BMJ Open

While they wait: A cross-sectional survey on wait times for mental health treatment for anxiety and depression for Australian adolescents

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2024-087342
Article Type:	Original research
Date Submitted by the Author:	10-Apr-2024
Complete List of Authors:	Subotic-Kerry, Mirjana ; Black Dog Institute, Borchard, Thomas; Black Dog Institute Parker, Belinda; ANROWS Li, Sophie H; Black Dog Institute, Choi, Jayden; Black Dog Institute Long, Emma V; Black Dog Institute Batterham, Philip; Australian National University, Centre for Mental Health Research Whitton, Alexis; University of New South Wales Gockiert, Aniela; Flourish Australia Spencer, Lucinda; Flourish Australia O'Dea, Bridianne; University of New South Wales
Keywords:	MENTAL HEALTH, Adolescents < Adolescent, Anxiety disorders < PSYCHIATRY, Depression & mood disorders < PSYCHIATRY

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Word Count: 4788

Tables: 5

While they wait: A cross-sectional survey on wait times for mental health treatment for anxiety and depression for Australian adolescents

Mirjana Subotic-Kerry[1,2]

Thomas Borchard[1]

Belinda Parker[1]

Sophie H. Li[1,2]

Jayden Choi[1,2]

Emma V. Long[1]

Philip J Batterham[3]

Alexis E. Whitton[1,2]

Aniela Gokiert[4]

Lucinda Spencer[4]

Bridianne O'Dea[1,2]

1. Black Dog Institute, University of New South Wales, Sydney, NSW, Australia
2. Faculty of Medicine and Health, University of New South Wales, Sydney, NSW, Australia
3. Centre for Mental Health Research, Research School of Population Health, Australian National University, Canberra, ACT, Australia
4. Flourish Australia, Sydney, NSW Australia

Corresponding Author:

Mirjana Subotic-Kerry

Black Dog Institute, Randwick, NSW, 2031, Australia

Telephone: +(02) 9065 9153 Email: m.subotic-kerry@blackdog.org.au

ABSTRACT

Background: Wait times are reported to impede adolescents' access to mental health treatment for anxiety and depression. However, there is limited quantitative research on current wait times for the treatment of anxiety and depression for Australian adolescents and the impact of these on young help-seekers.

Aims: This study examined Australian adolescents' experiences of wait times for the treatment of anxiety and depression, including the providers they were waiting to access, the self-reported duration and perceived acceptability of wait times, the association between these wait times and psychological distress, and the support and coping behaviours used by adolescents during this time.

Method: From April to June 2022, 375 Australian adolescents aged 13-17 years who were currently waiting, or had previously waited in the past 12 months, for mental health treatment for anxiety and depression completed an anonymous cross-sectional online survey.

Results: The mean wait time across all treatment providers was 94.1 days (SD: 69.65). Psychologists and psychiatrists were the most utilised services. Most participants felt their wait times were 'too long' and longer wait times were significantly associated with increased psychological distress. Many participants perceived their mental health to have worsened during the wait time and engaged in maladaptive and risky coping behaviours while waiting. Most participants did not receive any support from their healthcare providers during the wait time. However, self-reported treatment attendance remained high.

Conclusions: Many Australian adolescents face lengthy wait periods when trying to access mental health treatment and this period may exacerbate distress and maladaptive coping.

Keywords: Wait times; Adolescent; Mental health; Treatment; Mental Health Services

Strengths and limitations of this study

- By examining various dimensions of wait times, including duration, perceived acceptability, and impacts on mental health, the study provides a comprehensive understanding of wait times for mental health services for anxiety and depression.
- The survey used in this study was developed in consultation with young people, mental health professionals, and researchers and covered a broad spectrum of experiences regarding wait times for mental health services.
- The recruitment strategy was broad, utilising social media and partnerships with clinical services to reach youth from all states and territories within Australia.
- The cross-sectional nature of the study limits the ability to determine causal relationships between wait times and mental health outcomes.
- Participants who are more engaged or have stronger opinions about their wait times might have been more likely to participate, and we may not have captured the views of adolescents who attended their first treatment session within a short timeframe or who were satisfied with their wait time.

INTRODUCTION

Wait times for adolescent mental health services in Australia

Anxiety and depression are common mental health problems among adolescents in Australia and worldwide.[1,2] Although effective treatments exist, long wait times impede access to mental health services and are a major barrier to treatment uptake among youth.[3-5] Described as the time between initial contact and first appointment,[6] wait times for adolescent mental health treatment for anxiety and depression continue to rise due to increased demand.[7] However, wait times for mental health treatment have been found to vary across countries[4,5,8] and services.[9,10] In Australia, the lack of transparent reporting on wait times for mental healthcare makes comparisons difficult. Prior to the pandemic, the Australian public youth mental health service headspace reported an average wait of 25.5 days for psychological treatment[3] and a secret shopper study found a median wait time of 34 days for private psychologists and 41 days for private psychiatrists.[11] During the COVID-19 pandemic, 88% of surveyed Australian psychologists reported that their wait times had increased, with over half of their clients waiting more than three months for their first session.[12] While similar patterns of increased demand and long wait times for mental healthcare have been reported in the US, UK, Canada, and other countries,[4,5,8,10] the current wait times for mental health treatment in Australia and the impacts of these on adolescents are unclear.

The impact of extended wait times on youth mental health

Evidence is emerging on the potential negative consequences of extended wait times on young people's mental health and treatment uptake. In general, the wait time between referral and treatment access has been identified as a period of significant vulnerability for adolescents and their families as individuals' symptoms can be acute, but treatment has not yet begun. Prolonged wait times are associated with the premature termination of treatment,[13]

lower rates of kept appointments,[14] and increased number of missed appointments.[13,15,16] Research has also found that longer wait times are associated with symptom deterioration and diminished future help-seeking,[17] with qualitative reports of increased negative emotional and behavioural consequences and worsened psychological health.[18] Despite these potential negative impacts, there is a scarcity of quantitative data on wait times for adolescent mental health treatment in Australia.

Waiting list standards for mental health treatment

In many countries, national waiting list standards for mental health treatment have been introduced to monitor the performance of mental healthcare systems.[19] In 2016, the National Health Service (NHS) in the UK established wait list targets with 75% of referrals for psychological interventions for anxiety and depression to begin treatment within six weeks, and 95% within 18 weeks.[20,21] This performance benchmarking was found to significantly reduce wait times, with over 90% of referrals having accessed care within six weeks.[22] The NHS standards have since been updated to include a four-week wait time target for children and young people.[23] This is consistent with Norway, where the national wait time target for youth mental healthcare is 35 days.[24] A key hallmark of high performing mental health systems is the timely accessibility and availability of treatment services.[19] However, due to the lack of national benchmarking of wait times for mental health services in Australia, the overall wait times experienced by young people and the impacts of these remain unknown.

Objectives of the current study

The current study aimed to explore young people's experiences of wait times for mental health treatment for depression and anxiety in Australia. This study examined service utilisation, self-reported wait time duration, and perceived acceptability of wait times among

Australian adolescents seeking treatment for depression or anxiety. The associations between self-reported wait times and adolescents' psychological distress as well as any perceived changes in mental health experienced by young people during their wait time were also examined. Lastly, this study explored the support that young people received during their wait time, the coping behaviours that they used while they awaited care, and their self-reported treatment attendance. Based on past studies, it was hypothesised that treatment-seeking Australian adolescents with depression and anxiety would report an average wait time of at least one month for mental health treatment and services.[3,11] It was also hypothesised that longer wait times would be associated with greater levels of psychological distress. To our knowledge, this is one of the first studies to examine this aspect of mental healthcare service provision among Australian adolescents and will provide much needed insight on how to better support young people as they await care.

METHOD

Design

An online cross-sectional survey was administered between April and June 2022. The survey was written specifically for this study in consultation with young people, mental health professionals, and researchers (see Supplementary Material for a detailed description of the survey development and Appendix A for the full survey).

Ethical approval

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All

procedures involving human subjects/patients were approved by the University of New South Wales Human Research Ethics Committee (HC190382).

Sample size

The target sample size was 383 participants based on a confidence level of 95%, population size of N=97, 500,[1] and a margin of error of 5%.

Participants

Adolescents were eligible to participate if they were aged 13-17 years old, living in Australia, currently waiting to attend their first session of mental health treatment, or had previously waited (in the last 12 months) longer than one week to access their first session of mental health treatment with a mental health professional or service for symptoms of anxiety and/or depression. Adolescents were excluded if they were (i) currently waiting for a follow-up treatment session with a mental health professional or service that they had accessed previously, or (ii) currently waiting or previously waited for a treatment session that was unrelated to anxiety or depression.

Recruitment, procedure, and consent

Participants were recruited via study information published on the Black Dog Institute's website and circulated through the Institute's clinical service partners. Paid social media campaigns on Facebook, Twitter, Instagram, and LinkedIn were utilised. All study advertisements provided hyperlinks to the survey. Prior to commencing the survey, participants were presented with the Participant Information sheet and were required to pass screening questions and a 4-item Gillick Competence Test[25] to confirm eligibility and their capacity to provide informed consent. Participants who did not answer all the Gillick

Competence items correctly were ineligible to participate. Active parental consent was not obtained in the current study due to the use of a Gillick Competence measure, the anonymous nature of the survey, and the minimal risk of harm of a young person's involvement. The survey provided all participants with information on Australian help-seeking resources. All eligible participants provided consent via an online form and all participants who completed the survey received a 20AUD voucher sent via email. The Black Dog Institute's Youth Lived Experience Advisory Group were consulted on all aspects of study design and procedure.

Survey measures

Demographics

Participants were asked to report their age, gender identity, whether they identified as Aboriginal and/or Torres Strait Islander, whether they identified as Lesbian, Gay, Bisexual, Trans, Queer, Intersex, Asexual, or another diverse sexual identity (LGBTQIA+), the Australian State or Territory and postcode they were currently living in, and their educational/employment status. Postcodes were then classified as 'metropolitan' or 'non-metropolitan' according to the Australian Bureau of Statistics 2016 Australian Statistical Geography Standard.[26]

History of mental health

Participants were asked whether they had ever been formally diagnosed with depression and/or anxiety by a health professional and whether they were currently taking medication prescribed by a health professional for depression and/or anxiety.

Treatment providers, wait time duration, perceived acceptability of wait time

Participants were asked to review a list of 11 mental health treatment providers and indicate which professionals and services they were currently waiting to see for the first time (i.e., professionals and services they had been referred to, contacted, and made an appointment with). For each of the treatment providers endorsed, participants were asked to report who referred them, the length of time waited between their first contact and attending their first session (how many months, weeks, days, or I don't know/I can't remember), and their perception of the wait time ('too long', 'just right/acceptable', or 'unsure/I don't know').

Psychological distress

Psychological distress was measured by the five-item Distress Questionnaire-5 (DQ5).[27] Participants were asked to indicate the frequency with which they had experienced various thoughts, feelings, and behaviours in the past 30 days from 'never' (1) to 'always' (5). Total scores range from 5 to 25 with higher scores indicating greater psychological distress, and a threshold of ≥14 as the clinical cut-off. This scale has demonstrated high internal consistency and convergent validity,[27,28] and has been used in adolescents.[29] In the current study, the Cronbach's alpha for the DQ5 was α=.77.

Perceived changes in mental health during the wait time

Participants were asked to rate whether their feelings of sadness or worry had improved or worsened during their wait time using a 5-point Likert scale ranging from 'worse' (1) to 'no change' (3) to 'better' (5). Participants also had the option to select 'does not apply to me'.

Support from healthcare providers during the wait time

Using a 5-point Likert scale ranging from 'not at all important' (1) to 'extremely important' (5), participants were asked to rate how important it was that their healthcare

providers helped them manage their depression and anxiety while they awaited their first treatment session. Participants were then asked to rate how supported they felt by their healthcare providers while they awaited treatment using a 5-point Likert scale ranging from 'not at all supported' (1) to 'extremely supported' (5). Participants were then asked to report whether they had received any of the commonly provided resources during their wait time (e.g., follow-up session or phone call with a GP, contact from the referred professional, information brochures on mental health, and other support services). Two free response questions were asked: "Is there anything that your healthcare providers could have done to better support you during the wait time?" and "What do you think would have helped you the most during your wait time?".

Sources of personal support during the wait time

Participants were provided with a list of 17 sources of personal support and asked to rate how helpful each source was for them during the wait time. Responses were given using a 5-point Likert scale ranging from 'not at all helpful (1)' to 'extremely helpful (5)', with an additional option of 'I didn't seek/receive help from this source'. Participants were able to indicate other sources of support in a free response option.

Importance of additional support for parents/guardians during the wait time

Using a 5-point Likert scale ranging from 'not at all' (1) to 'extremely' (5), participants were asked to rate how important it was that their parents/guardians be provided with some sort of support to help their parents/guardians to cope better during the wait time.

Coping behaviours used during the wait time

Participants were asked to select from a list of 26 randomly displayed behaviours that they had used to cope during their wait time. Participants could select all that applied. For analysis, each behaviour was categorised into one of four types: maladaptive, risky, help-seeking, adaptive. A free response option was also provided so that participants could report any coping behaviours that were not listed.

Attendance at first session of mental treatment

Participants who were currently waiting to access mental health treatment were asked how likely they were to attend their first session of treatment using a 5-point Likert scale ranging from 'extremely unlikely' (1) to 'extremely likely' (5). Participants who selected unlikely or extremely unlikely were then provided with a list of 11 reasons for non-attendance and were asked to select all that applied. Participants who had previously waited in the past 12 months to access mental health treatment were asked whether they attended their first session ('yes', 'no'). Participants who reported that they did not attend were also provided with the same list of reasons for non-attendance and asked to select all that applied.

Data analyses

Data were collected using Qualtrics and then exported to SPSS version 28.0[30] for analysis. See Supplementary Material for a detailed description of data cleaning processes. Fraudulent and duplicate responses were detected by comparing participants' details (e.g., email, postcode), IP addresses, patterns and content of survey responses and participants who completed the survey faster than 40% of the average completion time for the entire sample were removed as recommended by Cobanoglu et al.[31] To determine wait time durations for treatment, the total mean days waited for each professional or service was calculated using the formula Total Months*30.437 + Total Weeks*7 + Total Days waited. Outliers were

identified and removed if the reported total days waited exceeded two and a half years. A total of four outliers were removed from the wait time analysis using these criteria. Differences in wait times between metropolitan and regional/rural areas were examined using Mann-Whitney U tests. To compare wait times against the NHS benchmarks, the total days waited were collapsed into three categories: within 6 weeks (0 to 42 days), within 18 weeks (0 to 126 days), and greater than 18 weeks (127+ days). To determine the association between wait times and psychological distress (DQ-5), zero-order correlations were conducted for those currently waiting only. Free response options were examined using principles of thematic analysis. Two independent raters (TB and EL) reviewed each response to identify common themes and any disagreements were resolved by a third rater (MS-K).

RESULTS

Participants

A total of 780 respondents were assessed for study eligibility (see Supplemental Figure 1 for the participant recruitment and study flow). The final sample consisted of 375 full completers (64.0% female, mean age: 16.04 years, SD=1.07, range: 13-17). A total of 43.7% of the final sample (*n*=164/375) were currently waiting for their first session of mental treatment and 56.3% (*n*=211/375) had previously waited, in the past 12 months, longer than one week to access their first treatment session. Over half of the sample identified as being LGBTQIA+ (*n*=207/375; 55.2%). The majority lived in metropolitan areas (*n*=264/375; 70.4%) and were secondary school students (*n*=318/375; 84.8%). More than three-quarters of participants had received a formal diagnosis of depression and/or anxiety from a health professional (*n*=292/375; 77.9%) and 46.7% (*n*=175/375) were taking prescribed medication for their mental health.

Table 1. Participant demographics (N=375)

	N	%
Gender		
Male	67	17.9
Female	240	64.0
Non-Binary	51	13.6
Different Identity	14	3.7
I'd rather not say	3	0.8
Identified as Aboriginal/Torres Strait Islander peoples		
Aboriginal peoples	31	8.3
Torres Strait Islander peoples	1	0.3
Aboriginal and Torres Strait Islander peoples	1	0.3
Identified as LGBTQIA+	207	55.2
Metropolitan location[a]	264	70.4
State or territory of residence		
Australian Capital Territory	5	1.3
New South Wales	107	28.5
Victoria	100	26.7
Queensland	82	21.9
Tasmania	22	5.9
Northern Territory	3	0.8
South Australia	29	7.7
Western Australia	27	7.2
Current education or employment status		
Secondary school	318	84.8
University	16	4.3
Apprenticeship/Trade/Full-time employment	12	3.2
Other	29	7.7
Formal diagnosis of depression and/or anxiety	292	77.9
Prescribed medication use for depression and/or anxiety	175	46.7

Note. LGBTQIA+ = Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Asexual.

Treatment providers, wait time duration and perceived acceptability of wait times

Participants utilised an average of 2.29 (SD: 1.31, range: 1-9) treatment providers. As outlined in Table 2, psychologists (*n*=272; 72.5%) and psychiatrists (*n*=160; 42.7%) were the most common treatment providers. Most participants accessing these were referred by a GP. The mean wait time across all treatment providers was 94.1 days (*SD*: 69.65, range: 5-487, Mdn: 83.85), and the average wait times for the most common treatment providers all exceeded three months. There was significant variability in wait times as demonstrated by the

standard deviation estimates ranging from less than one month (21.5 days) to more than two years (744 days). The wait time to access a psychiatrist was significantly longer for those in metropolitan areas compared to regional areas (U=1225, P=.008). All other comparisons by location did not reach significance (P= .082-.943). Across all treatment providers, most participants perceived that their wait time was “too long”.

Table 2. Treatment providers, wait time durations, and perceived acceptability of wait times among participants (N=375)

Treatment providers	*n* (%) utilising this service	GP referred *n* (%)	*n* who reported wait time	Mean days waited (SD)	Median days waited	Range (days)	*n* (%) who reported wait time was too long	*n* (%) who reported wait time was acceptable
Psychologist	272 (72.5)	177 (65.1)	235	104.62 (88.5)	91.3	7-574	235 (86.4)	14 (5.1)
Psychiatrist	160 (42.7)	128 (80.0)	136	149.46 (125.25)	124.0	5-744	114 (87.7)	8 (5.0)
School counsellor	105 (28.0)	12 (11.4)	89	62.49 (112.44)	21.0	0-727	63 (60.0)	32 (30.5)
Headspace	97 (25.9)	40 (41.2)	82	103.88 (89.89)	61.4	1-365	84 (86.6)	4 (4.1)
Child and Adolescent Mental Health Services	69 (18.4)	30 (43.5)	57	77.47 (109.2)	30.4	6-730	51 (73.9)	11 (15.9)
Paediatrician	50 (13.3)	37 (74.0)	38	167.53 (172.7)	113.53	7-730	38 (76.0)	7 (14.0)
Inpatient hospital stay	32 (8.5)	17 (53.1)	27	58.9 (69.13)	30.4	1-272	22 (68.8)	4 (12.5)
Support group	27 (7.2)	6 (22.2)	18	72.02 (78.85)	43.2	14-304	14 (51.9)	8 (29.6)
Structured psychological program or service	25 (6.7)	9 (36.0)	19	107.94 (130.92)	83.87	3-548	13 (52.0)	7 (28.0)
Aboriginal/Torres Strait Islander medical centre	4 (1.1)	3 (75.0)	2	45.66 (21.52)	45.66	30-61	4 (100.0)	0 (0)

Comparisons with NHS benchmarks

Table 3 outlines the proportion of participants who accessed their first treatment session within the NHS benchmarks. Averaged across all primary health service providers (psychologist, Headspace, psychiatrist, Child and Adolescent Mental Health services), only 28.5% of participants reported a wait time of less than 6 weeks (*n*=146/512). Of these, the proportion that accessed their first treatment session within the 6-week NHS benchmark was lowest for psychiatrists (*n*=21/136; 15.4%), psychologists (*n*=68/235; 28.9%), and headspace centres (*n*=28/84; 33.3%). Just over two-thirds (68.9%) had their first treatment session within 18 weeks and 31.1% waited over 18 weeks.

Table 3. The proportion of participants that received their first treatment session within the NHS benchmarks

	NHS	Psychologist		Psychiatrist		Headspace		Child and Adolescent Mental Health Services		All Primary Health Services	
	%	N	%	N	%	N	%	N	%	N	%
Within 6 weeks	75	68	28.9	21	15.4	28	33.3	29	50.9	146	28.5
Within 18 weeks	95	168	71.5	78	57.3	59	70.2	48	33.3	353	68.9
>18 weeks	5	67	28.5	58	42.6	25	29.8	9	15.8	159	31.1

Note. Four outliers were excluded.

Psychological distress and perceived changes in mental health during the wait time

Across the whole sample, the mean psychological distress score was 19.40 (*SD*: 3.42, range: 5-25) with 93.3% experiencing clinically meaningful levels of psychological distress. Across the whole sample, 67.5% (*n*=243/360) perceived that their feelings of sadness had worsened during their wait time and 71.5% (*n*=256/363) perceived that their feelings of worry had worsened. In contrast, 13.9% (*n*=50/360) perceived that their feelings of sadness

had reduced during their wait time and 14.6% (*n*=53/363) perceived that their worry had reduced.

Associations between wait times and psychological distress among those currently waiting for their first treatment session

Participants who were currently waiting for their first treatment session reported a mean psychological distress score of 19.13 (*SD*: 3.83, *n*=164) with 90.2% experiencing clinically meaningful levels of psychological distress. In this group, there was a small positive correlation between psychological distress and overall wait times for all services combined (*n*=131, *r*=.23, *P*=.009). There was also a small positive correlation between psychological distress and the wait time for psychologists (*r*=.34, *n*=92, *P*=.001) and psychiatrists (*r*=.31, *n*=43, *P*=.046), such that longer wait times were associated with increased psychological distress. No other significant associations were found (*P*=.117 to .962). Results using Pearson correlations were comparable in magnitude and statistical significance.

Support from healthcare providers during the wait time

The majority of participants reported that it was 'very' or 'extremely' important (*n*=274; 73.1%) that their healthcare providers offered them support while they waited for their first treatment session. However, nearly 40% reported that they were 'not at all' (*n*=142; 37.9%), or only 'slightly' supported (*n*=131; 34.9%) during this time. When asked to select what support they had received, 38.1% (*n*=143) were contacted by their waitlisted provider, 31.2% (*n*=117) had a follow-up session with their GP, 30.9% (*n*=116) were given information on support services, 22.1% (*n*=83) were provided mental health

information/brochures, and 21.2% (*n*=79) had received a follow-up phone call from their doctor/GP.

When asked what treatment providers could have done to better support them (free response), the key themes were: increased contact from the waitlisted service (*n*=64/142; 45.1%, e.g., "more check ins", "greater communication", and "transparency"), practical information (*n*=48/142; 33.8%, e.g., "mental health strategies and resources" and "online resources"), and other (*n*=30/142; 21.1%, e.g., "crisis support", "emotional support and validation", "alternate referrals", "medication"). When asked what would have helped them the most during the wait time (free response), participants (*n*=71/340; 20.9%) reported "more frequent check-ins" and "greater contact from healthcare providers with updates about the status of appointment". Participants also requested "resources" (*n*=57/340; 16.8%), "emotional support" or "someone to talk to" (*n*=52/340; 15.3%), "alternate services" or "referral to another mental health professional" (*n*=49/340; 14.4%), "shorter wait times" (*n*=36/340; 10.6%), and support from informal sources such as "parents, friends, and support groups" (*n*=35/340; 10.3%).

Sources of personal support during the wait time

Table 4 outlines the sources of support participants utilised and associated helpfulness ratings. Most participants turned to friends (*n*=338, 90.1%), parents (*n*=331, 88.3%), and their GP (*n*=305, 81.3%) for support during the wait time. Over half of the sample had used a digital source of support including web-based tools, mental health websites, helplines, and mobile apps. On average, friends were rated as 'moderately helpful' sources of support, with all other informal, professional, and digital sources mostly rated as 'somewhat helpful'. Most participants endorsed that it was 'very' to 'extremely' important that their parents/guardians

be provided with additional support to help them cope during the wait time (*n*=225/375, 60.0%), with very few reporting that it was 'not at all' important (*n*=23/375, 6.1%).

Table 4. Sources of support used by participants during the wait time (N=375)

Source of support	Used this source	Helpfulness rating	
	n (%)	M	SD
Informal sources			
Friends	338 (90.1)	3.09	1.18
Parent	331 (88.3)	2.30	1.18
Siblings	260 (69.3)	2.00	1.13
Other relative/family	225 (60.0)	1.97	1.20
Other adult	201 (53.6)	2.16	1.15
Professional sources			
GP/local doctor	305 (81.3)	2.23	1.10
School counsellor	278 (74.1)	2.17	1.22
Teacher	257 (73.3)	2.06	1.13
Year advisor or equivalent	233 (62.1)	1.94	1.15
Other MH professionals	232 (61.9)	2.35	1.21
Digital sources			
Web-based assessment tools	274 (73.3)	2.56	1.18
Mental health websites	270 (72.0)	2.40	1.21
Telephone helpline	230 (61.3)	1.93	1.17
Mental health mobile app	214 (57.1)	2.00	1.00
Online mental health program	196 (52.2)	2.06	1.10
Online mental health chat services	189 (50.4)	2.10	1.10
Online mental health support forums	165 (44.0)	2.25	1.31

Note. Percentages are reported for the subset of participants that selected each source of support. The range for each source of support listed is 1 (not at all helpful) to 5 (extremely helpful).

Coping behaviours used during the wait time

As outlined in Table 5, 92.8% (*n*=348) of participants used one or more maladaptive coping behaviours during the wait time such as spending more time alone (*n*=270; 72.0%) and sleeping (*n*=260; 69.3%). A total of 87.5% (*n*=328) used one or more help-seeking behaviours such as searching the Internet to find mental health information (*n*=240; 64.0%)

and reaching out to friends via SMS (*n*=199; 53.1%). Over two thirds reported that they had engaged in one or more risky coping behaviours (*n*=284, 75.7%) such as self-harm (*n*=209; 55.7%) and skipping school (*n*=174; 46.4%).

Table 5. Coping behaviours used by participants during the wait time (N=375)

	n	%
Maladaptive behaviours	348	92.8
Spending more time by myself	270	72.0
Spending more time sleeping	260	69.3
Spending more time on social media	244	65.1
Spending more time at home	244	65.1
Eating more treat food and/or takeaway food	176	46.9
Spending more time online gaming	106	28.3
Help-seeking behaviours	328	87.5
Searching the internet for information about mental health	240	64.0
Speaking with friends over text message	199	53.1
Seeking support from friends	166	44.3
Speaking with a school counsellor, teacher, or other school support	120	32.0
Speaking with friends over a phone call	111	29.6
Risky behaviours	284	75.7
Self-harming	209	55.7
Skipping school	174	46.4
Drinking alcohol	102	27.2
Vaping	86	22.9
Using cannabis	66	17.6
Smoking cigarettes	49	13.1
Using other drugs	40	10.7
Adaptive behaviours	272	72.5
Writing down how I feel (e.g., journaling)	116	30.9
Doing more exercise or sport	112	29.9
Doing activities that help me relax	111	29.6
Reading books	100	26.7
Doing more activities I enjoy	98	26.1
Taking up a new activity, sport, or hobby	90	24.0
Meeting up with friends or becoming more social	88	23.5
Improving or changing my diet	87	23.2

Note. Total *n* and % for each category were calculated based on whether participants endorsed at least one strategy in that category.

Self-reported attendance at the first treatment session

Among those who were currently waiting, 78.7% (*n*=129/164) reported that they were likely to attend their first treatment session and 14.7% (*n*=24/164) reported that they were unlikely to attend. The most common reasons for likely non-attendance were 'the wait time was too long' (*n*=13/24; 54.2%), 'don't want to go' (*n*=13/24; 54.2%), and 'couldn't be bothered' (*n*=11/24; 45.8%). Four participants in this subgroup (*n*=4/24; 16.6%) selected the response 'I don't need it anymore, I feel better'. Among those who had previously waited, almost all reported that they attended their first session (*n*=203/211; 96.2%); however, 'the wait time was too long' (*n*=6/8; 75%) and 'didn't want to go' (*n*=3/8; 37.5%) were the main reasons for self-reported non-attendance in this subgroup.

DISCUSSION

Primary findings

This study presents a cross-sectional examination of Australian adolescents' experiences of wait times for mental health treatment for anxiety and depression. Consistent with the hypotheses, the average self-reported wait times for several mental health treatment providers exceeded 100 days. Most young people in this sample were waiting to access psychologists, psychiatrists, and headspace centres for more than three months and the majority felt that their wait times were 'too long'. While there was significant variation in wait times across services and between participants, these did not differ between states, and metropolitan location was found to only be significantly associated with greater access to a psychiatrist. The average self-reported wait times found in this study were more than three times higher than previous Australian reports,[3] although consistent with more recent data on psychologist wait times.[12] Overall, these results indicate significant gaps between

adolescents' need for mental health treatment for anxiety and depression and its timely availability in Australia.

In further support of our hypotheses, longer wait times were associated with higher levels of psychological distress, and over two-thirds of participants felt their mental health had worsened during the wait time. Moreover, many of the maladaptive and risky coping behaviours used by participants may have signified further deterioration of symptoms (e.g., sleeping, social withdrawal, self-harm). While some participants felt their mental health had improved during the wait time, our results are consistent with several past studies that observed declines in mental health among young people waiting for care.[32-35] However, as our study is cross-sectional, there was no evidence to suggest that wait times caused poorer mental health in young people. Rather, our results may simply reflect the natural illness progression of anxiety and depression among this sample and their greater need for treatment. Regardless however, our findings suggest that the wait time for mental health treatment is likely to be a period of significant vulnerability for many adolescents, characterised by high levels of psychological distress, perceived worsening of mental health, and engagement in maladaptive and risky coping behaviours.

Implications for clinical practice

This study confirms that many participants were provided with nil to minimal support from their healthcare providers during the wait time, despite the majority feeling that it was important. Interestingly, the support preferences of participants were low intensive, non-clinical, and communication-based. Specifically, young people requested more contact and 'check-ins' from their waitlisted service provider, which could be administered by practice staff or automated through technological platforms such as SMS. As young people endorsed the helpfulness of some digital resources, a system that contacts young people periodically about their appointment, provides links to web-based tools and information, as well as

positive coping behaviours, is likely to be regarded as helpful to adolescents on wait lists for anxiety and depression treatment. Future research should actively engage with young treatment seekers to co-develop such an approach. Moreover, the high referral rates and interim care provided by GPs further confirm the importance of their role in mental health service provision in Australia. Future research would benefit from examining GPs' understanding of wait times, the impacts on their treating behaviour, and how to best support GPs in providing interim care to their youth patients on wait lists for mental health treatment.

In this study, most participants reported that they attended their first treatment session or were likely to, despite experiencing long wait times. This finding contrasts with several studies that imply longer wait times lead to treatment disengagement across adolescents.[13-16] Our results may reflect the 'sunken cost' associated with longer wait times, such that the time, effort, and resources involved in accessing scarce treatment lead to higher levels of retention in youth. This finding may also reflect the higher levels of motivation and commitment to treatment among this sample, which may or may not be due to longer wait times. As most participants were in secondary school, their treatment adherence may have also been sustained through parental, familial, and school support. As such, different patterns of service use may be found in other samples and studies with longer periods of observation. However, long wait times were reported as the primary reason that non-attenders did not start their treatment. This suggests that long wait times may reduce treatment uptake in a sub-group of adolescent help-seekers and future research may benefit from examining this pattern of treatment engagement in more detail. Moreover, international studies have found that many parents facing long wait times place their adolescent children on multiple wait lists, which may further exacerbate wait times.[36,37] Future studies may benefit from examining whether long wait times lead to over-servicing of treatment providers in Australia.

The call for national standards

The overall wait times reported in this study exceeded the NHS standards, with only 1 in 4 young people reporting a wait time of less than 6 weeks and one-third waiting longer than 18 weeks. Given that the introduction of transparent wait time standards in the UK and other countries has reduced wait times significantly,[19,22] our results support the call for transparent wait time monitoring and reporting for mental health treatment in Australia. This approach may improve the timely provision of mental health treatment to both adolescents and adults. As a start, this could be achieved through mandatory reporting from any mental health professional that benefits from the Better Access initiative - a Federal government program that provides subsidised mental healthcare to Australian residents.[38] This approach would also enable the identification of locations and treatment services with greater need as well as the objective data needed to evaluate the impact of systemic changes on wait time durations.[39] Future research should utilise evidence-based approaches that involve service users, including clinicians, parents and families, schools, and young people to determine acceptable wait time targets for the Australian context.[40]

Limitations

This study provides an important step toward assessing wait time data for adolescent mental health treatment for anxiety and depression in the absence of more robust methods of national data collection. A key limitation of the current study relates to the sampling method, such that we may not have captured the views of adolescents who attended their first treatment session within a short timeframe (e.g., less than one week) or who were satisfied with their wait time. Moreover, as well as having a high rate of female participation, over half the sample identified as being LGBTQIA+ which may indicate a sampling bias or may also reflect the greater need for treatment and higher rates of help-seeking in adolescent females and youth who identify as sexuality diverse.[41,42] There is emerging evidence in the US that

rates of LGBT identification are increasing in younger generations, and women were also more likely to identify as sexuality diverse than men.[43]. Further, a recent study [44] examining the acceptability and proximal effects of an open-access platform offering three online single-session interventions for youth internalizing distress, reported a large proportion of females (78.10%) and youth identifying as LGBTQIA+ (50.13%) which are comparable to the rates found in this study. Alternatively, although no formal efforts were made to recruit members of specific groups, our recruitment methods may represent efficient avenues for reaching females and sexuality diverse youth. The self-report data may also be limited by poor or inaccurate recall. Different results may be found in treatment provider records or when more objective measures are used. Seasonal variations in wait times reported by other service providers[3] were also unable to be captured by this study due to the time-limited and cross-sectional study design. As such, different wait times may be found when data is collected over longer periods of time.

Conclusion

This study is the first to examine Australian adolescents' wait times for the treatment of anxiety and depression. Findings indicated that many Australian youth face extended delays across several treatment providers, with many adolescents perceiving the wait times as too long. The findings highlight the need for national transparency and benchmarking of wait times for mental health treatment providers in Australia. Many participants felt unsupported by their referred providers and that their mental health had worsened during the wait time, with many engaging in unhelpful coping behaviours. As such, more research is needed to determine best practices for addressing young people's mental health needs while they await professional treatment for anxiety and depression.

Declaration of interest

None.

Acknowledgments

We are grateful to the individuals from the Black Dog Institute Youth Lived Experience group for their time and support in the development of the survey. The authors would also like to thank the young people who took part in this study.

Author contributions

BOD conceived the project and prepared the initial proposal for the funding application with assistance from TB, BP, SL, AEW, AG, and LS. BOD, BP and TB led the development of the survey. BP, TB, MSK and EL provided research and operational support. MSK, TB, BP, JC, and JC analysed the data with statistical support from PJB. MSK wrote the first draft of the manuscript with all authors providing feedback. All authors reviewed and approved the final manuscript.

Funding

This project was supported by a generous donation from the Buxton Family Foundation, Australian Unity, the Frontiers Technology Clinical Academic Group Industry Connection Seed Funding Scheme, and the UNSW Medicine, Neuroscience, Mental Health and Addiction Theme and SPHERE Clinical Academic Group Collaborative Research Funding.

BOD is supported by an NHMRC MRFF Investigator Fellowship (1197249). AEW is supported by an NHMRC Investigator Fellowship (2017521).

References

1. Lawrence HJ, Johnson SE, Saw S, Buckingham WJ, Sawyer MG, Ainley J, et al. Key findings from the second Australian Child and Adolescent Survey of Mental Health and Wellbeing. Aust NZ J Psychiatry [Internet]. 2015;50(9):876–86. Available from: https://doi.org/https://doi.org/10.1177/0004867415617836

2. World Health Organisation. Mental health of adolescents [Internet]. 2021.Available from: https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health

3. Headspace. Increasing demand in youth mental health: A rising tide of need [Internet]. National Youth Mental Health Foundation. 2019. 14 p. Available from: https://headspace.org.au/assets/Uploads/Increasing-demand-in-youth-mentalh-a-rising-tide-of-need.pdf

4. Kowalewski K, McLennan JD, McGrath PJ. A preliminary investigation of wait times for child and adolescent mental health services in Canada. J Can Acad Child Adolesc Psychiatry. 2011;20(2):112-9.

5. Smith J, Kyle RG, Daniel B, Hubbard G. Patterns of referral and waiting times for specialist Child and Adolescent Mental Health Services. Child Adolesc Ment Health [Internet]. 2018;23(1):41-9. Available from: https://www.apa.org/monitor/2023/04/mental-health-services-wait-times

6. Lewis AK, Harding KE, Snowdon DA, Taylor NF. Reducing wait time from referral to first visit for community outpatient services may contribute to better health outcomes: a systematic review. BMC Health Services Research. 2018;18(1):869.

7. Australian Government Productivity Commission. Report on Government Services 2022: 13 Services for mental health. Impact of COVID-19 on data for the Services for mental health section; 2022. Available from: https://www.pc.gov.au/ongoing/report-on-government-services/2022/health/services-for-mental-health

8. NHS Scotland. Child and Adolescent Mental Health Services waiting times in Scotland. Quarter ending 30 June 2013. Public Health Scotland. 51 p. Available from: https://publichealthscotland.scot/media/8975/2021-09-07-camhs-waiting-times-report.pdf

9. Stringer H. Providers predict longer wait times for mental health services. Here's who it impacts most: Psychologists worry that patients from marginalized populations, particularly people of color, will suffer most amid a worsening workforce shortage. Monitor on Psychology [Internet]. 2023; 54(3); 28. Available from: https://www.apa.org/monitor/2023/04/mental-health-services-wait-times

10. Edbrooke-Childs J, Deighton J. Problem severity and waiting times for young people accessing mental health services. BJPsych Open [Internet]. 2020;6(6):e118. Available from: 10.1192/bjo.2020.103.

11. Mulraney M, Lee C, Freed G, Sawyer M, Coghill D, Sciberras E, et al. How long and how much? Wait times and costs for initial private child mental health appointments. Journal of Paediatrics and Child Health [Internet]. 2021;57(4):526-32. Available from: https://doi.org/10.1111/jpc.15253

12. Australian Psychological Society. Balancing caseloads and surging demand: Your experience and what we are doing. InPsych [Internet]. 2021; 43(4). Available from: https://psychology.org.au/for-members/publications/inpsych/2021/november-issue-4/balancing-caseloads-and-surging-demand

13. Westin AML, Barksdale CL, Stephan SH. The effect of waiting time on youth engagement to evidence based treatments. Community Mental Health Journal [Internet]. 2014;50(2):221-8. Available from: https://doi.org/10.1007/s10597-012-9585-z

14. Gallucci G, Swartz W, Hackerman F. Brief Reports: Impact of the wait for an initial appointment on the rate of kept appointments at a mental health center. Psychiatric Services [Internet]. 2005;56(3):344-6. Available from: https://doi.org/10.1176/appi.ps.56.3.344

15. Sherman ML, Barnum DD, Buhman-Wiggs A, Nyberg E. Clinical intake of child and adolescent consumers in a rural community mental health center: does wait-time predict attendance? Community Ment Health J [Internet]. 2009;45(1):78-84. Available from: https://doi.org/10.1007/s10597-008-9153-8

16. Williams ME, Latta J, Conversano P. Eliminating the wait for mental health services. J Behav Health Serv Res [Internet]. 2008;35(1):107-14. Available from: https://doi.org/10.1007/s11414-007-9091-1

17. Black G, Roberts RM, Li-Leng T. Depression in rural adolescents: relationships with gender and availability of mental health services. Rural Remote Health. 2012;12:2092.

18. Punton G, Dodd AL, McNeill A. 'You're on the waiting list': An interpretive phenomenological analysis of young adults' experiences of waiting lists within mental health services in the UK. PLoS One [Internet]. 2022;17(3):e0265542. Available from: https://doi.org/10.1371/journal.pone.0265542

19. OECD. A New Benchmark for Mental Health Systems: Tackling the Social and Economic Costs of Mental Ill-Health, OECD Health Policy Studies [Internet]. OECD Publishing, paris. 2021. Available from: https://doi.org/10.1787/4ed890f6-en.

20. Department of Health and Social Care. Achieving Better Access to Mental Health Services by 2020. Department of Health, NHS England. 2014; 23 p.

21. NHS England. Improving Access to Psychological Therapies (IAPT) aiting Times Guidance and FAQ's. 2015; 16 p. Available from: https://www.england.nhs.uk/wp-content/uploads/2015/02/iapt-wait-times-guid.pdf.

22. NHS 75 Digital. Psychological Therapies: reports on the use of IAPT services, England April 2019 final including reports on the IAPT pilots. 2019. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/psychological-therapies-report-on-the-use-of-iapt-services/april-2019-final-including-reports-on-the-iapt-pilots.

23. Potter C. NHSE to begin 'implementation plan' for new mental health waiting time standards. Pulse 365. 2022.

24. Yang F, Wangen KR, Victor M, Solbakken OA, Holman PA. Referral assessment and patient waiting time decisions in specialized mental healthcare: an exploratory study of early routine collection of PROM (LOVePROM). BMC Health Services Research [Internet]. 2022;22(1):1553. Available from: https://doi.org/10.1186/s12913-022-08877-4

25. Kelly AB, Halford WK. Responses to ethical challenges in conducting research with Australian adolescents. Australian Journal of Psychology [Internet]. 2007;59(1):24-33. Available from: https://doi.org/10.1080/00049530600944358

26. Australian Bureau of Statistics (ABS). 1270.0.55.001 - Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2016 [Internet]. 2016. Available from: https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.001

27. Batterham PJ, Sunderland M, Carragher N, Calear AL, Mackinnon AJ, Slade T. The Distress Questionnaire-5: Population screener for psychological distress was more accurate than the K6/K10. J Clin Epidemiol [Internet]. 2016;71:35-42. Available from: https://doi.org/10.1016/j.jclinepi.2015.10.005

28. Batterham PJ, Sunderland M, Slade T, Calear AL, Carragher N. Assessing distress in the community: psychometric properties and crosswalk comparison of eight measures of psychological distress. Psychological Medicine [Internet]. 2018;48(8):1316-24. Available from: https://doi.org/10.1017/S0033291717002835

29. Werner-Seidler A, Huckvale K, Larsen ME, Calear AL, Maston K, Johnston L, et al. A trial protocol for the effectiveness of digital interventions for preventing depression in adolescents: The Future Proofing Study. Trials [Internet]. 2020;21(1):2. Available from: https://doi.org/10.1186/s13063-019-3901-7

30. IBM Corp. SPSS Version 28. 2021.

31. Cobanoglu C, Cavusoglu M, Turktarhan G. A beginner's guide and best practices for using crowdsourcing platforms for survey research: The case of Amazon Mechanical Turk (MTurk). Journal of Global Business Insights. 2021;6(1):92-7.

32. Aisbett DL, Boyd CP, Francis KJ, Newnham K, Newnham K. Understanding barriers to mental health service utilization for adolescents in rural Australia. Rural and Remote Health. 2007;7.

33. Iskra W, Deane FP, Wahlin T, Davis EL. Parental perceptions of barriers to mental health services for young people. Early Interv Psychiatry [Internet]. 2018;12(2):125-34. Available from: https://doi.org/10.1111/eip.12281

34. Leijdesdorff S, Klaassen R, Wairata DJ, Rosema S, van Amelsvoort T, Popma A. Barriers and facilitators on the pathway to mental health care among 12-25 year olds. Int J Qual Stud Health Well-being [Internet]. 2021;16(1):1963110. Available from: https://doi.org/10.1080/17482631.2021.1963110

35. Reichert A, Jacobs R. The impact of waiting time on patient outcomes: Evidence from early intervention in psychosis services in England. Health Economics [Internet]. 2018;27(11):1772-87. Available from: https://doi.org/https://doi.org/10.1002/hec.3800

36. Reid GJ, Cunningham CE, Tobon JI, Evans B, Stewart M, Brown JB, et al. Help-seeking for children with mental health problems: parents' efforts and experiences. Adm Policy Ment Health [Internet]. 2011;38(5):384-97. Available from: https://doi.org/10.1007/s10488-010-0325-9

37. Shanley DC, Reid GJ, Evans B. How parents seek help for children with mental health problems. Adm Policy Ment Health [Internet]. 2008;35(3):135-46. Available from: https://doi.org/10.1007/s10488-006-0107-6

38. Department of Health and Aged Care. Better access to psychiatrists, psychologists and general practitioners through the MBS (Better Access) initiative [Internet]. Australian Government. 2023. Available from: https://www.health.gov.au/our-work/better-access-initiative?utm_source=health.gov.au&utm_medium=callout-auto-custom&utm_campaign=digital_transformation.

39. Rastpour A, McGregor C. Predicting patient wait times by using highly deidentified data in mental health care: enhanced machine learning approach. JMIR Ment Health [Internet]. 2022;9(8):e38428. Available from: https://mental.jmir.org/2022/8/e38428 DOI: 10.2196/38428

40. Eichstedt JA, Singh D, Chen S, Collins KA, Cawthorpe D. Who should be seen when? Establishing wait time benchmarks for children's mental health. Canadian Journal of Community Mental Health [Internet]. 2021;40(1):105-22. Available from: https://doi.org/10.7870/cjcmh-2021-008

41. Shorey S, Ng ED, Wong CHJ. Global prevalence of depression and elevated depressive symptoms among adolescents: A systematic review and meta-analysis. Br J Clin Psychol [Internet]. 2022;61(2):287-305. Available from: https://doi.org/10.1111/bjc.12333

42. Wilson C, Cariola, LA. LGBTQI+ youth and mental health: A systematic review of qualitative research. Adolescent Research Review, 2020; 5(2), 187–211. https://doi.org/10.1007/s40894-019-00118-w

43. Newport, F. (2018, May 22). In U.S., estimate of LGBT population rises to 4.5 percent. Gallup. https://news.gallup.com/poll/234863/estimate-lgbt-population-rises.aspx

44. Schleider JL, Dobias M, Sung J, Mumper E, Mullarkey MC. Acceptability and Utility of an Open-Access, Online Single-Session Intervention Platform for Adolescent Mental Health. JMIR Ment Health. 2020 Jun 30;7(6):e20513. doi: 10.2196/20513. PMID: 32602846; PMCID: PMC7367540.

Supplementary Material

1. Survey Development

***Step 1 (Expert Consultation)*:** Once the first survey draft was proposed by the research team, it was reviewed by three academic experts with experience conducting research in the field of adolescent mental health. Each expert evaluated the survey and rated the items on whether they: 1) are essential, 2) should be retained, or 3) should be modified. Where relevant, experts provided free response feedback on each item with reference to their relevance, wording of questions to be appropriate to the target sample, interpretability, and appropriateness of response options. Experts also provided broad advice on each survey section and were asked to indicate whether any concepts were missing. The research team then reviewed the expert evaluation forms and made judgments on whether to remove, retain, or modify each item guided by the expert feedback. Items were retained if more than half (i.e., two) of the experts voted to retain it.

***Step 2 (Youth Lived Experience Group Consultation)*:** The research team then consulted the Black Dog Institute Youth Lived Experience (YLE) group. This is a diverse group of young people who provide consultation on research projects within the Institute. The research team met with the YLE group to discuss terminology and response options for the survey items, with emphasis on the most appropriate and inclusive way to word questions with respect to our target sample (young people aged 13-17 years old). Following these discussions, the survey was revised by the research team.

Step 3 (Research Team Consultation): The survey was then provided to all members of the research team for final review using the same criteria described in Step 1. The survey was amended based on their feedback and then transcribed to Qualtrics by a paid research assistant.

Step 4 (Piloting): A total of six young people were recruited from the Black Dog Institute Youth Lived Experience group to assess their experience of completing the survey. Eight evaluation questions were included at the end of the survey which provided information on survey difficulty, intelligibility of the instructions, and clarity of the questions and response items from the perspective of the young person. Information was also gathered on the average time it takes to complete the survey in full. Based on this feedback, final adjustments were made prior to the commencement of data collection.

2. Management of Fraudulent Respondents and Data Cleaning Processes

Existing security measures and deterrents: Several basic security measures were integrated into the initial survey. The survey platform Qualtrics included the following prevention settings such as fraud detection security measures including bot detection, security scan monitor, RelevantID, and Prevent Indexing and preventing multiple submissions. The Qualtrics platform also includes software to detect IP address locations, thus allowing foreign IP addresses to be blocked. Additionally, the survey included several free-text responses at various points in the survey, making bot completion less likely.

Fraudulent survey sign-ups: Despite the existing security measures, the survey received multiple fraudulent sign-ups between 16th and 18th May 2022, and again on the 31st May 2022. The sign-ups were quickly suspected to be fraudulent due to the large number of responses that came through within a short period compared to the previous recruitment rate. New surveys were completed in quick succession and some survey completions occurred at unlikely times of the day such as early mornings (before 6.00am) or evenings (after 11.00pm). Additionally, these influxes of survey completions did not correspond to an increase in recruitment efforts, specifically, during a period of advertising. An initial review of the survey responses found these responses to be qualitatively different from the survey responses received prior. Considering all these factors, our team suspected that the study had been targeted by fraudulent respondents.

Response to fraudulent survey respondents: In response to the May 2022 attack, we paused recruitment and closed the survey, and contact was made with the University of New South Wales Human Research Ethics Committee (UNSW HREC) on the 18th May, 2022 to provide details of the attack. We spoke with other researchers at the Black Dog Institute who had experienced a similar situation and reviewed the literature for advice on how to manage the situation. A review of all completed surveys was undertaken alongside a review of processes

to better understand which factors may have led to the attack. Following these discussions and initial review, we developed a protocol that aimed to 1) enhance measures to prevent future attacks; 2) detail the process for identifying fraudulent or illegitimate respondents; and 3) outline the procedure for managing suspected fraudulent respondents. The protocol was reviewed by the chief investigator of the project and the Trial Steering Committee.

Prevention of fraudulent survey respondents: Following the first attack in May 2022, we added reCAPTCHA software at the beginning of the survey to prevent bot attacks. After consultation with UNSW HREC, we also made changes to the participant information sheet and consent form (PISCF) and the survey instructions to specify "You will only be able to complete the survey once" and "Please note that only one voucher will be issued per participant." Each voucher was sent manually by a member of the research team after a review and decision was made on the survey data and if a survey respondent was deemed to be a 'genuine responder'. Several strategies for identifying invalid survey responses were guided by the literature[1] to systematically identify and remove fraudulent or illegitimate respondents. This procedure is outlined below.

Identifying and withdrawing fraudulent or invalid survey responses: After the first attack in May 2022, IP and email addresses were manually checked by two members of the research team. We created a list of criteria in the pattern of survey data that were invalid, inconsistent, and identified as likely to be fraudulent (see Table 1). During the cleaning process, a response was deemed invalid and removed from the dataset based on one or more of the following criteria. First, multiple responses from the same IP or email address (i.e., duplicate responses) indicated that one individual was completing the survey multiple times. Any partial or incomplete survey responses were also removed. Second, invalid postcodes or postcodes that did not match the Australian state or territory reported were flagged as suspicious. A a large number of postcodes from the same area reported by multiple respondents within a short

timeframe or block of time was also flagged as suspicious. Third, any participant who completed the survey faster than 40% of the average completion time for the whole sample was flagged as a possible illegitimate or fraudulent responder based on findings that 'speeders' data is significantly different from those above the 40% threshold.[1] Other suspicious activity included the survey responses within a single survey. Specifically, we examined the pattern of survey responses and the content of free-text responses to the questions (see Table 1 for more details). Based on these criteria, two members of the research team (TB and BP) independently reviewed each response and noted whether it should be removed or retained. Any discrepancies were discussed, and the final decision was made by consensus by a separate member of the research team (JC or MSK). Duplicate email and IP addresses and foreign IP addresses were objective indicators of fraud, and these were automatically withdrawn if both independent researchers flagged identical and multiple email or IP addresses. The other individual variables outlined in Table 1 were not enough to identify someone as a potential illegitimate or fraudulent responder; it was the combination of one or more of these characteristics within a single survey completion and similarities between separate survey respondents signing up in short succession or during unlikely times of the day. Further, the two researchers had to be in full agreement regarding the fraudulent or illegitimate categorisation for the respondent to be removed. Data quality checks were conducted regularly to quickly identify suspicious sign-ups and patterns until the survey was closed in June 2022.

Table 1. Indicators of fraudulent activity

Data Category	Variable	Response characteristic or pattern
Personal details	IP address	IP address from a country outside of Australia, or a duplicate IP address
	Email address	Same email address used
	Postcode	Invalid postcode or postcode that did not match the Australian state or territory; Large number of postcodes from the same area (e.g., CBD) within a short timeframe
Speed responders	Time spent in survey	Survey completions that take less than 40% of the average time of legitimate respondents
Survey responses	Response patterns within a single survey	Survey entries where the respondent has consistently provided the same or similar responses or answered in a pattern for all questions, for example: • All questions answered were "Yes" or all "1's" • All questions answered were "Yes", "No", "Yes", "No" and so forth • Answers in a zig zag (e.g., "1, 2, 3, 4, 3, 2, 1")
	Free-text responses	Overuse of Not Applicable. Legitimate free-text responses are predominantly thoughtful and detailed and answer the question being asked. Fraudulent responses mostly use a version of "Not Applicable" in the form of "na", "NA" "none", and this response is often repeated across the free response questions.
		Examples of potential fraudulent responses included: • Using previous matrix question options as answers for future questions • Commonly starting free-text responses in the same way • Duplicate responses across multiple participants • Answers that don't match the question that was asked • Responses indicating that the participant does not live in Australia (e.g., Junior High, Middle School)

References

1. Cobanoglu C, Cavusoglu M, Turktarhan G. A beginner's guide and best practices for using crowdsourcing platforms for survey research: The case of Amazon Mechanical Turk (MTurk). Journal of Global Business Insights. 2021;6(1):92-7.

Appendix A: Survey

DEMOGRAPHICS	
1. What is your age in years?	Numeric response
2. What is your gender identity?	1. Male 2. Female 3. Non-binary 4. Different identity (please specify) 5. I'd rather not say
3. Are you of Aboriginal or Torres Strait Island origin?	1. Yes – Aboriginal 2. Yes - Torres Strait Islander 3. Yes - Aboriginal and Torres Strait Islander 4. No 5. I'd rather not say
4. Do you identify as LGBTQIA+ (Lesbian, Gay, Bisexual, Trans, Queer, Intersex, Asexual, or another diverse sexual identity)?	1. Yes 2. No 3. I'd rather not say
5. What state do you currently live in? (If you live in more than one state, please choose the one you spend the most time in).	1. New South Wales 2. Queensland 3. Australian Capital Territory 4. Victoria 5. Northern Territory 6. South Australia 7. Western Australia 8. Tasmania
6. What is the postcode of the suburb where you live?	Numeric response
7. Are you currently…	1. In high school 2. Working full time 3. Studying at university 4. Completing an apprenticeship 5. Other (please specify)
HISTORY OF MENTAL HEALTH	
We would like to hear about your experience accessing mental health treatments and services. In particular, we are interested in learning about "wait times" – the time you waited between contacting your mental health treatment provider or service and your first session. Don't forget, all your answers are anonymous. This means that we have no way of identifying you from your responses. We really appreciate your time and honesty in answering the questions!	
1. Have you ever been formally diagnosed with (or been told that you have) depression and/or anxiety by a health professional (e.g., your doctor/GP,	1. Yes 2. No 3. Unsure 4. I'd rather not say

psychologist, psychiatrist, school counsellor)	
2. Are you currently taking medication prescribed by a health professional (e.g., your doctor/GP, psychologist, psychiatrist, school counsellor) for depression and/or anxiety (e.g. anti-depressants)?	1. Yes 2. No 3. Unsure 4. I'd rather not say
EXPERIENCES WHILE WAITING FOR CARE	
For participants who are <u>currently</u> waiting …	
1. (A) We would like to hear about the mental health professionals and services that you are currently waiting to see for the first time. Please choose the ones you or your parents/guardian, family, or trusted adult have contacted and are now waiting to see. Select all that apply.	☐ Psychologist ☐ Psychiatrist ☐ headspace centre ☐ Hospital stay ☐ A program or service to help improve feelings of sadness or worry (e.g. Cool Kids) ☐ Local Child and Adolescent Mental Health services (CAMHS) 0/1 School counsellor ☐ Paediatrician ☐ A support group (e.g. a group of people meeting to share information, experiences, problems and solutions) ☐ An Aboriginal/Torres Strait Islander medical centre. ☐ An Aboriginal/Torres Strait Islander support worker. ☐ Other:(please tell us what it is in the text box).
Q1. (B), (C) and (D) are asked for every treatment and/or service selected in Q1. (A) **"You said you are currently waiting for the following mental health professional or service: [SERVICE]"…**	
1. (B) Who referred you to this service? Was it your…?	1. Doctor/GP 2. School Counsellor/School 3. You self-referred (i.e., you or your parents/family booked a session without needing a referral from a doctor) 4. Other (please tell us who in the text box) 1. I don't know/I can't remember
1. (C) How long will you have waited between contacting this mental health professional or service and going to your first session?	2. ___Months 3. ___Weeks 4. ___Days 5. ___I don't know/I can't remember

We understand that this can be hard to estimate, so just give it your best go.	
1. (D) Do you think that this wait time is…	1. Too long 2. Just right/acceptable 3. Unsure/I don't know
2. Have your feelings of sadness or worry been getting better or worse during your wait time?	Slider from worse to better 1 - 2 - 3 - 4 - 5 WORSE No Change BETTER One slider for sadness One slider for worry Option to tick "Does not apply to me"
3. Below is a list of things young people may do to cope while waiting to see a mental health professional or access other services. Have you tried any of these? Select all that apply.	☐ Doing more exercise or sport ☐ Taking up a new activity, sport, or hobby ☐ Improving or changing my diet ☐ Seeking support from friends ☐ Doing more activities I enjoy ☐ Reading books ☐ Searching the internet for information about mental health ☐ Writing down how I feel (e.g. journaling) ☐ Meeting up with friends or becoming more social ☐ Speaking with friends over text message ☐ Speaking with friends over a phone call ☐ Doing activities that help me relax ☐ Speaking with a school counsellor, teacher, or other school support ☐ Smoking cigarettes ☐ Vaping ☐ Drinking ☐ Using cannabis ☐ Using other drugs ☐ Self-harming ☐ Skipping school ☐ Spending more time on social media ☐ Spending more time online gaming ☐ Eating more treat food and/or takeaway food ☐ Spending more time by myself 0/1 Spending more time at home ☐ Spending more time sleeping
4. Is there anything else you have been doing to help you cope while you are waiting for your first session?	Free response

5. Is there anything else you'd like to share with us about how you have been feeling during your wait time?	Free response
6. How likely are you to attend your first session?	1. Extremely unlikely 2. Unlikely 3. Neither/Unsure 4. Likely 5. Extremely likely **If select 1 OR 2, go to Q7. Else skip to Q8**
7. Why are you unlikely to attend your first session? Select all that apply	☐ I don't need it anymore because I feel better ☐ I found an earlier session somewhere else ☐ I have had to wait for too long ☐ I can't be bothered ☐ I might forget ☐ I don't have the money ☐ I don't want to go ☐ The session is too far away from me ☐ I don't have any transport to get there ☐ I feel too worried and/or sad to go ☐ I am unsatisfied with the service ☐ A different reason (please tell us in the text box)
8. How important do you think it is that your healthcare providers (e.g. doctor/GP, psychologists, psychiatrists, school counsellors) help you manage your feelings of sadness and worry while you wait for your first session?	1. Not at all important 2. Slightly Important 3. Moderately Important 4. Very Important 5. Extremely important
9. How supported do you feel by your healthcare providers (e.g. doctors/GPs, psychologists, psychiatrists, school counsellors) while you are currently waiting for your first session?	1. Not at all supported 2. Somewhat supported 3. Moderately supported 4. Very supported 5. Extremely supported
10. Is there anything that your healthcare providers (e.g. doctors/GP, psychologists, psychiatrists, school counsellors) could do to better support you during the wait time?	Free response
11. Overall, what do you think would help you the most during the wait time?	Free response
For participants who have <u>previously</u> waited…	
12. (A) We would like to hear about the mental health professionals and services that you have accessed for the <u>first time</u> in the past 12 months and	☐ Psychologist ☐ Psychiatrist ☐ headspace centre ☐ Hospital stay

have waited more than one week to see. Please choose which ones you waited more than one week to see in the past 12 months. Select all that apply.	☐ A program or service to help improve feelings of sadness or worry (e.g. Cool Kids) ☐ Local Child and Adolescent Mental Health services (CAMHS) ☐ School counsellor ☐ Paediatrician ☐ A support group (e.g. a group of people meeting to share information, experiences, problems and solutions) ☐ An Aboriginal/Torres Strait Islander medical centre. ☐ An Aboriginal/Torres Strait Islander support worker. ☐ Other:(please tell us what it is in the text box). Q9. Displayed as a single question
Q12. (B), (C), and (D) asked for every treatment or service selected in Q12 (A) **"You said you have previously waited for the following mental health professional or service: [SERVICE]"…**	
12. (B) Who referred you to this service? Was it your…?	1. Doctor/GP 2. School Counsellor/School 3. You self-referred (i.e., you or your parents/family booked a session without needing a referral from a doctor) 4. Other (please tell us who in the text box) 5. I don't know/I can't remember
12. (C) From the time you or your family first contacted this service, how long did you have to wait before you had your first actual session? We understand that this can be hard to estimate, so just give It your best go. How many…	1. ___Months 2. ___Weeks 3. ___Days 4. ___I don't know/I can't remember
12. (D) Do you think that the wait time was…	1. Too long 2. Just right/acceptable 3. Unsure/I don't know
13. Did your feelings of sadness or worry get better or worse while you were waiting?	Slider from worse to better 1 - 2 - 3 - 4 - 5 WORSE No Change BETTER One slider for sadness One slider for worry Option to tick "Does not apply to me"

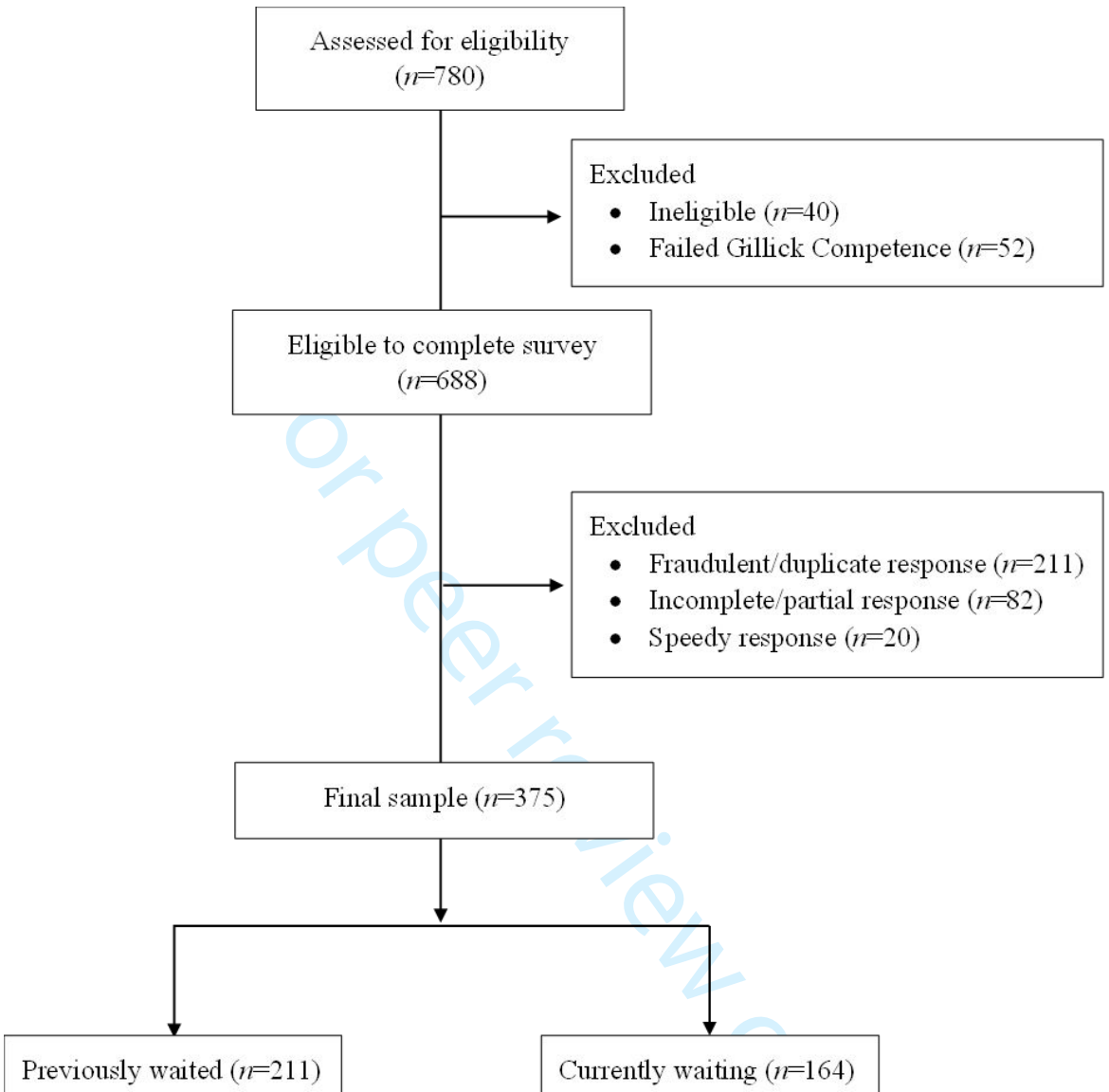
14. Below is a list of things young people have done to cope while waiting to see a mental health professional or access other services. Did you try any of these while you were waiting? Select all that apply.	☐ Did more exercise or sport ☐ Took up a new activity, sport, or hobby ☐ Improved/changed my diet ☐ Sought support from friends ☐ Did more activities I enjoyed ☐ Read books ☐ Searched the internet for information about mental health ☐ Started writing down how I felt (e.g. journaling) ☐ Met up with friends or became more social ☐ Spoke with friends over text message ☐ Spoke with friends over a phone call ☐ Did activities that help me relax ☐ Spoke with a school counsellor, teacher, or other school support ☐ Smoked cigarettes ☐ Vaped ☐ Drank alcohol ☐ Used cannabis ☐ Used other drugs ☐ Self-harmed ☐ Skipped school ☐ Spent more time on social media ☐ Spent more time online gaming ☐ Ate more treat food and/or takeaway food ☐ Spent more time by myself ☐ Spent more time at home ☐ Spent more time sleeping
15. Is there anything else that you did to help cope while you waited for your first session?	Free response
16. Is there anything else you'd like to share with us about how you felt feeling during your wait time?	Free response
17. Did you go to your first session?	1. Yes 2. No **If No, go to Q18. If select Yes, skip to Q19**
18. Why didn't you go to your first session? Select all that apply.	☐ I didn't need it anymore because I felt better ☐ I found an earlier session somewhere else ☐ I had to wait for too long ☐ I couldn't be bothered ☐ I forgot ☐ I didn't have the money ☐ I didn't want to go

	☐ The session was too far away from me ☐ I didn't have any transport to get there My parents told me I'm not going ☐ I felt too worried and/or sad too go Something came up ☐ I was unsatisfied with their service ☐ A different reason (please tell us in the text box)
19. How important do you think it was that your healthcare providers (e.g. doctor/GP, psychologists, psychiatrists, school counsellors) helped you manage your feelings of sadness and worry while you waited for your first session?	1. Not at all important 2. Slightly Important 3. Moderately Important 4. Very Important 5. Extremely important
20. How supported did you feel by your healthcare providers (e.g., doctors/GPs, psychologists, psychiatrists, school counsellors) while you waited for your first session?	1. Not at all supported 2. Somewhat supported 3. Moderately supported 4. Very supported 5. Extremely supported
21. Is there anything that your healthcare providers (e.g. doctor/GP, psychologists, psychiatrists, school counsellors) could have done to better support you during the wait time?	Free response
22. Overall, what do you think would have helped you the most during your wait time?	Free response
PARENT SUPPORT	
1. How important do you think it is that the parents/guardians be given some sort of support to help themselves (parents/guardians) cope better during the wait time?	1. Not at all important 2. Somewhat Important 3. Moderately Important 4. Very Important 5. Extremely important
INTERVENTIONS AND SOURCES OF SUPPORT DURING WAIT TIME	
1. During the waiting period, did you receive… ☐ A follow-up session with your doctor/GP? ☐ A follow-up phone call from your doctor/GP? ☐ Contact from the professional or service you were waiting to see? ☐ Information or brochures on mental health from a healthcare provider?	1. Yes 2. No 3. I can't remember/I don't know

☐ Information from a healthcare provider about support services that were available to help you? ☐ Other Information or resources (please tell us what in the box)	
2. During your waiting period, did you find the following sources of support helpful for your mental health? Please rate how helpful using a scale of 1 (not at all) to 5 (extremely). ☐ Parents ☐ Siblings ☐ Other relative or family member ☐ Friends ☐ Teacher ☐ Year Advisor ☐ School Counsellor ☐ Other adult (e.g., sports coach, a friend's parent, a person at work) ☐ General Practitioner/local doctor ☐ Other mental health professional (e.g. psychologist, psychiatrist) ☐ Telephone helpline (e.g., Kids Helpline, Lifeline) ☐ Websites on mental health (e.g., ReachOut, Beyond Blue) ☐ Online self-help mental health program (e.g., programs designed to help improve your symptoms of sadness or worry)? ☐ Online assessment tools (e.g., tools that ask you questions and tell you whether you are experiencing anxiety and/or depression)? ☐ Online support groups or discussion forums? ☐ Online mental health chat services (e.g., eHeadspace)? ☐ Mobile app for mental health ☐ Someone or something else not listed above (tell us In the box – if there is nothing else, please choose 'I didn't seek/receive help from this source')	1. Not at all helpful 2. Somewhat helpful 3. Moderately helpful 4. Very helpful 5. Extremely helpful 6. I didn't seek/receive help from this source
CURRENT MENTAL HEALTH (OPTIONAL)	
We would like to know about how you have been feeling over the last 30 days. We store this information securely and will not share your responses with anyone. You do not have to complete this part of the survey if you don't want to.	

The Distress Questionnaire-5 (DQ-5) The following questions ask about thoughts, feelings, and behaviours that you may have experienced in the last 30 days. Please respond to each question by selecting one box per row. In the past 30 days… a) My worries overwhelmed me b) I felt hopeless c) I found social settings upsetting d) I had trouble staying focused on tasks e) Anxiety or fear interfered with my ability to do the things I needed to at work, school, or home	1. Never 2. Rarely 3. Sometimes 4. Often 5. Always
CONCLUSION	
Participants are automatically redirected to a separate survey where they answer the following questions and if provided, their email address are recorded separately from their responses.	
1. Would you like to receive the $20 e-giftcard? This will be sent within 3 business days.	1. Yes 2. No
2. Would you like to receive an email copy of the survey results?	1. Yes 2. No
3. Would you like to hear about other research opportunities related to this project?	1. Yes 2. No
4. Please enter your email address here:	
Thank you for doing the survey. Your responses have been recorded. [end of survey]	

Supplemental Figure 1. Participant recruitment and study flow diagram.



BMJ Open

While they wait: A cross-sectional survey on wait times for mental health treatment for anxiety and depression for adolescents in Australia

Journal:	*BMJ Open*
Manuscript ID	bmjopen-2024-087342.R1
Article Type:	Original research
Date Submitted by the Author:	05-Jan-2025
Complete List of Authors:	Subotic-Kerry, Mirjana ; Black Dog Institute; University of New South Wales Faculty of Medicine Borchard, Thomas; Black Dog Institute Parker, Belinda; ANROWS Li, Sophie H; Black Dog Institute; University of New South Wales Faculty of Medicine Choi, Jayden; Black Dog Institute Long, Emma V; Black Dog Institute Batterham, Philip; Australian National University, Centre for Mental Health Research, Research School of Population Health Whitton, Alexis; Black Dog Institute; University of New South Wales Faculty of Medicine Gockiert, Aniela; Western Sydney University, School of Psychology Spencer, Lucinda; Grand Pacific Health Ltd O'Dea, Bridianne; Flinders University Institute for Mental Health and Wellbeing; Black Dog Institute
Primary Subject Heading:	Mental health
Secondary Subject Heading:	Public health
Keywords:	MENTAL HEALTH, Adolescents < Adolescent, Anxiety disorders < PSYCHIATRY, Depression & mood disorders < PSYCHIATRY, Waiting lists

I, the Submitting Author has the right to grant and does grant on behalf of all authors of the Work (as defined in the below author licence), an exclusive licence and/or a non-exclusive licence for contributions from authors who are: i) UK Crown employees; ii) where BMJ has agreed a CC-BY licence shall apply, and/or iii) in accordance with the terms applicable for US Federal Government officers or employees acting as part of their official duties; on a worldwide, perpetual, irrevocable, royalty-free basis to BMJ Publishing Group Ltd ("BMJ") its licensees and where the relevant Journal is co-owned by BMJ to the co-owners of the Journal, to publish the Work in this journal and any other BMJ products and to exploit all rights, as set out in our licence.

The Submitting Author accepts and understands that any supply made under these terms is made by BMJ to the Submitting Author unless you are acting as an employee on behalf of your employer or a postgraduate student of an affiliated institution which is paying any applicable article publishing charge ("APC") for Open Access articles. Where the Submitting Author wishes to make the Work available on an Open Access basis (and intends to pay the relevant APC), the terms of reuse of such Open Access shall be governed by a Creative Commons licence – details of these licences and which Creative Commons licence will apply to this Work are set out in our licence referred to above.

Other than as permitted in any relevant BMJ Author's Self Archiving Policies, I confirm this Work has not been accepted for publication elsewhere, is not being considered for publication elsewhere and does not duplicate material already published. I confirm all authors consent to publication of this Work and authorise the granting of this licence.

Word Count: 5740

Tables: 5

While they wait: A cross-sectional survey on wait times for mental health treatment for anxiety and depression for adolescents in Australia

Mirjana Subotic-Kerry[1,2]

Thomas Borchard[1]

Belinda Parker[1]

Sophie H. Li[1,2]

Jayden Choi[1,2]

Emma V. Long[1]

Philip J Batterham[3]

Alexis E. Whitton[1,2]

Aniela Gokiert[4]

Lucinda Malcolm[5]

Bridianne O'Dea[1,6]

1. Black Dog Institute, University of New South Wales, Sydney, NSW, Australia
2. Faculty of Medicine and Health, University of New South Wales, Sydney, NSW, Australia
3. Centre for Mental Health Research, Research School of Population Health, Australian National University, Canberra, ACT, Australia
4. School of Psychology, Western Sydney University. Penrith, NSW, Australia
5. Grand Pacific Health, Wollongong, NSW, Australia

6. Flinders University Institute for Mental Health and Wellbeing, Flinders University, Adelaide, South Australia

Corresponding Author:

Mirjana Subotic-Kerry

Black Dog Institute, Randwick, NSW, 2031, Australia

Telephone: +(02) 9065 9153 Email: m.subotic-kerry@blackdog.org.au

ABSTRACT

Background: Long wait times impede timely access to mental health treatment for anxiety and depression for adolescents. However, there is limited quantitative research on current wait times for the treatment of anxiety and depression for adolescents in Australia and the impact of wait times on adolescent help-seekers.

Aims: This study examined adolescents' experiences of wait times for the treatment of anxiety and depression in Australia, including the providers they were waiting to access, the self-reported duration and perceived acceptability of wait times, the association between these wait times and psychological distress, and the support and coping behaviours used by adolescents during this time.

Method: From April to June 2022, 375 adolescents aged 13-17 years who were living in Australia and currently waiting, or had previously waited in the past 12 months, for mental health treatment for anxiety and depression completed a cross-sectional online survey.

Results: Most adolescents initiated care with psychologists and psychiatrists, with mean wait times of 100.1 days (SD: 77.25) and 127.5 days (SD: 78.80), respectively. The mean wait time across all treatment providers was 97.9 days (SD: 80.71). Most participants (84.0%) felt their wait times were 'too long'. Longer wait times were associated with increased psychological distress and many adolescents perceived that their mental health worsened during the wait time. Most participants did not receive any support from their healthcare providers during the wait time and engaged in maladaptive and risky coping behaviours while waiting. However, self-reported treatment attendance remained high.

Conclusions: Adolescents in Australia face lengthy wait times when accessing mental health treatment and this may exacerbate distress and maladaptive coping.

Keywords: Wait times; Adolescent; Mental health; Treatment; Mental Health Services

Strengths and limitations of this study

- By examining various dimensions of wait times, including duration, perceived acceptability, and impacts on mental health, the study provides a comprehensive understanding of wait times for mental health services for anxiety and depression.
- The survey used in this study was developed in consultation with young people, mental health professionals, and researchers and covered a broad spectrum of experiences regarding wait times for mental health services.
- The recruitment strategy was broad, utilising social media and partnerships with clinical services to reach youth from all states and territories within Australia.
- The cross-sectional nature of the study limits the ability to determine causal relationships between wait times and mental health outcomes.
- Participants who are more engaged or have stronger opinions about their wait times might have been more likely to participate, and we may not have captured the views of adolescents who attended their first treatment session within a short timeframe or who were satisfied with their wait time.

INTRODUCTION

Wait times for adolescent mental health services in Australia

Anxiety and depression are common mental health problems among adolescents in Australia and worldwide.[1,2] Although effective treatments exist, long wait times impede access to mental health services and are a major barrier to treatment uptake among youth.[3-5] While wait times for mental health treatment vary across countries[4-6] and services[7,8], the increasing demand for treatment coupled with the COVID-19 pandemic has placed increased pressure on mental health systems globally.[9,10] Prior to the pandemic, the *headspace* public youth mental health service in Australia reported an average wait of 25.5 days for psychological treatment,[3] whereas a secret shopper study of Australian psychologists and psychiatrists reported a median wait time of 34 days and 41 days, respectively.[11] During the pandemic, 88% of psychologists in Australia reported that their wait times had increased, with 1 in 2 clients waiting more than three months for their first session of treatment.[12] Similar patterns have been reported in the US, UK, Canada, and other countries,[4,5,6,8] however, the current wait times for mental health treatment in Australia and the impacts of these on adolescents are unclear.

The impact of wait times on adolescent's mental health

Evidence is emerging on the potential negative consequences of extended wait times on young people's mental health and treatment uptake. The waiting time between referral and treatment provision has been identified as a period of significant vulnerability for adolescents and their families as individuals' symptoms are acute, but treatment has not yet begun. Prolonged wait times are associated with the premature termination of treatment,[13] lower rates of kept appointments,[14] and increased number of missed appointments.[13,15,16] Research has also found that longer wait times are associated with symptom deterioration and

diminished future help-seeking,[17] with qualitative reports of increased negative emotional and behavioural consequences and worsened psychological health.[18] Despite these potential negative impacts, there is a scarcity of quantitative data on wait times for adolescent mental health treatment in Australia.

Wait time standards for mental health treatment

A key hallmark of high performing mental health systems is the timely accessibility and availability of treatment services.[19] In many countries, national waiting time standards for mental health treatment have been introduced to monitor the performance of mental healthcare systems.[19] In 2016, the National Health Service (NHS) in the United Kingdom (UK) established wait time targets with 75% of referrals for psychological interventions for anxiety and depression to begin treatment within six weeks, and 95% within 18 weeks.[20,21] This performance benchmarking was found to significantly reduce wait times, with over 90% of referrals having accessed care within six weeks.[22] The NHS standards have since been updated to include a four-week wait time target for children and young people.[23] This is consistent with Norway, where the national wait time target for youth mental healthcare is 35 days.[24] There are currently no national efforts to collect or benchmark the wait times for mental health services in Australia using transparent methods. As such, our knowledge of adolescents' experiences of wait times in Australia is limited.

Objectives of the current study

The current study aimed to explore adolescents' (aged 13 to 17) experiences of wait times for mental health treatment for depression and anxiety in Australia. This study examined service utilisation, self-reported wait time duration, and perceived acceptability of wait times among adolescents seeking treatment for depression or anxiety. The associations between self-reported wait times and adolescents' psychological distress as well as any

perceived changes in mental health experienced by young people during their wait time were also examined. Lastly, this study explored the support that adolescents received during their wait time, the coping behaviours that they used while they awaited care, and their self-reported treatment attendance.

Based on past studies, it was hypothesised that treatment-seeking adolescents in Australia with depression and anxiety would report an average wait time of at least one month for mental health treatment and services.[3,11] It was also hypothesised that longer wait times would be associated with greater levels of psychological distress. To our knowledge, this is one of the first studies to examine this aspect of mental healthcare service provision for adolescents in Australia and provides much needed insight on how to better support young people as they await care.

METHOD

Design

An online cross-sectional survey was administered between April and June 2022. The Black Dog Institute's Youth Lived Experience Advisory Group was consulted on all aspects of the study design.

Patient and public involvement

The survey was written for this study in consultation with young people, mental health professionals, and researchers. See Supplementary Material for a detailed description of the survey development and Appendix A for the full survey including all response options.

Ethical approval

The authors assert that all procedures contributing to this work comply with the ethical standards of the relevant national and institutional committees on human

experimentation and with the Helsinki Declaration of 1975, as revised in 2008. All procedures involving human subjects/patients were approved by the University of New South Wales Human Research Ethics Committee (UNSW HREC: HC190382).

Sample size

The target sample size was 383 participants based on a confidence level of 95%, a population size of N=97, 500,[1] and a margin of error of 5%. The population size reflects the estimated number of adolescents in Australia aged 13-17 years who meet the criteria for a clinical diagnosis of anxiety and/or depression and are likely to seek mental health treatment based on a nationally representative sample[1].

Participants

Adolescents were eligible to participate if they were aged 13-17 years old living in Australia and had sought treatment for anxiety and/or depression in the past 12 months. To enable greater exploration of wait times and participation among adolescents, we included two subgroups of participants (i) adolescents who were currently waiting to attend their first-ever session of mental health treatment (ii) adolescents who had waited more than one week in the past 12 months to access their first-ever session of treatment. Adolescents were excluded if they were (i) currently waiting for a follow-up treatment session with a mental health professional or service that they were not accessing for the first time, or (ii) currently waiting or previously waiting for a treatment session that was unrelated to anxiety or depression.

Recruitment, procedure, and consent

Participants were recruited via paid social media campaigns on Facebook, Twitter, Instagram, and LinkedIn (for parents and carers to promote to youth). Study information was also published on the research sponsor's (Black Dog Institute) website and circulated through their clinical service partners. The Black Dog Institute is a mental health research institute in Australia affiliated with the University of New South Wales. The Institute's website promotes research participation opportunities to a range of diverse audiences. All recruitment materials were submitted and approved by UNSW HREC. All study advertisements provided hyperlinks to the survey.

Before commencing the survey, participants were presented with the Participant Information sheet and were required to pass screening questions and a 4-item Gillick Competence Test[25]. This test was used to measure the capacity of adolescents aged under 18 years to provide informed consent to participate in research. Four questions, answered using three multiple choice options, tested the participant's comprehension of what the research study involved ("This research study involves…"), who the research study was being conducted by ("This research is being conducted by…"), the voluntary nature of participation ("Do I have to finish the survey?") and who their responses would be shared with ("Your responses to this survey will be shared with…"). Individuals who did not complete the items correctly were excluded. For a full copy, please see Appendix A.

Active parental consent was not obtained in the current study due to the use of a Gillick Competence measure, the anonymous nature of the survey, and the minimal risk of harm from a young person's involvement. The survey provided all participants with information on Australia-based help-seeking resources. All eligible individuals provided consent via an online form and all participants who completed the survey received a 20AUD voucher sent via email.

Survey measures

Demographics

Participants were asked to report their age, gender identity, whether they identified as Aboriginal and/or Torres Strait Islander, whether they identified as Lesbian, Gay, Bisexual, Trans, Queer, Intersex, Asexual, or another diverse sexual identity (LGBTQIA+), the Australian State or Territory and postcode they were currently living in, and their educational/employment status. Postcodes were then classified as 'metropolitan' or 'non-metropolitan' according to the Australian Bureau of Statistics 2016 Australian Statistical Geography Standard.[26]

History of mental health

Participants were asked whether they had ever been formally diagnosed with depression and/or anxiety by a health professional and whether they were currently taking medication prescribed by a health professional for depression and/or anxiety.

Treatment providers, wait time duration, perceived acceptability of wait time

Participants were asked to review a list of 11 mental health treatment providers and indicate which professionals and services they were currently waiting to see for the first time (i.e., professionals and services they had been referred to, contacted, and made an appointment with). These included, a psychologist, psychiatrist, *headspace* centre, hospital stay, a program or service to help improve feelings of sadness or worry (e.g. Cool Kids), Local Child and Adolescent Mental Health Service (CAHMS), School Counsellor, Paediatrician, a support group (e.g., a group of people meeting to share information, experiences, problems and solutions), an Aboriginal/Torres Strait Islander medical centre, an Aboriginal/Torres Strait Islander support worker. There was a free response "other" option

included to list a professional or service that was not provided. For each of the treatment providers endorsed, participants were asked to report who referred them, the length of time waited between their first contact and attending their first session (how many months, weeks, days, or I don't know/I can't remember), and their perception of the wait time ('too long', 'just right/acceptable', or 'unsure/I don't know').

Psychological distress

Psychological distress was measured by the five-item Distress Questionnaire-5 (DQ5).[27] Participants were asked to indicate the frequency with which they had experienced various thoughts, feelings, and behaviours in the past 30 days from 'never' (1) to 'always' (5). Total scores range from 5 to 25 with higher scores indicating greater psychological distress, and a threshold of ≥14 as the clinical cut-off. This scale has demonstrated high internal consistency and convergent validity,[27,28] and has been used in adolescents.[29] In the current study, the Cronbach's alpha for the DQ5 was α=.77.

Perceived changes in mental health during the wait time

Participants were asked to rate whether their feelings of sadness or worry had improved or worsened during their wait time using a 5-point Likert scale ranging from 'worse' (1) to 'no change' (3) to 'better' (5). Participants also had the option to select 'does not apply to me'.

Support from healthcare providers during the wait time

Using a 5-point Likert scale ranging from 'not at all important' (1) to 'extremely important' (5), participants were asked to rate how important it was that their healthcare providers helped them manage their depression and anxiety while they awaited their first treatment session. Participants were then asked to rate how supported they felt by their

healthcare providers while they awaited treatment using a 5-point Likert scale ranging from 'not at all supported' (1) to 'extremely supported' (5). Participants were then asked to report whether they had received any of the commonly provided resources during their wait time (e.g., follow-up session or phone call with a General Practitioner [GP], contact from the referred professional, information brochures on mental health, and other support services). Two free response questions were asked: "Is there anything that your healthcare providers could have done to better support you during the wait time?" and "What do you think would have helped you the most during your wait time?".

Sources of personal support during the wait time

Participants were provided with a list of 17 sources of personal support and asked to rate how helpful each source was for them during the wait time. These included parents, siblings, other relatives of family members, friends, teacher, year advisor, school counsellor, other adult (e.g., sports coach, a friend's parent, a person at work), general practitioner/local doctor, mental health professional (e.g., psychologist, psychiatrist), telephone helplines (e.g., Kids helpline, Lifeline),Mental Health websites (e.g., ReachOut, BeyondBlue), Online self-help mental health programs (e.g., programs designed to help improve symptoms of sadness or worry), online assessment tools (e.g., tools that ask you questions and tell you whether you are experiencing anxiety and/or depression), Online support groups or discussion forums, online mental health chat services (e.g., eHeadspace), Mobile app for mental health. Someone or something else not listed above). Responses were given using a 5-point Likert scale ranging from 'not at all helpful (1)' to 'extremely helpful (5)', with an additional option of 'I didn't seek/receive help from this source'. Participants were able to indicate other sources of support in a free response option.

Importance of additional support for parents/guardians during the wait time

Using a 5-point Likert scale ranging from 'not at all' (1) to 'extremely' (5), participants were asked to rate how important it was that their parents/guardians be provided with some sort of support to help their parents/guardians to cope better during the wait time.

Coping behaviours used during the wait time

Participants were asked to select from a list of 26 randomly displayed behaviours that they had used to cope during their wait time. Participants could select all that applied. For analysis, each behaviour was collapsed into one of four categories: maladaptive (e.g., spending more time online gaming), risky (e.g., self-harming), help-seeking (e.g., seeking support from friends), adaptive (e.g., doing more exercise or sport). A free response option was also provided so that participants could report any coping behaviours that were not listed.

Attendance at first session of mental treatment

Participants who were currently waiting to access mental health treatment were asked how likely they were to attend their first session of treatment using a 5-point Likert scale ranging from 'extremely unlikely' (1) to 'extremely likely' (5). Participants who selected unlikely or extremely unlikely were then provided with a list of 11 reasons for non-attendance and were asked to select all that applied. Reasons for non-attendance included, I don't need it anymore because I feel better, I found an earlier session somewhere else, I have had to wait for too long, I can't be bothered, I might forget, I don't have the money, I don't want to go, The session is too far away from me, I don't have any transport to get there, I feel too worried and/or sad to go, I am unsatisfied with the service, A different reason (please tell us in the text box).

Participants who had previously waited in the past 12 months to access mental health treatment were asked whether they attended their first session ('yes', 'no'). Participants who reported that they did not attend were also provided with the same list of reasons for non-attendance as above and asked to select all that applied.

Data analyses

Data were collected using Qualtrics and then exported to SPSS version 28.0[30] for analysis. A detailed description of data cleaning processes is presented in the Supplementary Material.

Researchers reviewed suspected fraudulent responses, and discrepancies were resolved by a third rater (see Supplementary Material for additional information). Fraudulent and duplicate responses were detected by comparing participants' details (email, postcode, IP addresses) and response patterns across the survey (see Supplemental Table 1). Participants who completed the survey faster than 40% of the average completion time for the entire sample were removed as recommended by Cobanoglu et al.[31]

To determine wait time durations for treatment, the total mean days waited for each professional or service was calculated using the formula Total Months*30.437 + Total Weeks*7 + Total Days waited. Any reported values above one year (365 days) for participants who were currently waiting to access their first-ever session of mental health treatment or one week or below for participants who had waited more than one week in the past 12 months to access their first session were removed. A total of 23 responses above one year and 28 values below or equal to one week were removed from the analysis.

Differences in wait times between metropolitan and regional/rural areas were examined using Mann-Whitney U tests. To compare wait times against the NHS benchmarks, the total days waited were collapsed into three categories: within 6 weeks (0 to 42 days),

within 18 weeks (0 to 126 days), and greater than 18 weeks (127+ days). To determine the association between wait times and psychological distress (DQ-5), zero-order correlations were conducted for those currently waiting only.

Qualitative (free response) data were analysed using Clarke and Braun's (2013)[32] six-stage thematic analysis guidelines, which allow for identifying and interpreting patterns of meaning within data[33]. Given these questions were open-ended, an inductive approach was used to develop a coding framework.[34,35] The analysis involved an iterative process of reading and coding responses and then organising codes into broader themes. Two primary coders (TB and EL) independently coded a subset of responses for each free response question to create a preliminary framework, resolving discrepancies through discussion. The revised framework for each free response question was then applied to all responses, and codes were compared for consistency. Any discrepancies were resolved by a third independent rater (MSK), ensuring consistency in code descriptions.

RESULTS

Participants

A total of 780 respondents were assessed for study eligibility and 92 were excluded due to being ineligible to participate (*n*=40) or failing the Gillick Competence Test (*n*=52). A further 313 responses were excluded due to being judged as invalid/fraudulent (*n*=211), incomplete (*n*=82), or completed too quickly (*n*=20) (see Supplemental Figure 1).

The final sample consisted of 375 full completers (64.0% female, mean age: 16.04 years, SD=1.07, range: 13-17). For additional information, please refer to the Supplementary Material. A total of 43.7% of the final sample (*n*=164/375) were currently waiting for their first session of mental treatment and 56.3% (*n*=211/375) had previously waited, in the past 12 months, longer than one week to access their first treatment session. As shown in Table 1,

over half of the sample identified as being LGBTQIA+ (*n*=207/375; 55.2%). The majority lived in metropolitan areas (*n*=264/375; 70.4%) and were secondary school students (*n*=318/375; 84.8%). More than three-quarters of participants reported that they had received a formal diagnosis of depression and/or anxiety from a health professional (*n*=292/375; 77.9%) and 46.7% (*n*=175/375) reported that they were taking prescribed medication for their mental health.

Table 1. Participant demographics (N=375)

	N	%
Gender		
Male	67	17.9
Female	240	64.0
Non-Binary	51	13.6
Different Identity	14	3.7
I'd rather not say	3	0.8
Identified as Aboriginal/Torres Strait Islander peoples		
Aboriginal peoples	31	8.3
Torres Strait Islander peoples	1	0.3
Aboriginal and Torres Strait Islander peoples	1	0.3
Identified as LGBTQIA+	207	55.2
Metropolitan location[a]	264	70.4
State or territory of residence		
Australian Capital Territory	5	1.3
New South Wales	107	28.5
Victoria	100	26.7
Queensland	82	21.9
Tasmania	22	5.9
Northern Territory	3	0.8
South Australia	29	7.7
Western Australia	27	7.2
Current education or employment status		
Secondary school	318	84.8
University	16	4.3
Apprenticeship/Trade/Full-time employment	12	3.2
Other	29	7.7
Formal diagnosis of depression and/or anxiety	292	77.9
Prescribed medication use for depression and/or anxiety	175	46.7

Note. LGBTQIA+ = Lesbian, Gay, Bisexual, Transgender, Queer, Intersex, and Asexual.

Treatment providers, wait time duration and perceived acceptability of wait times

Participants had initiated appointments with an average of 2.29 (SD: 1.31, range: 1-9) treatment providers, with psychologists (*n*=272; 72.5%) and psychiatrists (*n*=160; 42.7%) the most common (See Table 2). Most participants (*n*=305/432, 70.6%) accessing psychologists and psychiatrists were referred by a GP. The average wait time across all treatment providers was 97.9 days (SD: 80.71, range: 0-365, Mdn: 81.9). Please see Table 2 for the mean and median wait times for each service provider. As shown, average and median wait times for the common treatment providers (i.e., psychologists and psychiatrists) exceeded three months. However, there was significant variability in wait times within and across service providers as demonstrated by the standard deviation estimates ranging from 21.5 days to one year. Medical specialists (psychiatrists, paediatricians) were found to have the longest average wait times (127.5 days, and 121.9 days respectively), whereas services designed for acute and severe cases (CAMHS, Inpatient units) and indigenous-specific services had the lowest wait times (69.2 days, 71.9 days, and 45.7 days respectively). The wait time to access a psychiatrist was significantly longer in metropolitan areas compared to regional areas (*U*=925.50, *P*=.002). In contrast, the wait time was significantly longer in regional areas compared to metropolitan areas to access a paediatrician (*U*=63.50, *P*=.043) and a school counsellor (*U*=439.00, *P*=.020). All other comparisons by location did not reach significance (*P*= .740-.969). Across all treatment providers, most participants (*n*=550/655, 84.0%) perceived that their wait time was “too long”.

Table 2. Treatment providers, wait time durations, and perceived acceptability of wait times among participants (N=375)

Treatment providers	*n* (%) utilising this service	GP referred *n* (%)	*n* who reported wait time	Mean days waited (SD)	Median days waited	Range (days)	*n* (%) who reported wait time was too long	*n* (%) who reported wait time was acceptable
Psychologist	272 (72.5)	177 (65.1)	230	100.1 (77.25)	91.3	10-365	203 (88.3)	10 (4.3)
Psychiatrist	160 (42.7)	128 (80.0)	127	127.5 (78.80)	107.0	18-341	120 (94.5)	3 (2.4
School counsellor	105 (28.0)	12 (11.4)	76	55.6 (72.71)	21.0	0-365	49 (64.5)	22 (28.9)
Headspace	97 (25.9)	40 (41.2)	79	107.6 (89.44)	91.0	14-365	68 (86.1)	4 (5.1)
Child and Adolescent Mental Health Services	69 (18.4)	30 (43.5)	53	69.2 (65.43)	45.7	7-304	43 (81.1)	8 (15.1)
Paediatrician	50 (13.3)	37 (74.0)	33	121.9 (83.85)	101.3	14-365	28 (84.8)	4 (12.1)
Inpatient hospital stay	32 (8.5)	17 (53.1)	22	71.9 (70.46)	60.9	2-272	19 (86.4)	1 (4.5)
Support group	27 (7.2)	6 (22.2)	18	72.0 (78.85)	43.2	14-304	11 (61.1)	5 (27.8)
Structured psychological program or service	25 (6.7)	9 (36.0)	15	99.1 (76.73)	91.0	14-262	9 (60.0)	3 (20.0)
Aboriginal/Torres Strait Islander medical centre	4 (1.1)	3 (75.0)	2	45.7 (21.52)	45.7	30-61	2 (100.0)	0 (0)

Comparisons with NHS benchmarks

Table 3 outlines the proportion of participants who accessed their first treatment session within the NHS benchmarks. Averaged across all primary health service providers (psychologist, *headspace*, psychiatrist, Child and Adolescent Mental Health services), only 28.2% of participants reported a wait time of less than 6 weeks (*n*=138/489). Of these, the proportion that accessed their first treatment session within the 6-week NHS benchmark was lowest for psychiatrists (*n*=20/127; 15.7%), psychologists (*n*=67/230; 29.1%), and *headspace* centres (*n*=25/79; 31.6%). Over two-thirds (71.0%) had their first treatment session within 18 weeks and 29.0% waited over 18 weeks.

Table 3. The proportion of participants that received their first treatment session within the NHS benchmarks

	NHS	Psychologist		Psychiatrist		Headspace		Child and Adolescent Mental Health Services		All Primary Health Services	
	%	N	%	N	%	N	%	N	%	N	%
Within 6 weeks	75	67	29.1	20	15.7	25	31.6	26	49.1	138	28.2
Within 18 weeks	95	167	72.6	77	57.2	56	70.9	48	84.9	348	71.2
>18 weeks	5	63	27.4	50	39.4	23	29.1	8	15.1	144	29.4

Note. Four outliers were excluded.

Psychological distress and perceived changes in mental health during the wait time

Across the whole sample, the mean psychological distress score was 19.40 (*SD*: 3.42, range: 5-25), representing a high level of distress at the time of the survey. Overall, 350 (93.3%) participants reported a distress score of 14 or above, indicating that they were experiencing clinically meaningful levels of psychological distress. Over two-thirds (67.5%, *n*=243/360) perceived that their feelings of sadness had worsened during their wait time and

71.5% (*n*=256/363) perceived that their feelings of worry had worsened. In contrast, 13.9% (*n*=50/360) perceived that their feelings of sadness had reduced during their wait time and 14.6% (*n*=53/363) perceived that their worry had reduced.

Associations between wait times and psychological distress among those currently waiting for their first treatment session

Participants who were currently waiting for their first treatment session reported a mean psychological distress score of 19.13 (SD: 3.83, *n*=164) with 90.2% experiencing clinically meaningful levels of psychological distress. In this group, there was a small positive correlation between psychological distress and overall wait times for all services combined (*n*=131, *r*=.29, *P*=.001). There was also a small positive correlation between psychological distress and the wait time for psychologists (*r*=.35, *n*=93, *P*=.001) and psychiatrists (*r*=.30, *n*=43, *P*=.050), such that longer wait times were associated with increased psychological distress. No other significant associations were found (*P*=.101 to .983). Results using Pearson correlations were comparable in magnitude and statistical significance.

Support from healthcare providers during the wait time

The majority of participants reported that it was 'very' or 'extremely' important (*n*=274; 73.1%) that their healthcare providers offered them support while they waited for their first treatment session. However, nearly 40% reported that they were 'not at all' (*n*=142; 37.9%), or only 'slightly' supported (*n*=131; 34.9%) during this time. When asked to select what support they had received, 38.1% (*n*=143) were contacted by their waitlisted provider, 31.2% (*n*=117) had a follow-up session with their GP, 30.9% (*n*=116) were given information on support services, 22.1% (*n*=83) were provided mental health

information/brochures, and 21.2% (*n*=79) had received a follow-up phone call from their doctor/GP.

When asked what treatment providers could have done to better support them (free response), the key themes were: increased contact from the waitlisted service (*n*=64/142; 45.1%, e.g., "more check ins", "greater communication", and "transparency"), practical information (*n*=48/142; 33.8%, e.g., "mental health strategies and resources" and "online resources"), and other (*n*=30/142; 21.1%, e.g., "crisis support", "emotional support and validation", "alternate referrals", "medication"). When asked what would have helped them the most during the wait time (free response), participants (*n*=71/340; 20.9%) reported "more frequent check-ins" and "greater contact from healthcare providers with updates about the status of appointment". Participants also requested "resources" (*n*=57/340; 16.8%), "emotional support" or "someone to talk to" (*n*=52/340; 15.3%), "alternate services" or "referral to another mental health professional" (*n*=49/340; 14.4%), "shorter wait times" (*n*=36/340; 10.6%), and support from informal sources such as "parents, friends, and support groups" (*n*=35/340; 10.3%).

Sources of personal support during the wait time

Table 4 outlines the sources of support participants utilised and associated helpfulness ratings. Most participants turned to friends (*n*=338, 90.1%), parents (*n*=331, 88.3%), and their GP (*n*=305, 81.3%) for support during the wait time. Over half of the sample had used a digital source of support including web-based tools, mental health websites, helplines, and mobile apps. On average, friends were rated as 'moderately helpful' sources of support, with all other informal, professional, and digital sources mostly rated as 'somewhat helpful'. Most participants endorsed that it was 'very' to 'extremely' important that their parents/guardians

be provided with additional support to help them cope during the wait time (*n*=225/375, 60.0%), with very few reporting that it was 'not at all' important (*n*=23/375, 6.1%).

Table 4. Sources of support used by participants during the wait time (N=375)

Source of support	Used this source	Helpfulness rating	
	n (%)	M	SD
Informal sources			
Friends	338 (90.1)	3.09	1.18
Parent	331 (88.3)	2.30	1.18
Siblings	260 (69.3)	2.00	1.13
Other relative/family	225 (60.0)	1.97	1.20
Other adult	201 (53.6)	2.16	1.15
Professional sources			
GP/local doctor	305 (81.3)	2.23	1.10
School counsellor	278 (74.1)	2.17	1.22
Teacher	257 (73.3)	2.06	1.13
Year advisor or equivalent	233 (62.1)	1.94	1.15
Other MH professionals	232 (61.9)	2.35	1.21
Digital sources			
Web-based assessment tools	274 (73.3)	2.56	1.18
Mental health websites	270 (72.0)	2.40	1.21
Telephone helpline	230 (61.3)	1.93	1.17
Mental health mobile app	214 (57.1)	2.00	1.00
Online mental health program	196 (52.2)	2.06	1.10
Online mental health chat services	189 (50.4)	2.10	1.10
Online mental health support forums	165 (44.0)	2.25	1.31

Note. Percentages are reported for the subset of participants that selected each source of support. The range for each source of support listed is 1 (not at all helpful) to 5 (extremely helpful).

Coping behaviours used during the wait time

As outlined in Table 5, 92.8% (*n*=348) of participants used one or more maladaptive coping behaviours during the wait time such as spending more time alone (*n*=270; 72.0%) and sleeping (*n*=260; 69.3%). A total of 87.5% (*n*=328) used one or more help-seeking behaviours such as searching the Internet to find mental health information (*n*=240; 64.0%)

and reaching out to friends via Short Messaging Service (SMS; *n*=199, 53.1%). Over two-thirds reported that they had engaged in one or more risky coping behaviours (*n*=284, 75.7%) such as self-harm (*n*=209; 55.7%) and skipping school (*n*=174; 46.4%).

Table 5. Coping behaviours used by participants during the wait time (N=375)

	n	%
Maladaptive behaviours	348	92.8
Spending more time by myself	270	72.0
Spending more time sleeping	260	69.3
Spending more time on social media	244	65.1
Spending more time at home	244	65.1
Eating more treat food and/or takeaway food	176	46.9
Spending more time online gaming	106	28.3
Help-seeking behaviours	328	87.5
Searching the internet for information about mental health	240	64.0
Speaking with friends over text message	199	53.1
Seeking support from friends	166	44.3
Speaking with a school counsellor, teacher, or other school support	120	32.0
Speaking with friends over a phone call	111	29.6
Risky behaviours	284	75.7
Self-harming	209	55.7
Skipping school	174	46.4
Drinking alcohol	102	27.2
Vaping	86	22.9
Using cannabis	66	17.6
Smoking cigarettes	49	13.1
Using other drugs	40	10.7
Adaptive behaviours	272	72.5
Writing down how I feel (e.g., journaling)	116	30.9
Doing more exercise or sport	112	29.9
Doing activities that help me relax	111	29.6
Reading books	100	26.7
Doing more activities I enjoy	98	26.1
Taking up a new activity, sport, or hobby	90	24.0
Meeting up with friends or becoming more social	88	23.5
Improving or changing my diet	87	23.2

Note. Total *n* and % for each category were calculated based on whether participants endorsed at least one strategy in that category.

Self-reported attendance at the first treatment session

Among those who were currently waiting, 78.7% (*n*=129/164) reported that they were likely to attend their first treatment session and 14.7% (*n*=24/164) reported that they were unlikely to attend. The most common reasons for likely non-attendance were 'the wait time was too long' (*n*=13/24; 54.2%), 'don't want to go' (*n*=13/24; 54.2%), and 'couldn't be bothered' (*n*=11/24; 45.8%). Four participants in this subgroup (*n*=4/24; 16.6%) selected the response 'I don't need it anymore, I feel better'. Among those who had previously waited, almost all reported that they attended their first session (*n*=203/211; 96.2%); however, 'the wait time was too long' (*n*=6/8; 75%) and 'didn't want to go' (*n*=3/8; 37.5%) were the main reasons for self-reported non-attendance in this subgroup.

DISCUSSION

Primary findings

This study presents a cross-sectional examination of adolescents' experiences of wait times for mental health treatment for anxiety and depression in Australia. Consistent with the hypotheses, the average self-reported wait times for several mental health treatment providers exceeded 100 days. Most adolescents in this sample were waiting to access psychologists, psychiatrists, and *headspace* centres for more than three months and the majority felt that their wait times were 'too long'. While there was significant variation in wait times across services and between participants, these did not differ between states. Wait times for psychiatrists were significantly longer in metropolitan locations whereas wait times for paediatricians and school counsellors were longer in regional areas. The average self-reported wait times found in this study were more than three times higher than previous Australian reports,[3] although consistent with more recent data on wait times for psychologists.[12] Overall,

these results indicate significant gaps between adolescents' need for mental health treatment for anxiety and depression and its timely availability in Australia.

In further support of our hypotheses, longer wait times were associated with higher levels of psychological distress, and over two-thirds of participants felt their mental health had worsened during the wait time. Moreover, many of the maladaptive and risky coping behaviours used by participants may have signified further deterioration of symptoms (e.g., sleeping, social withdrawal, self-harm). While some participants felt their mental health had improved during the wait time, our results are consistent with several past studies that observed declines in mental health among young people waiting for care.[36-39] However, as this study is cross-sectional, there was no evidence to suggest that wait times caused poorer mental health in young people. Rather, the results may reflect the natural illness progression of anxiety and depression among this sample and their greater need for treatment. Regardless, the findings suggest that the wait time for mental health treatment is likely to be a period of significant vulnerability for many adolescents, characterised by high levels of psychological distress, perceived worsening of mental health, and engagement in maladaptive and risky coping behaviours.

Implications for clinical practice

This study confirms that many adolescents were provided with nil to minimal support from their healthcare providers during the wait time, despite the majority feeling that it was important. Interestingly, the support preferences of adolescents were low intensive, non-clinical, and communication-based. Specifically, adolescents requested more contact and 'check-ins' from their waitlisted service provider, which could be administered by practice staff or automated through technological platforms such as SMS. A digital system that periodically contacts adolescents with updates about their upcoming appointments and provides relevant web-based tools and positive coping strategies may be beneficial to

adolescents during the wait time given their prior positive experiences with digital resources. Service designers should actively engage with adolescent treatment seekers to further explore and co-design such an approach. Moreover, the high referral rates and interim care provided by GPs further confirm the importance of their role in mental health service provision in Australia. Future research would benefit from examining GPs' understanding of wait times, the impacts on their treating behaviour, and how to best support GPs in providing interim care to their youth patients on wait lists for mental health treatment.

In this study, most participants reported attending their first treatment session or were likely to, despite experiencing long wait times. This finding contrasts with several studies that imply longer wait times lead to treatment disengagement across adolescents.[13-16] Our results may reflect the 'sunken cost' associated with longer wait times, such that the time, effort, and resources involved in accessing scarce treatment led to higher retention levels in youth. This finding may also reflect the higher levels of motivation and commitment to treatment among this sample, which may or may not be due to longer wait times. As most participants were in secondary school, their treatment adherence may have also been sustained through parental, familial, and school support. As such, different patterns of service use may be found in other samples and studies with longer periods of observation. However, long wait times were reported as the primary reason that non-attenders did not start their treatment. This suggests that long wait times may reduce treatment uptake in a sub-group of adolescent help-seekers and future research may benefit from examining this pattern of treatment engagement in more detail. Moreover, international studies have found that many parents facing long wait times place their adolescent children on multiple wait lists, which may further exacerbate wait times.[40,41] Future studies may benefit from examining whether long wait times lead parents and adolescents to place themselves on multiple waitlists for the same type of treatment

provider, inadvertently contributing to longer wait times and increased demand for some providers in Australia.

The call for national standards

The overall wait times reported in this study exceeded the NHS standards, with only 1 in 4 young people reporting a wait time of less than 6 weeks and one-third waiting longer than 18 weeks. Given that the introduction of transparent wait time standards in the UK and other countries has reduced wait times significantly,[19,22] our results support the call for transparent wait time monitoring and reporting for mental health treatment in Australia. This approach may improve the timely provision of mental health treatment to both adolescents and adults. As a start, this could be achieved through mandatory reporting from any mental health professional that benefits from the Better Access initiative - a Federal government program that provides subsidised mental healthcare to Australian residents.[42] This approach would also enable the identification of locations and treatment services with greater need as well as the objective data needed to evaluate the impact of systemic changes on wait time durations.[43] Future research should utilise evidence-based approaches that involve service users, including clinicians, parents and families, schools, and young people to determine acceptable wait time targets for the Australian context.[44]

Limitations

This study is an important step in understanding the wait times for mental health treatment for anxiety and depression in Australia in the absence of robust national data. This study is strengthened by the involvement of adolescents with lived experience in the survey design and recruitment methods. This study is also strengthened by the representation of adolescents from hard-to-reach groups including those who identify as gender and/or sexuality diverse. The diversity rates reported were similar to other mental health trials of

adolescents in Australia[45-47] but were somewhat higher than the general population.[48] As the study did not specifically target these groups in recruitment, these rates may reflect the increased need for mental health treatment among these youth and/or their higher levels of help-seeking.[49,50] These rates may also reflect the allyship of the Black Dog Institute for gender and/or sexuality diverse adolescents in Australia. Nevertheless, the high proportion of LGBTQIA+ respondents may limit the generalisability of these findings to other demographic groups.

Due to the sampling method, the study does not represent the experiences of adolescents who accessed their first treatment session within a short timeframe (e.g., less than one week) or those satisfied with their wait time. Additionally, the definition of "first appointment" did not distinguish a psychotherapy session from other types of first appointments such as intake assessments, given that adolescents who were waiting for care could not be expected to know this distinction. Therefore, the wait times for the services that may use intake assessments, such as *headspace* or CAMHs, may be an underestimation of the length of time taken to receive psychological therapy. The use of self-report data may also be limited by poor or inaccurate recall. Different results may be found in treatment provider records or when more objective measures are used. Seasonal variations in wait times reported by other service providers[3] were also not captured by this study due to the time-limited and cross-sectional study design. As such, different wait times may be found when data is collected over longer periods. Finally, the current study did not measure the presence of co-occurring complexities that may have inflated wait times, such as the need for specialised mental health care (e.g. trauma, eating disorders, neurodivergence). Future work may benefit from greater attempts to understand how treatment-seeking may be influenced by symptom severity, comorbidities, or additional psychosocial needs.

Conclusion

This study is the first to examine Australian adolescents' wait times for the treatment of anxiety and depression. Findings indicated that many Australian youth face extended delays across several treatment providers, with many adolescents perceiving the wait times as too long. The findings highlight the need for national transparency and benchmarking of wait times for mental health treatment providers in Australia. Many participants felt unsupported by their referred providers and that their mental health had worsened during the wait time, with many engaging in unhelpful coping behaviours. As such, more research is needed to determine best practices for addressing young people's mental health needs while they await professional treatment for anxiety and depression, with adolescent perspectives informing these practices to ensure their relevance and effectiveness.

Declaration of interest

None.

Acknowledgments

We are grateful to the individuals from the Black Dog Institute Youth Lived Experience group for their time and support in the development of the survey. The authors would also like to thank the young people who took part in this study.

Author contributions

BOD conceived the project and prepared the initial proposal for the funding application with assistance from TB, BP, SL, AEW, AG, and LS. BOD, BP and TB led the development of the survey. BP, TB, MSK and EL provided research and operational support. MSK, TB, BP,

JC, and JC analysed the data with statistical support from PJB. MSK wrote the first draft of the manuscript with all authors providing feedback. All authors reviewed and approved the final manuscript.

Guarantor: MSK is the guarantor of this work and accepts full responsibility for the integrity of the data and the accuracy of the analysis.

Funding

This project was supported by a generous donation from the Buxton Family Foundation, Australian Unity, the Frontiers Technology Clinical Academic Group Industry Connection Seed Funding Scheme, and the UNSW Medicine, Neuroscience, Mental Health and Addiction Theme and SPHERE Clinical Academic Group Collaborative Research Funding. BOD is supported by an NHMRC MRFF Investigator Fellowship (1197249). AEW is supported by an NHMRC Investigator Fellowship (2017521).

References

1. Lawrence HJ, Johnson SE, Saw S, Buckingham WJ, Sawyer MG, Ainley J, et al. Key findings from the second Australian Child and Adolescent Survey of Mental Health and Wellbeing. Aust NZ J Psychiatry [Internet]. 2015;50(9):876–86. Available from: https://doi.org/https://doi.org/10.1177/0004867415617836

2. World Health Organisation. Mental health of adolescents [Internet]. 2021.Available from: https://www.who.int/news-room/fact-sheets/detail/adolescent-mental-health

3. Headspace. Increasing demand in youth mental health: A rising tide of need [Internet]. National Youth Mental Health Foundation. 2019. 14 p. Available from: https://headspace.org.au/assets/Uploads/Increasing-demand-in-youth-mentalh-a-rising-tide-of-need.pdf

4. Kowalewski K, McLennan JD, McGrath PJ. A preliminary investigation of wait times for child and adolescent mental health services in Canada. J Can Acad Child Adolesc Psychiatry. 2011;20(2):112-9.

5. Smith J, Kyle RG, Daniel B, Hubbard G. Patterns of referral and waiting times for specialist Child and Adolescent Mental Health Services. Child Adolesc Ment Health [Internet]. 2018;23(1):41-9. Available from: https://www.apa.org/monitor/2023/04/mental-health-services-wait-times

6. NHS Scotland. Child and Adolescent Mental Health Services waiting times in Scotland. Quarter ending 30 June 2013. Public Health Scotland. 51 p. Available from: https://publichealthscotland.scot/media/8975/2021-09-07-camhs-waiting-times-report.pdf

7. Stringer H. Providers predict longer wait times for mental health services. Here's who it impacts most: Psychologists worry that patients from marginalized populations, particularly people of color, will suffer most amid a worsening workforce shortage. Monitor on

Psychology [Internet]. 2023; 54(3); 28. Available from: https://www.apa.org/monitor/2023/04/mental-health-services-wait-times

8. Edbrooke-Childs J, Deighton J. Problem severity and waiting times for young people accessing mental health services. BJPsych Open [Internet]. 2020;6(6):e118. Available from: 10.1192/bjo.2020.103.

9. Lewis AK, Harding KE, Snowdon DA, Taylor NF. Reducing wait time from referral to first visit for community outpatient services may contribute to better health outcomes: a systematic review. BMC Health Services Research. 2018;18(1):869.

10. Australian Government Productivity Commission. Report on Government Services 2022: 13 Services for mental health. Impact of COVID-19 on data for the Services for mental health section; 2022. Available from: https://www.pc.gov.au/ongoing/report-on-government-services/2022/health/services-for-mental-health

11. Mulraney M, Lee C, Freed G, Sawyer M, Coghill D, Sciberras E, et al. How long and how much? Wait times and costs for initial private child mental health appointments. Journal of Paediatrics and Child Health [Internet]. 2021;57(4):526-32. Available from: https://doi.org/10.1111/jpc.15253

12. Australian Psychological Society. Balancing caseloads and surging demand: Your experience and what we are doing. InPsych [Internet]. 2021; 43(4). Available from: https://psychology.org.au/for-members/publications/inpsych/2021/november-issue-4/balancing-caseloads-and-surging-demand

13. Westin AML, Barksdale CL, Stephan SH. The effect of waiting time on youth engagement to evidence based treatments. Community Mental Health Journal [Internet]. 2014;50(2):221-8. Available from: https://doi.org/10.1007/s10597-012-9585-z

14. Gallucci G, Swartz W, Hackerman F. Brief Reports: Impact of the wait for an initial appointment on the rate of kept appointments at a mental health center. Psychiatric Services [Internet]. 2005;56(3):344-6. Available from: https://doi.org/10.1176/appi.ps.56.3.344

15. Sherman ML, Barnum DD, Buhman-Wiggs A, Nyberg E. Clinical intake of child and adolescent consumers in a rural community mental health center: does wait-time predict attendance? Community Ment Health J [Internet]. 2009;45(1):78-84. Available from: https://doi.org/10.1007/s10597-008-9153-8

16. Williams ME, Latta J, Conversano P. Eliminating the wait for mental health services. J Behav Health Serv Res [Internet]. 2008;35(1):107-14. Available from: https://doi.org/10.1007/s11414-007-9091-1

17. Black G, Roberts RM, Li-Leng T. Depression in rural adolescents: relationships with gender and availability of mental health services. Rural Remote Health. 2012;12:2092.

18. Punton G, Dodd AL, McNeill A. 'You're on the waiting list': An interpretive phenomenological analysis of young adults' experiences of waiting lists within mental health services in the UK. PLoS One [Internet]. 2022;17(3):e0265542. Available from: https://doi.org/10.1371/journal.pone.0265542

19. OECD. A New Benchmark for Mental Health Systems: Tackling the Social and Economic Costs of Mental Ill-Health, OECD Health Policy Studies [Internet]. OECD Publishing, paris. 2021. Available from: https://doi.org/10.1787/4ed890f6-en.

20. Department of Health and Social Care. Achieving Better Access to Mental Health Services by 2020. Department of Health, NHS England. 2014; 23 p.

21. NHS England. Improving Access to Psychological Therapies (IAPT) aiting Times Guidance and FAQ's. 2015; 16 p. Available from: https://www.england.nhs.uk/wp-content/uploads/2015/02/iapt-wait-times-guid.pdf.

22. NHS 75 Digital. Psychological Therapies: reports on the use of IAPT services, England April 2019 final including reports on the IAPT pilots. 2019. Available from: https://digital.nhs.uk/data-and-information/publications/statistical/psychological-therapies-report-on-the-use-of-iapt-services/april-2019-final-including-reports-on-the-iapt-pilots.

23. Potter C. NHSE to begin 'implementation plan' for new mental health waiting time standards. Pulse 365. 2022.

24. Yang F, Wangen KR, Victor M, Solbakken OA, Holman PA. Referral assessment and patient waiting time decisions in specialized mental healthcare: an exploratory study of early routine collection of PROM (LOVePROM). BMC Health Services Research [Internet]. 2022;22(1):1553. Available from: https://doi.org/10.1186/s12913-022-08877-4

25. Kelly AB, Halford WK. Responses to ethical challenges in conducting research with Australian adolescents. Australian Journal of Psychology [Internet]. 2007;59(1):24-33. Available from: https://doi.org/10.1080/00049530600944358

26. Australian Bureau of Statistics (ABS). 1270.0.55.001 - Australian Statistical Geography Standard (ASGS): Volume 1 - Main Structure and Greater Capital City Statistical Areas, July 2016 [Internet]. 2016. Available from: https://www.abs.gov.au/ausstats/abs@.nsf/mf/1270.0.55.001

27. Batterham PJ, Sunderland M, Carragher N, Calear AL, Mackinnon AJ, Slade T. The Distress Questionnaire-5: Population screener for psychological distress was more accurate than the K6/K10. J Clin Epidemiol [Internet]. 2016;71:35-42. Available from: https://doi.org/10.1016/j.jclinepi.2015.10.005

28. Batterham PJ, Sunderland M, Slade T, Calear AL, Carragher N. Assessing distress in the community: psychometric properties and crosswalk comparison of eight measures of psychological distress. Psychological Medicine [Internet]. 2018;48(8):1316-24. Available from: https://doi.org/10.1017/S0033291717002835

29. Werner-Seidler A, Huckvale K, Larsen ME, Calear AL, Maston K, Johnston L, et al. A trial protocol for the effectiveness of digital interventions for preventing depression in adolescents: The Future Proofing Study. Trials [Internet]. 2020;21(1):2. Available from: https://doi.org/10.1186/s13063-019-3901-7

30. IBM Corp. SPSS Version 28. 2021.

31. Cobanoglu C, Cavusoglu M, Turktarhan G. A beginner's guide and best practices for using crowdsourcing platforms for survey research: The case of Amazon Mechanical Turk (MTurk). Journal of Global Business Insights. 2021;6(1):92-7.

32. Clarke, V., & Braun, V. (2013). Teaching thematic analysis: Overcoming challenges and developing strategies for effective learning. The Psychologist, 26(2), 120–12

33. Tuckett, A. G. (2005). Applying thematic analysis theory to practice: A researcher's experience. Contemporary Nurse, 19 (1–2), 75–87. https://doi.org/10.5172/conu.19.1-2.75

34. Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. NursingPlus Open, 2, 8–14. https://doi.org/10.1016/j.npls.2016.01.001

35. Erlingsson, C., & Brysiewicz, P. (2017). A hands-on guide to doing content analysis. African Journal of Emergency Medicine, 7(3), 93–99. https://doi.org/10.1016/j.afjem.2017.08.001

36. Aisbett DL, Boyd CP, Francis KJ, Newnham K, Newnham K. Understanding barriers to mental health service utilization for adolescents in rural Australia. Rural and Remote Health. 2007;7.

37. Iskra W, Deane FP, Wahlin T, Davis EL. Parental perceptions of barriers to mental health services for young people. Early Interv Psychiatry [Internet]. 2018;12(2):125-34. Available from: https://doi.org/10.1111/eip.12281

38. Leijdesdorff S, Klaassen R, Wairata DJ, Rosema S, van Amelsvoort T, Popma A. Barriers and facilitators on the pathway to mental health care among 12-25 year olds. Int J

Qual Stud Health Well-being [Internet]. 2021;16(1):1963110. Available from: https://doi.org/10.1080/17482631.2021.1963110

39. Reichert A, Jacobs R. The impact of waiting time on patient outcomes: Evidence from early intervention in psychosis services in England. Health Economics [Internet]. 2018;27(11):1772-87. Available from: https://doi.org/https://doi.org/10.1002/hec.3800

40. Reid GJ, Cunningham CE, Tobon JI, Evans B, Stewart M, Brown JB, et al. Help-seeking for children with mental health problems: parents' efforts and experiences. Adm Policy Ment Health [Internet]. 2011;38(5):384-97. Available from: https://doi.org/10.1007/s10488-010-0325-9

41. Shanley DC, Reid GJ, Evans B. How parents seek help for children with mental health problems. Adm Policy Ment Health [Internet]. 2008;35(3):135-46. Available from: https://doi.org/10.1007/s10488-006-0107-6

42. Department of Health and Aged Care. Better access to psychiatrists, psychologists and general practitioners through the MBS (Better Access) initiative [Internet]. Australian Government. 2023. Available from: https://www.health.gov.au/our-work/better-access-initiative?utm_source=health.gov.au&utm_medium=callout-auto-custom&utm_campaign=digital_transformation.

43. Rastpour A, McGregor C. Predicting patient wait times by using highly deidentified data in mental health care: enhanced machine learning approach. JMIR Ment Health [Internet]. 2022;9(8):e38428. Available from: https://mental.jmir.org/2022/8/e38428 DOI: 10.2196/38428

44. Eichstedt JA, Singh D, Chen S, Collins KA, Cawthorpe D. Who should be seen when? Establishing wait time benchmarks for children's mental health. Canadian Journal of Community Mental Health [Internet]. 2021;40(1):105-22. Available from: https://doi.org/10.7870/cjcmh-2021-008

45. O'Dea, B., Li, S. H., Subotic-Kerry, M., Achilles, M. R., Mackinnon, A. J., Batterham., Christensen, H., Roberts, A., Nagendraprasad, K., Dudley, Z., Gillham, B., Werner-Seidler, A. (2024), The MobiliseMe study: A randomised controlled efficacy trial of a cognitive behavioural therapy smartphone application (ClearlyMe®) for reducing depressive symptoms in adolescents. https://www.medrxiv.org/content/10.1101/2024.11.17.24317363v1

46. O'Dea, B., Han, J., Batterham, P.J., Achilles, M.R., Calear, A.L., Werner-Seidler, A., Parker, B., Shand, F. and Christensen, H. (2020). A randomised controlled trial of a relationship-focussed mobile phone application for improving adolescents' mental health. Journal of Child Psychology and Psychiatry, 61: 899-913. https://doi.org/10.1111/jcpp.13294

47. Shvetcov, A., Whitton, A., Kasturi, S., Zheng, W-Y., Beames, J., Ibrahim, O., J., Han, Hoon, L., Mouzakis, K., Gupta, S., Venkatesh, S., Christensen, H., Newby, J. (2023). Machine learning identifies a COVID-19-specific phenotype in university students using a mental health app, Internet Interventions, 34. https://doi.org/10.1016/j.invent.2023.100666.

48. Werner-Seidler A, Maston K, Calear AL, Batterham PJ, Larsen ME, Torok M, O'Dea B, Huckvale K, Beames JR, Brown L, Fujimoto H, Bartholomew A, Bal D, Schweizer S, Skinner SR, Steinbeck K, Ratcliffe J, Oei JL, Venkatesh S, Lingam R, Perry Y, Hudson JL, Boydell KM, Mackinnon A, Christensen H. (2023). The Future Proofing Study: Design, methods and baseline characteristics of a prospective cohort study of the mental health of Australian adolescents. International Journal of Methods in Psychiatric Research, 32(3):e1954. doi: 10.1002/mpr.1954.

49. Shorey S, Ng ED, Wong CHJ. Global prevalence of depression and elevated depressive symptoms among adolescents: A systematic review and meta-analysis. Br J Clin Psychol [Internet]. 2022;61(2):287-305. Available from: https://doi.org/10.1111/bjc.12333

50. Wilson C, Cariola, LA. LGBTQI+ youth and mental health: A systematic review of qualitative research. Adolescent Research Review, 2020; 5(2), 187–211. https://doi.org/10.1007/s40894-019-00118-w

Supplementary Material

1. Survey Development

***Step 1 (Expert Consultation)*:** Once the first survey draft was proposed by the research team, it was reviewed by three academic experts with experience conducting research in the field of adolescent mental health. Each expert evaluated the survey and rated the items on whether they: 1) are essential, 2) should be retained, or 3) should be modified. Where relevant, experts provided free response feedback on each item with reference to their relevance, wording of questions to be appropriate to the target sample, interpretability, and appropriateness of response options. Experts also provided broad advice on each survey section and were asked to indicate whether any concepts were missing. The research team then reviewed the expert evaluation forms and made judgments on whether to remove, retain, or modify each item guided by the expert feedback. Items were retained if more than half (i.e., two) of the experts voted to retain it.

***Step 2 (Youth Lived Experience Group Consultation)*:** The research team then consulted the Black Dog Institute Youth Lived Experience (YLE) group. This is a diverse group of young people who provide consultation on research projects within the Institute. The research team met with the YLE group to discuss terminology and response options for the survey items, with emphasis on the most appropriate and inclusive way to word questions with respect to our target sample (young people aged 13-17 years old). Following these discussions, the survey was revised by the research team.

Step 3 (Research Team Consultation): The survey was then provided to all members of the research team for final review using the same criteria described in Step 1. The survey was amended based on their feedback and then transcribed to Qualtrics by a paid research assistant.

Step 4 (Piloting): A total of six young people were recruited from the Black Dog Institute Youth Lived Experience group to assess their experience of completing the survey. Eight evaluation questions were included at the end of the survey which provided information on survey difficulty, intelligibility of the instructions, and clarity of the questions and response items from the perspective of the young person. Information was also gathered on the average time it takes to complete the survey in full. Based on this feedback, final adjustments were made prior to the commencement of data collection.

2. Management of Fraudulent Respondents and Data Cleaning Processes

Existing security measures and deterrents: Several basic security measures were integrated into the initial survey. The survey platform Qualtrics included the following prevention settings such as fraud detection security measures including bot detection, security scan monitor, RelevantID, and Prevent Indexing and preventing multiple submissions. The Qualtrics platform also includes software to detect IP address locations, thus allowing foreign IP addresses to be blocked. Additionally, the survey included several free-text responses at various points in the survey, making bot completion less likely.

Fraudulent survey sign-ups: Despite the existing security measures, the survey received multiple fraudulent sign-ups between 16th and 18th May 2022, and again on the 31st May 2022. The sign-ups were quickly suspected to be fraudulent due to the large number of responses that came through within a short period compared to the previous recruitment rate. New surveys were completed in quick succession and some survey completions occurred at unlikely times of the day such as early mornings (before 6.00am) or evenings (after 11.00pm). Additionally, these influxes of survey completions did not correspond to an increase in recruitment efforts, specifically, during a period of advertising. An initial review of the survey responses found these responses to be qualitatively different from the survey responses received prior. Considering all these factors, our team suspected that the study had been targeted by fraudulent respondents.

Response to fraudulent survey respondents: In response to the May 2022 attack, we paused recruitment and closed the survey, and contact was made with the University of New South Wales Human Research Ethics Committee (UNSW HREC) on the 18th May, 2022 to provide details of the attack. We spoke with other researchers at the Black Dog Institute who had experienced a similar situation and reviewed the literature for advice on how to manage the situation. A review of all completed surveys was undertaken alongside a review of processes

to better understand which factors may have led to the attack. Following these discussions and initial review, we developed a protocol that aimed to 1) enhance measures to prevent future attacks; 2) detail the process for identifying fraudulent or illegitimate respondents; and 3) outline the procedure for managing suspected fraudulent respondents. The protocol was reviewed by the chief investigator of the project and the Trial Steering Committee.

Prevention of fraudulent survey respondents: Following the first attack in May 2022, we added reCAPTCHA software at the beginning of the survey to prevent bot attacks. After consultation with UNSW HREC, we also made changes to the participant information sheet and consent form (PISCF) and the survey instructions to specify "You will only be able to complete the survey once" and "Please note that only one voucher will be issued per participant." Each voucher was sent manually by a member of the research team after a review and decision was made on the survey data and if a survey respondent was deemed to be a 'genuine responder'. Several strategies for identifying invalid survey responses were guided by the literature[1] to systematically identify and remove fraudulent or illegitimate respondents. This procedure is outlined below.

Identifying and withdrawing fraudulent or invalid survey responses: After the first attack in May 2022, IP and email addresses were manually checked by two members of the research team. We created a list of criteria in the pattern of survey data that were invalid, inconsistent, and identified as likely to be fraudulent (see Table 1). During the cleaning process, a response was deemed invalid and removed from the dataset based on one or more of the following criteria. First, multiple responses from the same IP or email address (i.e., duplicate responses) indicated that one individual was completing the survey multiple times. Any partial or incomplete survey responses were also removed. Second, invalid postcodes or postcodes that did not match the Australian state or territory reported were flagged as suspicious. A a large number of postcodes from the same area reported by multiple respondents within a short

timeframe or block of time was also flagged as suspicious. Third, any participant who completed the survey faster than 40% of the average completion time for the whole sample was flagged as a possible illegitimate or fraudulent responder based on findings that 'speeders' data is significantly different from those above the 40% threshold.[1] Other suspicious activity included the survey responses within a single survey. Specifically, we examined the pattern of survey responses and the content of free-text responses to the questions (see Table 1 for more details). Based on these criteria, two members of the research team (TB and BP) independently reviewed each response and noted whether it should be removed or retained. Any discrepancies were discussed, and the final decision was made by consensus by a separate member of the research team (JC or MSK). Duplicate email and IP addresses and foreign IP addresses were objective indicators of fraud, and these were automatically withdrawn if both independent researchers flagged identical and multiple email or IP addresses. The other individual variables outlined in Table 1 were not enough to identify someone as a potential illegitimate or fraudulent responder; it was the combination of one or more of these characteristics within a single survey completion and similarities between separate survey respondents signing up in short succession or during unlikely times of the day. Further, the two researchers had to be in full agreement regarding the fraudulent or illegitimate categorisation for the respondent to be removed. Data quality checks were conducted regularly to quickly identify suspicious sign-ups and patterns until the survey was closed in June 2022.

Table 1. Indicators of fraudulent activity

Data Category	Variable	Response characteristic or pattern
Personal details	IP address	IP address from a country outside of Australia, or a duplicate IP address
	Email address	Same email address used
	Postcode	Invalid postcode or postcode that did not match the Australian state or territory; Large number of postcodes from the same area (e.g., CBD) within a short timeframe
Speed responders	Time spent in survey	Survey completions that take less than 40% of the average time of legitimate respondents
Survey responses	Response patterns within a single survey	Survey entries where the respondent has consistently provided the same or similar responses or answered in a pattern for all questions, for example: • All questions answered were "Yes" or all "1's" • All questions answered were "Yes", "No", "Yes", "No" and so forth • Answers in a zig zag (e.g., "1, 2, 3, 4, 3, 2, 1")
	Free-text responses	Overuse of Not Applicable. Legitimate free-text responses are predominantly thoughtful and detailed and answer the question being asked. Fraudulent responses mostly use a version of "Not Applicable" in the form of "na", "NA" "none", and this response is often repeated across the free response questions.
		Examples of potential fraudulent responses included: • Using previous matrix question options as answers for future questions • Commonly starting free-text responses in the same way • Duplicate responses across multiple participants • Answers that don't match the question that was asked • Responses indicating that the participant does not live in Australia (e.g., Junior High, Middle School)

References

1. Cobanoglu C, Cavusoglu M, Turktarhan G. A beginner's guide and best practices for using crowdsourcing platforms for survey research: The case of Amazon Mechanical Turk (MTurk). Journal of Global Business Insights. 2021;6(1):92-7.

Appendix A: Survey

GILLICK COMPETENCE MEASURE	
To check that you fully understand what you are being asked to do in this research, please answer these questions.	
1. This research study involves…	1. A paper survey about how schools have been impacted by COVID-19 2. An anonymous online survey about my experiences waiting for mental health treatment and services 3. I don't know
2. This research is being conducted by…	1. Researchers from the Black Dog Institute, University of New South Wales 2. My doctor/GP 3. I don't know
3. Do I have to finish the survey?	1. No, I can stop any time I want 2. Yes, I have to complete it 3. I'm not sure
4. Your responses to this survey will be shared with…	1. My parents 2. My doctor/GP 3. Only the research team
DEMOGRAPHICS	
1. What is your age in years?	Numeric response
2. What is your gender identity?	1. Male 2. Female 3. Non-binary 4. Different identity (please specify) 5. I'd rather not say
3. Are you of Aboriginal or Torres Strait Island origin?	1. Yes – Aboriginal 2. Yes - Torres Strait Islander 3. Yes - Aboriginal and Torres Strait Islander 4. No 5. I'd rather not say
4. Do you identify as LGBTQIA+ (Lesbian, Gay, Bisexual, Trans, Queer, Intersex, Asexual, or another diverse sexual identity)?	1. Yes 2. No 3. I'd rather not say
5. What state do you currently live in? (If you live in more than one state, please choose the one you spend the most time in).	1. New South Wales 2. Queensland 3. Australian Capital Territory 4. Victoria 5. Northern Territory 6. South Australia 7. Western Australia 8. Tasmania

6. What is the postcode of the suburb where you live?	Numeric response
7. Are you currently…	1. In high school 2. Working full time 3. Studying at university 4. Completing an apprenticeship 5. Other (please specify)
HISTORY OF MENTAL HEALTH	
We would like to hear about your experience accessing mental health treatments and services. In particular, we are interested in learning about "wait times" – the time you waited between contacting your mental health treatment provider or service and your first session. Don't forget, all your answers are anonymous. This means that we have no way of identifying you from your responses. We really appreciate your time and honesty in answering the questions!	
1. Have you ever been formally diagnosed with (or been told that you have) depression and/or anxiety by a health professional (e.g., your doctor/GP, psychologist, psychiatrist, school counsellor)	1. Yes 2. No 3. Unsure 4. I'd rather not say
2. Are you currently taking medication prescribed by a health professional (e.g., your doctor/GP, psychologist, psychiatrist, school counsellor) for depression and/or anxiety (e.g. anti-depressants)?	1. Yes 2. No 3. Unsure 4. I'd rather not say
EXPERIENCES WHILE WAITING FOR CARE	
For participants who are <u>currently</u> waiting …	
1. (A) We would like to hear about the mental health professionals and services that you are currently waiting to see for the first time. Please choose the ones you or your parents/guardian, family, or trusted adult have contacted and are now waiting to see. Select all that apply.	☐ Psychologist ☐ Psychiatrist ☐ headspace centre ☐ Hospital stay ☐ A program or service to help improve feelings of sadness or worry (e.g. Cool Kids) ☐ Local Child and Adolescent Mental Health services (CAMHS) 0/1 School counsellor ☐ Paediatrician ☐ A support group (e.g. a group of people meeting to share information, experiences, problems and solutions) ☐ An Aboriginal/Torres Strait Islander medical centre. ☐ An Aboriginal/Torres Strait Islander support worker.

	☐ Other:(please tell us what it is in the text box).
Q1. (B), (C) and (D) are asked for every treatment and/or service selected in Q1. (A) **"You said you are currently waiting for the following mental health professional or service: [SERVICE]"…**	
1. (B) Who referred you to this service? Was it your…?	1. Doctor/GP 2. School Counsellor/School 3. You self-referred (i.e., you or your parents/family booked a session without needing a referral from a doctor) 4. Other (please tell us who in the text box) 1. I don't know/I can't remember
1. (C) How long will you have waited between contacting this mental health professional or service and going to your first session? We understand that this can be hard to estimate, so just give it your best go.	2. ___Months 3. ___Weeks 4. ___Days 5. ___I don't know/I can't remember
1. (D) Do you think that this wait time is…	1. Too long 2. Just right/acceptable 3. Unsure/I don't know
2. Have your feelings of sadness or worry been getting better or worse during your wait time?	Slider from worse to better 1 - 2 - 3 - 4 - 5 WORSE No Change BETTER One slider for sadness One slider for worry Option to tick "Does not apply to me"
3. Below is a list of things young people may do to cope while waiting to see a mental health professional or access other services. Have you tried any of these? Select all that apply.	☐ Doing more exercise or sport ☐ Taking up a new activity, sport, or hobby ☐ Improving or changing my diet ☐ Seeking support from friends ☐ Doing more activities I enjoy ☐ Reading books ☐ Searching the internet for information about mental health ☐ Writing down how I feel (e.g. journaling) ☐ Meeting up with friends or becoming more social ☐ Speaking with friends over text message ☐ Speaking with friends over a phone call ☐ Doing activities that help me relax

	☐ Speaking with a school counsellor, teacher, or other school support ☐ Smoking cigarettes ☐ Vaping ☐ Drinking ☐ Using cannabis ☐ Using other drugs ☐ Self-harming ☐ Skipping school ☐ Spending more time on social media ☐ Spending more time online gaming ☐ Eating more treat food and/or takeaway food ☐ Spending more time by myself 0/1 Spending more time at home ☐ Spending more time sleeping
4. Is there anything else you have been doing to help you cope while you are waiting for your first session?	Free response
5. Is there anything else you'd like to share with us about how you have been feeling during your wait time?	Free response
6. How likely are you to attend your first session?	1. Extremely unlikely 2. Unlikely 3. Neither/Unsure 4. Likely 5. Extremely likely **If select 1 OR 2, go to Q7. Else skip to Q8**
7. Why are you unlikely to attend your first session? Select all that apply	☐ I don't need it anymore because I feel better ☐ I found an earlier session somewhere else ☐ I have had to wait for too long ☐ I can't be bothered ☐ I might forget ☐ I don't have the money ☐ I don't want to go ☐ The session is too far away from me ☐ I don't have any transport to get there ☐ I feel too worried and/or sad to go ☐ I am unsatisfied with the service ☐ A different reason (please tell us in the text box)
8. How important do you think it is that your healthcare providers (e.g. doctor/GP, psychologists, psychiatrists, school counsellors) help you manage your feelings of sadness and worry while you wait for your first session?	1. Not at all important 2. Slightly Important 3. Moderately Important 4. Very Important 5. Extremely important

9. How supported do you feel by your healthcare providers (e.g. doctors/GPs, psychologists, psychiatrists, school counsellors) while you are currently waiting for your first session?	1. Not at all supported 2. Somewhat supported 3. Moderately supported 4. Very supported 5. Extremely supported
10. Is there anything that your healthcare providers (e.g. doctors/GP, psychologists, psychiatrists, school counsellors) could do to better support you during the wait time?	Free response
11. Overall, what do you think would help you the most during the wait time?	Free response
For participants who have <u>previously</u> waited…	
12. (A) We would like to hear about the mental health professionals and services that you have accessed for the <u>first time</u> in the past 12 months and have waited <u>more than one week</u> to see. Please choose which ones you waited more than one week to see in the past 12 months. Select all that apply.	☐ Psychologist ☐ Psychiatrist ☐ headspace centre ☐ Hospital stay ☐ A program or service to help improve feelings of sadness or worry (e.g. Cool Kids) ☐ Local Child and Adolescent Mental Health services (CAMHS) ☐ School counsellor ☐ Paediatrician ☐ A support group (e.g. a group of people meeting to share information, experiences, problems and solutions) ☐ An Aboriginal/Torres Strait Islander medical centre. ☐ An Aboriginal/Torres Strait Islander support worker. ☐ Other:(please tell us what it is in the text box). Q9. Displayed as a single question
Q12. (B), (C), and (D) asked for every treatment or service selected in Q12 (A) **"You said you have previously waited for the following mental health professional or service: [SERVICE]"…**	
12. (B) Who referred you to this service? Was it your…?	1. Doctor/GP 2. School Counsellor/School 3. You self-referred (i.e., you or your parents/family booked a session without needing a referral from a doctor) 4. Other (please tell us who in the text box) 5. I don't know/I can't remember
12. (C) From the time you or your family first contacted this service, how long	1. ___Months 2. ___Weeks

did you have to wait before you had your first actual session? We understand that this can be hard to estimate, so just give It your best go. How many…	3. ___Days 4. ___I don't know/I can't remember
12. (D) Do you think that the wait time was…	1. Too long 2. Just right/acceptable 3. Unsure/I don't know
13. Did your feelings of sadness or worry get better or worse while you were waiting?	Slider from worse to better 1 - 2 - 3 - 4 - 5 WORSE No Change BETTER One slider for sadness One slider for worry Option to tick "Does not apply to me"
14. Below is a list of things young people have done to cope while waiting to see a mental health professional or access other services. Did you try any of these while you were waiting? Select all that apply.	☐ Did more exercise or sport ☐ Took up a new activity, sport, or hobby ☐ Improved/changed my diet ☐ Sought support from friends ☐ Did more activities I enjoyed ☐ Read books ☐ Searched the internet for information about mental health ☐ Started writing down how I felt (e.g. journaling) ☐ Met up with friends or became more social ☐ Spoke with friends over text message ☐ Spoke with friends over a phone call ☐ Did activities that help me relax ☐ Spoke with a school counsellor, teacher, or other school support ☐ Smoked cigarettes ☐ Vaped ☐ Drank alcohol ☐ Used cannabis ☐ Used other drugs ☐ Self-harmed ☐ Skipped school ☐ Spent more time on social media ☐ Spent more time online gaming ☐ Ate more treat food and/or takeaway food ☐ Spent more time by myself ☐ Spent more time at home ☐ Spent more time sleeping

15. Is there anything else that you did to help cope while you waited for your first session?	Free response
16. Is there anything else you'd like to share with us about how you felt feeling during your wait time?	Free response
17. Did you go to your first session?	1. Yes 2. No **If No, go to Q18. If select Yes, skip to Q19**
18. Why didn't you go to your first session? Select all that apply.	☐ I didn't need it anymore because I felt better ☐ I found an earlier session somewhere else ☐ I had to wait for too long ☐ I couldn't be bothered ☐ I forgot ☐ I didn't have the money ☐ I didn't want to go ☐ The session was too far away from me ☐ I didn't have any transport to get there My parents told me I'm not going ☐ I felt too worried and/or sad too go Something came up ☐ I was unsatisfied with their service ☐ A different reason (please tell us in the text box)
19. How important do you think it was that your healthcare providers (e.g. doctor/GP, psychologists, psychiatrists, school counsellors) helped you manage your feelings of sadness and worry while you waited for your first session?	1. Not at all important 2. Slightly Important 3. Moderately Important 4. Very Important 5. Extremely important
20. How supported did you feel by your healthcare providers (e.g., doctors/GPs, psychologists, psychiatrists, school counsellors) while you waited for your first session?	1. Not at all supported 2. Somewhat supported 3. Moderately supported 4. Very supported 5. Extremely supported
21. Is there anything that your healthcare providers (e.g. doctor/GP, psychologists, psychiatrists, school counsellors) could have done to better support you during the wait time?	Free response
22. Overall, what do you think would have helped you the most during your wait time?	Free response
PARENT SUPPORT	

1. How important do you think it is that the parents/guardians be given some sort of support to help themselves (parents/guardians) cope better during the wait time?	1. Not at all important 2. Somewhat Important 3. Moderately Important 4. Very Important 5. Extremely important
INTERVENTIONS AND SOURCES OF SUPPORT DURING WAIT TIME	
1. During the waiting period, did you receive… ☐ A follow-up session with your doctor/GP? ☐ A follow-up phone call from your doctor/GP? ☐ Contact from the professional or service you were waiting to see? ☐ Information or brochures on mental health from a healthcare provider? ☐ Information from a healthcare provider about support services that were available to help you? ☐ Other Information or resources (please tell us what in the box)	1. Yes 2. No 3. I can't remember/I don't know
2. During your waiting period, did you find the following sources of support helpful for your mental health? Please rate how helpful using a scale of 1 (not at all) to 5 (extremely). ☐ Parents ☐ Siblings ☐ Other relative or family member ☐ Friends ☐ Teacher ☐ Year Advisor ☐ School Counsellor ☐ Other adult (e.g., sports coach, a friend's parent, a person at work) ☐ General Practitioner/local doctor ☐ Other mental health professional (e.g. psychologist, psychiatrist) ☐ Telephone helpline (e.g., Kids Helpline, Lifeline) ☐ Websites on mental health (e.g., ReachOut, Beyond Blue) ☐ Online self-help mental health program (e.g., programs designed to help improve your symptoms of sadness or worry)?	1. Not at all helpful 2. Somewhat helpful 3. Moderately helpful 4. Very helpful 5. Extremely helpful 6. I didn't seek/receive help from this source

☐ Online assessment tools (e.g., tools that ask you questions and tell you whether you are experiencing anxiety and/or depression)? ☐ Online support groups or discussion forums? ☐ Online mental health chat services (e.g., eHeadspace)? ☐ Mobile app for mental health ☐ Someone or something else not listed above (tell us In the box – if there is nothing else, please choose 'I didn't seek/receive help from this source')	
CURRENT MENTAL HEALTH (OPTIONAL)	
We would like to know about how you have been feeling over the last 30 days. We store this information securely and will not share your responses with anyone. You do not have to complete this part of the survey if you don't want to.	
The Distress Questionnaire-5 (DQ-5) The following questions ask about thoughts, feelings, and behaviours that you may have experienced in the last 30 days. Please respond to each question by selecting one box per row. In the past 30 days… a) My worries overwhelmed me b) I felt hopeless c) I found social settings upsetting d) I had trouble staying focused on tasks e) Anxiety or fear interfered with my ability to do the things I needed to at work, school, or home	1. Never 2. Rarely 3. Sometimes 4. Often 5. Always
CONCLUSION	
Participants are automatically redirected to a separate survey where they answer the following questions and if provided, their email address are recorded separately from their responses.	
1. Would you like to receive the $20 e-giftcard? This will be sent within 3 business days.	1. Yes 2. No
2. Would you like to receive an email copy of the survey results?	1. Yes 2. No
3. Would you like to hear about other research opportunities related to this project?	1. Yes 2. No
4. Please enter your email address here:	
Thank you for doing the survey. Your responses have been recorded. [end of survey]	

Supplemental Figure 1. Participant recruitment and study flow diagram.