doubling of traffic to the website and call centre, and a large rise in the number of people seeking assessment. Compared to a baseline sample of data from six months prior to the pandemic, respondents in the early phase of the COVID-19 pandemic were more likely to report a recent onset of symptoms and slightly more severe symptoms of anxiety. However, no increases were found in symptoms of depression or psychological distress, or in the number reporting suicidal thoughts or plans.

The aim of this follow up paper is to report on subsequent changes in service use, symptoms and concerns of MindSpot Clinic users. Data for the current analysis is derived from consecutive users of the MindSpot Clinic in the 12-weeks from 19 March to 10 June 2020. During that period, the number of known cases in Australia grew from 693 to 7455 with 102 deaths (Australian Government, 2020b).

2. Methods

2.1. Participants and design

Assessment data and responses to questions about COVID-19 were collected for consecutive patients starting an assessment between 19 March and 10 June 2020 (n = 5454). All participants gave consent for their results to be used for quality assurance and service improvement activities. Ethical approval for collection of this data was obtained from the Macquarie University Human Research Ethics Committee (5201200912).

2.2. Measures

Demographic data were collected as previously described (Titov et al., 2017, Titov et al., 2020a, 2020b). Three validated measures were used to assess psychological symptoms: the K-10 as a measure of psychological distress (Kessler et al., 2002), the GAD-7 as a measure of generalized anxiety (Spitzer et al., 2006), and the PHQ-9 as a measure of depression (Kroenke et al., 2001). In addition to the standardised symptom screeners, participants were asked if they were currently experiencing any difficulties with anxiety or depression, and if these difficulties had emerged within the previous two weeks. Participants also answered questions about suicidal ideation, plans and intent (Nielssen et al., 2015). To assess changes in psychosocial stressors, participants were asked if they were experiencing current difficulties with any of the following: relationships, work or study, physical health, or finances. On 19 March 2020, several questions about the impact of COVID-19 were added to the MindSpot assessment, and on 30 April further questions were added about helpful strategies to use during the COVID-19 crisis.

2.3. Analyses

ANOVA and chi-square statistics were used to compare demographics, stressors, and symptoms over four time-periods: A baseline "Comparison period" (1 to 28 September 2019), "Weeks 1–4" of the

Table 2
Changes in reported psychosocial stressors over time and by age group.

	Comparison sample	Weeks 1–4	Weeks 5–8	Weeks 9–12	Significance
Stressful relationships with friends or family					
18–29 years	56.7%[a,b] (408/720)	60.9%[b] (453/744)	59.7%[a,b] (520/871)	53.6%[a] (376/701)	$\chi^2 = 9.55$, $p < .05$*
30–54 years	53.6% (403/752)	47.0% (344/732)	48.6% (469/966)	50.4% (389/772)	$\chi^2 = 7.34$, $p = .06$
55 years and over	39.3% (70/178)	42.7% (82/192)	37.5% (97/259)	39.2% (85/217)	$\chi^2 = 1.29$, $p = .73$
Total	**53.4% (881/1650)**	**52.7% (879/1668)**	**51.8% (1086/2096)**	**50.3% (850/1690)**	**$\chi^2 = 3.60$, $p = .31$**
Work, study, or vocational stress					
18–29 years	54.6% (393/720)	52.6% (391/744)	53.2% (463/871)	54.6% (383/701)	$\chi^2 = 0.97$, $p = .81$
30–54 years	47.1% (354/752)	43.3% (317/732)	43.1% (416/966)	44.7% (345/772)	$\chi^2 = 3.26$, $p = .35$
55 years and over	24.7% (44/178)	20.8% (40/192)	23.6% (61/259)	30.9% (67/217)	$\chi^2 = 6.06$, $p < .11$
Total	**47.9% (791/1650)**	**44.8% (748/1668)**	**44.8% (940/2096)**	**47.0% (795/1690)**	**$\chi^2 = 5.23$, $p = .16$**
Concern regarding physical health					
18–29 years	36.7% (264/720)	33.9% (252/744)	33.4% (291/871)	34.0% (238/701)	$\chi^2 = 2.17$, $p = .54$
30–54 years	38.3% (288/752)	35.7% (261/732)	36.1% (349/966)	34.1% (263/772)	$\chi^2 = 3.02$, $p = .39$
55 years and over	38.8% (69/178)	38.5% (74/192)	44.8% (116/259)	37.3% (81/217)	$\chi^2 = 3.39$, $p = .34$
Total	**37.6% (621/1650)**	**35.2% (587/1668)**	**36.1% (756/2096)**	**34.4% (582/1690)**	**$\chi^2 = 4.11$, $p = .25$**
Financial stress					
18–29 years	25.1%[a] (181/720)	22.6%[a,b] (168/744)	19.9%[a,b] (173/871)	18.5%[b] (130/701)	$\chi^2 = 11.18$, $p < .05$*
30–54 years	28.1%[a] (211/752)	28.4%[a] (208/732)	20.7%[b] (200/966)	22.5%[a,b] (174/772)	$\chi^2 = 20.26$, $p < .001$***
55 years and over	22.5% (40/178)	17.7% (34/192)	19.3% (50/259)	18.4% (40/217)	$\chi^2 = 1.56$, $p = .67$
Total	**26.2% (432/1650)**	**24.6% (410/1668)**	**20.2% (423/2096)**	**20.4% (344/1690)**	**$\chi^2 = 27.67$, $p < .001$***

Comparison sample from 1 to 28 September 2019.
Each superscript letter denotes a subset of group categories whose proportions do not differ significantly from each other at the .05 level.
* Significant at $p < .05$.
** Significant at $p < .01$.
*** Significant at $p < .001$.

COVID-19 pandemic (19 March–15 April 2020), "Weeks 5–8" (16 April–13 May 2020) and "Weeks 9–12" (14 May–10 June). A significance level of .05 was used for all tests. The period of September 2019 was selected as the comparison period as it represented a typical patient cohort (Titov et al., 2020a, 2020b), and avoided the period immediately prior to March 2020 during which Australia experienced a severe bushfire crisis.

3. Results

3.1. Service use

Over the COVID-19 period, the mean number of assessments per week was 455, a 16.7% increase on the average for the previous year of 390 per week. The number of people starting an assessment reached a peak of 578 at Week 5. By Weeks 10–12 this number remained 11.2% above the average for the previous year.

3.2. Demographic characteristics and psychological symptoms

Table 1 compares the demographic characteristics and psychological symptoms of people starting an assessment across the four time periods. We observed that the proportion of females starting an assessment has been higher during COVID-19 compared to the baseline, with a peak in the mid-period of COVID-19. There was an increase in the proportion of people from capital cities in Weeks 5–8 that returned to baseline in Weeks 9–12. Levels of reported employment dropped to 52.8% in Weeks 1–4, but returned toward baseline to 55.8% in Weeks 5–8 and 58.5% in Weeks 9–12. There were no group differences in mean symptom scores on the K-10 or the PHQ-9. There was a small but significant increase in GAD-7 scores in weeks 1–4, but this returned to baseline in subsequent weeks. There was an increase in reported anxiety and depression emerging within the previous two weeks. The proportions reporting suicidal thoughts or plans have not changed significantly over the time periods.

3.3. Psychosocial stressors

Changes in reported psychosocial stressors varied over time by age group (Table 2). Relationship stress was highest in the 18–29-year-old group, however declined significantly over the time periods from 60.9% in Weeks 1–4, to 59.7% in Weeks 5–8, and 53.6% in Weeks 9–12. Financial stress was highest for the 30–54-year-old age group, and also declined from 28.4% in Weeks 1–4 to 20.7% in Weeks 5–8 and 22.5% in Weeks 9–12. Vocational stress was lowest for respondents aged 55 years and over, although their reported levels of vocational distress did increase significantly from 20.8% in Weeks 1–4 to 30.9% by weeks 9–12. About a third of all age groups reported concerns about physical health, with no significant differences between the time periods.

3.4. Concern about and impact of COVID-19

Table 3 shows responses to questions about personal contact with COVID-19, the degree of concern about COVID-19, and the degree of changes to routine made to adjust to the impact of the pandemic. Extreme and moderate levels of concern declined over the 12 weeks, as did the proportion reporting moderate or significant changes to routine. From Week 6 onwards, an additional question was asked about strategies that participants have found helpful during the COVID-19 pandemic (Table 4). Of the 2408 that provided a response, only 459 (19.1%) reported that nothing had been helpful. The most commonly endorsed strategy was maintaining social connections (42.5%).

4. Discussion

The current study reports on service demand, psychosocial stressors, and symptoms of anxiety and depression during the first 12 weeks of the Coronavirus (COVID-19) pandemic in Australia. We observed a notable increase in the number of people seeking services during this period. For several years prior to the COVID-19 pandemic, the number of people starting an assessment at MindSpot remained consistently around 390 per week (Titov et al., 2020a, 2020b). However, during the twelve weeks of the pandemic reported here, an average of 455 assessments were started per week. During these twelve weeks, we have also seen a

Table 3
Response to COVID-19 specific questions.

	Weeks 1–4	Weeks 5–8	Weeks 9–12	Significance
Have you or has anyone you know been diagnosed with COVID-19?				
No	97.1% (1427/1469)	95.8% (1809/1888)	96.8% (1444/1492)	$\chi^2 = 0.18$, p = .68
Yes, myself	<0.1% (1/1469)	0.0% (0/1888)	0.2% (3/1492)	
Yes, someone I know	2.8% (41/1469)	4.2% (79/1888)	3.0% (45/1492)	
Overall, how concerned are you about COVID-19?				
Not at all concerned	6.2% (91/1471)	14.1% (266/1887)	17.3% (259/1493)	$\chi^2 = 244.86$, p < .001***
Slightly concerned	29.9% (440/1471)	38.4% (725/1887)	44.0% (657/1493)	
Moderately concerned	42.8% (630/1471)	37.4% (705/1887)	31.2% (466/1493)	
Extremely concerned	21.1% (310/1471)	10.1% (191/1887)	7.4% (111/1493)	
Have you had to make any changes to help you to manage the impact of COVID-19?				
No changes	12.9% (189/1463)	9.5% (179/1884)	11.4% (170/1497)	$\chi^2 = 19.24$, p < .001***
Slight changes	23.9% (349/1463)	28.9% (545/1884)	35.7% (535/1497)	
Moderate changes	34.2% (500/1463)	33.7% (635/1884)	30.7% (459/1497)	
Significant changes	29.0% (425/1463)	27.9% (525/1884)	22.2% (333/1497)	

*** Significant at p < .001.

Table 4
Reported use of helpful strategies implemented in response to the COVID-19 pandemic.

	N = 2408
Maintaining social connections online or via the telephone	42.5% (1024)
Establishing new routines, goals, or plans	37.4% (901)
Limiting exposure to news or social media	36.1% (870)
Maintaining good health by staying physically active	31.8% (765)
Following practical and recommended advice from the government	29.2% (704)
Other	1.6% (39)
None of these	19.1% (459)

Question introduced in Week 6 of the current analysis. Respondents could choose multiple responses, except when "none of these" was indicated.

steady decline in the reported concern about the effects of COVID-19, and no change in the overall severity of psychological distress, depression, or suicidal thoughts or plans. A small but significant increase in anxiety symptoms was observed in early weeks, but this also returned to the long-term average. The reported use of strategies to stay resilient was high, with over 80% of our sample implementing adaptive methods to cope with the pandemic and associated restrictions, particularly methods focused on maintaining social connections. These findings suggest a normal reaction to an abnormal situation (Fisher et al., 2020; Scott and Kinsella, 2020; Trzebiński et al., 2020).

The impact of COVID-19 on mental health service delivery in Australia has been profound. Many face to face mental health services have had to temporarily close or to transition to telehealth using telephone or video conferencing, with funding from the Australian Government (Australian Government, 2020a). Digital mental health services such as MindSpot have been in the unique position of being able to continue operations at a time when traditional face to face services were disrupted. Compared to traditional face to face services, digital services have also been more able to adapt assessments, manage volume, and report outcomes, highlighting the role of such services in future mental health systems (Titov et al., 2018). As COVID-19 continues to impact service delivery in Australia and world-wide, digital mental health services have an increasingly important role in contemporary mental health care frameworks, and we suggest that existing mental health services should continue to receive support to deliver both face-to-face and digital mental health care. Engagement with patients, policy makers, and other stakeholders during the development and implementation of these services would ensure that services are not only effective but also acceptable (Titov et al., 2020a, 2020b).

A limitation of the study is that participants mostly reported having long term problems with anxiety and depression and as such reported high baseline symptoms. It is also acknowledged that the data collected by MindSpot may not reflect the experience of other mental health services, particularly those in regions that have been more severely impacted by COVID-19, and we encourage other providers to share their results. A key strength of the study is the ongoing collection and reporting of symptom levels in large and consecutive samples of people from all parts of Australia during very challenging times. Results from MindSpot have been shared regularly with the Australian Government to assist with their planning and response to the impacts of COVID-19. The Australian Government, similar to other Governments, has been highly responsive to the mental health burden on the community resulting from COVID-19, providing MindSpot and other mental health services with additional funding to assist with managing the increased demand for services, and recognising that ongoing analysis and reporting of trends in symptoms and service use is imperative.

5. Conclusion

Despite an initial increase in service demand, anxiety, and concern about COVID-19 in our sample, our findings suggest a high level of resilience in the community, and do not indicate a mental health crisis. However, given the likely impact of COVID-19 on all domains of society, the longer-term mental health consequences remain to be seen.

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Access to data and manuscript review

All authors had access to the data and reviewed the final version of the manuscript.

Declaration of competing interest

N. Titov and B. Dear are authors and developers of the treatment courses used at the MindSpot Clinic but derive no personal or financial benefit from them.

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