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Short research article: COVID-19 and its impact on child and youth mental health service demand in the community and emergency department

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Background: To explore changes in child and youth mental health service (CYMHS) demand in Brisbane, Australia, following the COVID pandemic. **Methods:** The number of monthly presentations and referrals to respectively the emergency department (ED) and community CYMHS were compared among 2018, 2019 and 2020. **Results:** The study shows a marked increase in referrals to ED starting from July and in the community from May 2020. In the population referred to as community teams, the proportions of Indigenous children and those from lower socio-economic areas decreased. **Conclusions:** The COVID-19 pandemic has aggravated the supply and demand disparity in CYMHS, with the largest effect on the most vulnerable families.

Key Practitioner Message

- From the start of the COVID-19 pandemic, child and youth mental health problems have increased.
- This study shows that in Brisbane, a metropolitan area in Australia, the Covid-19 pandemic was associated with a monthly increase of up to 55% more presentations to the emergency department for child and youth mental health problems in 2020 compared to the 2 years before.
- A similar increase was seen in the number of referrals to community child and youth mental health services. However, the number of children accepted for treatment remained the same. Moreover, the rates of Indigenous children and children from more disadvantaged areas decreased.
- The disparity between service demand and supply has increased with more vulnerable children not getting the mental health care they need.

Keywords: Child and adolescent mental health; Covid-19; community mental health services; emergency department presentations; service demand

Introduction

Soon after the start of the Covid-19 pandemic, concerns were raised about the impact on children's and adolescents' mental health (Fegert, Vitiello, Plener, & Clemens, 2020; Holmes et al., 2020). It was expected that children and adolescents from cultural and linguistically diverse (CALD) communities, those with pre-existing mental health problems or low socioeconomic status would be the most affected given their vulnerability (Fegert et al., 2020).

Patterns of referrals since Covid-19 can provide insight into changes in service demand for mental health problems. The few studies published so far have shown that in the first 2 months of the lockdown, referrals and help seeking actually decreased due to avoidance of hospitals and clinics being less accessible due to lockdowns (Newlove-Delgado et al., 2021; Revet et al., 2022; Tromans et al., 2020). After this initial decline, numbers of referrals to child and adolescent mental health services in Dublin and emergency department (ED) presentations for mental health problems in the United States showed a consistent increase from September 2020 (Leeb et al., 2020; McNicholas et al., 2021). To further guide the necessary adjustments to care provided by the child and adolescent mental health services, additional information on patient characteristics and the presenting problems are required. This is more important given the pre-existing lack of access. In Australia, for example, before COVID-19, only 50% of children with mental health disorders accessed mental health services and 7% were seen by a child psychiatrist (Sawyer et al., 2018; Thabrew et al., 2017).

We present data from the Child and Youth Mental Health Service (CYMHS) in the greater area of Brisbane, Queensland, Australia. In Queensland, the most severe restrictions lasted from March till the end of May 2020. From then, restrictions were gradually eased and there have only been three more short lockdowns (at a maximum of 7-day duration). There have been long periods of strict border closures with other states and countries.

The number of cases has been very low until December 2021 with just seven deaths in Queensland from the pandemic. This relatively mild course of the spread of COVID-19 provided a unique opportunity to explore how the demand for mental health support developed after the easing of restrictions.

Methods

We explored the number of presentations to ED for mental health problems managed by CYMHS Acute Response Team (ART) at Queensland Children's Hospital (QCH), Children's Health Queensland Hospital and Health Service (CHQ) and the number of referrals to community CYMHS, CHQ. There are six community CYMHS across the Greater Brisbane area, which are free services that aim to treat children and adolescents with complex and severe mental health problems.

All referrals to ART and community CYMHS in the period January 2018 to December 2020 were included. Referral numbers and sociodemographic data including age, gender, socioeconomic status via postal code and Indigenous status were extracted from the electronic patient records as well as presenting problems to ED and diagnoses of the children who received treatment in the community. We have also explored the number and proportion of children accepted to treatment in community CYMHS as not all referrals result in treatment.

Poisson regression analyses were performed to test the differences per year in the monthly numbers. Differences in gender, Indigenous presentations and socio-economic status were analysed using Chi^2 tests.

Results

Emergency department presentations

Between 2018 and 2020, the number of children seen by ART decreased from $n = 2234$ to $n = 2008$ and then increased to $n = 2170$. Looking in more detail at 2020, compared to 2019, there was a marked and significant decrease in presentations from March to May (Figure 1), while from August to December 2020 numbers were significantly increased with between 38% and 57% more presentations compared to August to December 2019.

The most frequent reason for presentations to ART from 2018 to 2020 remained suicidal threats (43.7%–45.8%; Table 1). There was an almost doubling in presentations due to eating disorders in 2020, from 5.0% to 9.2%.

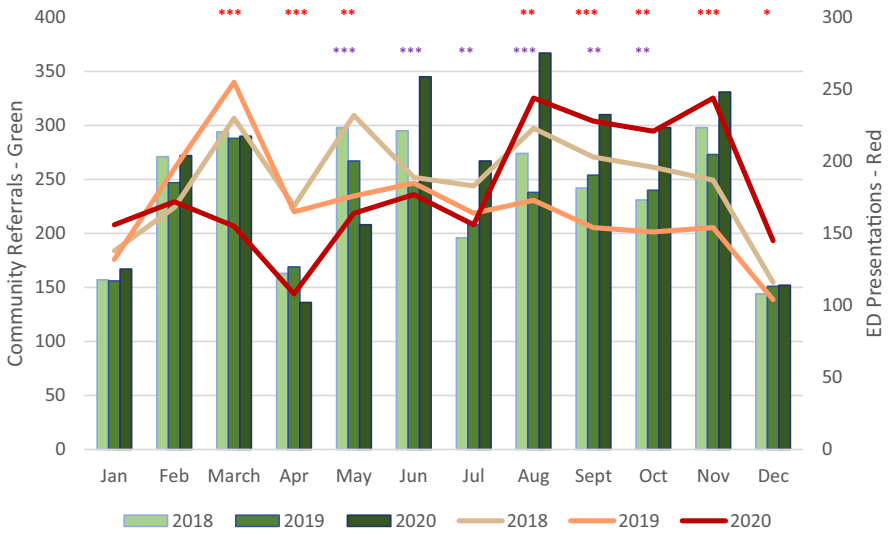
Referrals to community CYMHS

The total numbers of referrals in 2020 increased by 14.5% compared to 2019 and by 9% compared to 2018. The monthly trends in 2020 showed first a drop in referrals in April and May, followed by a sharp and significant increase from June to October ranging from 21% to 54% more referrals compared to 2019 (Figure 1). In contrast, the number of children who were accepted for treatment in community CYMHS slightly declined from $n = 1095$ in 2018, $n = 1076$ in 2019 to $n = 1023$ in 2020 with acceptance rates decreasing from 39% (2018) to 33% in 2020.

The proportion of children with an Indigenous background was similar between 2018 and 2019 [χ^2 ($df = 1$) = 0.13, $p > .05$], but decreased from 10% in 2018 to 8% in 2020 [χ^2 ($df = 1$) = 7.64, $p = .0057$] (Table 1). Children referred to community CYMHS in Brisbane came from areas with a relatively high socioeconomic status as defined by Socio-Economic Indexes for Areas (SEIFA) (https://www.abs.gov.au/ausstats/abs@.nsf/mf/2033.0.55.001) with 77% coming from an area that had a SEIFA score above 50% in 2018. This percentage increased to 80% in 2020 [χ^2 ($df = 1$) = 6.24, $p = .01$]. The percentages of children diagnosed with a developmental disorder decreased in 2020 (14%, 14% and 11%), while post-traumatic stress and stress-related disorders and emotional and behavioural issues increased from, respectively, 20% to 23% and 14% to 17%.

Discussion

We observed a substantial increase in demand in the mental health care needs of children and adolescents living in the greater area of Brisbane in 2020 as demonstrated by a steady rise in number of both acute



*p<0.05, **p<0.01, ***p<0.001, red results for N ED presentations, purple for N referrals

Figure 1. The number of mental health problem presentations to ED and of referrals to community CYMHS in 2018, 2019 and 2020 and results of Poisson regression analyses testing whether *N* differed significantly across the 3 years

Table 1. Gender (*N*/%), age (mean range) and presenting problems (*N*/%) of the population presented to ART, ED, QCH and gender (*N*/%), Indigenous status (*N*/%), age (mean, range) and SEIFA score (*N*/%) of children referred to Community CYMHS, and primary diagnoses (*N*/%) of children accepted for treatment. The presenting problems in emergency were documented by CYMHS clinicians using broad categories of problems. The diagnoses in community CYMHS were made by CYMHS clinicians using the ICD-10

	2018	2019	2020
ART, ED			
Gender (total *N*)	2234	2005	2156
Male (%)	703 (31.5)	739 (36.9)	663 (30.7)
Female (%)	1507 (67.5)	1233 (61.5)	1437 (66.5)
Other (%)	24 (1.1)	33 (1.7)	56 (2.6)
Age (total *N*)	2204	1998	2152
Mean (range)	14 (5–18)	14.2 (5–17)	14.5 (5–17)
Presenting problems (total *N*)	2218	2006	2077
Anxiety & Depression (%)	127 (5.7)	134 (6.7)	122 (5.9)
Behavioural (%)	303 (13.7)	293 (14.6)	227 (10.9)
Drugs & alcohol (%)	23 (1.0)	36 (1.8)	41 (1.9)
Eating disorder (%)	123 (6.1)	101 (5.0)	192 (9.2)
Psychosis/mania (%)	41 (1.9)	36 (1.8)	21 (1.01)
Other (%)	81 (3.7)	32 (1.6)	59 (2.8)
Deliberate self-harm (%)	263 (11.9)	223 (11.1)	195 (9.4)
Suicidal threats (%)	969 (43.7)	892 (44.5)	952 (45.8)
Suicidal ideation/Suicide attempt (%)	288 (13.0)	259 (12.9)	268 (12.9)
Community CYMHS			
Gender (total *N*)	2863	2738	3140
Male (%)	1411 (49.3)	1294 (47.3)	1331 (42.5)
Female (%)	1451 (50.7)	1438 (52.5)	1802 (57.5)
Other (%)	1 (0.03)	6 (0.2)	7 (0.2)
Indigenous status (total *N*)	2821	2711	3088
NANTS[a] (%)	2538 (90.0)	2431 (89.7)	2834 (91.8)
Indigenous[b] (%)	283 (10.0)	280 (10.3)	254 (8.2)
Age	12.78 (3–18)	12.86 (3–18)	13.27 (3–18)
SEIFA score (total *N*[c])	2854	2730	3128
Lowest 50% (%)	662 (23.2)	614 (22.4)	642 (20.5)
Primary diagnoses (total *N*)[d]	988	979	880
Anxiety (%)	263 (26.6)	290 (29.6)	218 (24.8)
OCD (%)	27 (2.7)	32 (3.3)	25 (2.8)
Mood (%)	170 (17.2)	111 (11.3)	131 (14.9)
Schizophrenia (%)	8 (0.8)	5 (0.5)	8 (0.9)
PTSD & Stress (%)	193 (19.5)	210 (21.5)	199 (22.6)
Eating Disorder (%)	28 (2.8)	29 (3.0)	23 (2.6)
Developmental (%)	136 (13.8)	140 (14.3)	98 (11.2)
Behavioural & Emotional (%)	142 (14.4)	142 (14.5)	146 (16.6)
Other (%)	57 (5.8)	12 (1.2)	35 (3.8)

[a]Non-Aboriginal Non-Torres Strait Islander.
[b]Aboriginal and/or Torres Strait Islander.
[c]Socio-Economic Indexes for Areas: All areas are ordered from lowest to highest score, the lowest 10% of areas are given a decile number of 1, the next lowest 10% of areas are given a decile number of 2 and so on, up to the highest 10% of areas which are given a decile number of 10. This means that areas are divided into 10 equal sized groups depending on their score.
[d]Anxiety: separation anxiety, phobic anxiety disorder, panic disorder, generalised anxiety disorder and other anxiety; OCD: tics and obsessive-compulsive disorder; Mood disorders; Schizophrenia: schizophrenia, schizotypal and delusional; PTSD & stress: acute or post-traumatic stress reactions or other and adjustment disorder; Eating disorder; Developmental: hyperkinetic, intellectual disability, other specific developmental disorder and pervasive developmental disorder; Behavioural & emotional: conduct disorder, mixed disorder of conduct and emotions, emotional or social functioning disorders and other behavioural and emotional disorders; Other: personality disorder, gender identity disorder, substance use disorder, organic mental disorders, somatoform, dissociative and conversion disorders and nonorganic sleep disorders.

presentations and referrals to community CYMHS with monthly increases over 50% after an initial decline at the start of the Covid-19 pandemic. Overall, in 2020, emergency department presentations for mental health and community CYMHS referrals rose by 8% and 15%, respectively, compared to 2019. This increase cannot be purely due to population growth as that was only 1.8%. Importantly, despite the increase in referrals to community CYMHS, the number of children accepted into treatment remained similar across the 3 years, resulting in a smaller proportion of children with complex and severe problems being treated by CYMHS in 2020.

When exploring the characteristics of the children in more detail, there was a decline in the rates of children referred to CYMHS from Indigenous backgrounds or socioeconomic disadvantaged areas.

The combined findings of the large increase in referrals to community CYMHS and the decrease in percentage of progression into treatment confirm that the pre-existing supply and demand disparity in CYMHS has further aggravated in 2020 as also highlighted by

McNicholas et al. (2021). Our finding that the large increase in mental health presentations to ED occurred 2 months after the increase in referrals to community CYMHS could indicate that children and adolescents who could not access mental health support then turned to the ED in crisis.

The proportion of children from Indigenous backgrounds and socioeconomic disadvantaged areas referred to community CYMHS decreased. The relative decline in referrals for these vulnerable groups could indicate that they had even more difficulties accessing CYMHS than other children and adolescents while the majority of these people may not have the means to access other forms of care.

There was a substantial increase in presentations because of eating disorders in the ED similar to previous reports (Parsons, Murphy, Malone, & Holme, 2021; Spettigue et al., 2021). This trend was not seen in community CYMHS, as CYMHS has a specialised service for children with eating disorders.

Our study has several strengths, including data on both ED presentations and community CYMHS referrals across 3 years. As Covid-19 restrictions were eased during the period of our study, this provided the opportunity to not only explore changes in demand during the lockdown but also longer term. Furthermore, the Brisbane-wide catchment area includes a large and diverse population and is therefore likely to be a reasonable reflection of the increase in demand in other areas.

A limitation is that we had no data on the reasons why the rate of children accepted into treatment decreased. We hypothesise that this is a capacity issue, that is, lack of staff. However, it could also be that the threshold to refer to CYMHS during Covid-19 was lower due to the emphasis on the impact of COVID-19 on mental health, for example, in the media. This increase in awareness may have led to increased referrals. However, the similar increase in ED presentations and recent reviews and meta-analyses indicating higher rates of anxiety, depression, and behavioural problems (Panchal et al., 2021; Racine et al., 2020) suggest that the increase in community CYMHS referrals is partly due to a genuine increase in need.

Conclusions

To address the growing disparity between demand and capacity in community CYMHS, it is likely that in addition to extra funding to increase capacity, it will be necessary to adjust models of care. Access to high-quality care for mild-to-moderate symptoms by decreasing out-of-pocket costs should be a priority as this would prevent mental health problems becoming severe. This is the time to act as it is unlikely that demand for mental health support will become less.

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Ethical information

This study has been conducted in full conformance with principles of the 'Declaration Helsinki', Good Clinical Practice (GCP) and within the laws and regulation of Australia. Informed consent was not obtained as the data were collected as part of clinical practice and were de-identified for the analyses. Ethics approval was granted by the Children's Health Queensland Hospital and Health Service Human Research Ethics Committee (HREC/20/QCHQ/72293). Data access was also approved by Queensland Health, Health Innovation Investment and Research Office (PHA 72293).

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