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Parental surveillance of OCD and mental health symptoms during COVID-19: A longitudinal study of Australian children, adolescents and families

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ABSTRACT

To ensure the needs of children and families are met for the remainder of the COVID-19 situation and beyond there is a demand for a specific response strategy. This longitudinal study will investigate the impact of COVID-19 on Australian parental and childhood mental health symptoms, particularly OCD symptoms, examining the stability of this relationship over time and the needs and preferences for mental health support in response to child symptoms. A total of 141 parents completed a questionnaire during the lockdown period in Australia (June–September 2020). Thirty-five of them completed a follow-up questionnaire during the post-lockdown period (November 2020–January 2021). The questionnaire assessed COVID-19 experiences/worries/knowledge, child OCD, and child/parental anxiety and depression. Sub-samples of youth were determined based on parent-report of an existing diagnosis of any mental health (n = 24), of OCD (n = 22), or no mental health diagnosis (i.e., healthy, n = 81). Results: Parents reported a significant positive association between increased parental worries regarding COVID-19, and their own as well as their child’s mental health symptoms. The current sample of children experienced elevated symptom severity for OCD symptoms during COVID-19. The OCD group reported significant reductions in child OCD symptoms at post-lockdown. The any mental health diagnosed children are at greater risk of developing OCD symptoms and reported strong preferences for increased support as a result. The exploratory nature of this study adds further insight into the impact of the COVID-19 pandemic on child OCD and parent mental health symptoms and the stability of symptoms over time.

Since late 2019, an outbreak of a novel coronavirus disease (COVID-19) has spread from Wuhan, China affecting every continent, with the World Health Organization (WHO) designating pandemic status in early 2020 (Huang et al., 2020; WHO, 2020). Global pandemic disasters are unique and typically prolonged support and recovery is not immediately available. Children, adolescents, and families are a vulnerable group and experience difficult transitions and sudden changes in the face of global events (Guessoum et al., 2020). Therefore, there is a demand for a specific response strategy to ensure the needs of children and families are met for the remainder of the COVID-19 situation and any future pandemic events. Despite this, there is limited research relating to childhood mental health (MH) in the context of global pandemics.

In times of pandemic and natural disasters, there is an associated increased risk of Post-Traumatic Stress Disorder (PTSD) and depression for children (Kar, 2019; Kar and Bastia, 2006), and lockdown isolation has been linked to increased PTSD symptoms, confusion and anger (Brooks et al., 2020). Regarding COVID-19 specifically, various studies have found that parents, compared to adults without children, reported experiencing increased distress, anxiety, depression and burnout during the pandemic (Waitie et al., 2020; Newlove-Delgado et al., 2021). Further, COVID-19 related factors such as lockdown duration, fears or worries of infection, inadequate information, stigma or financial loss...
related to psychopathology in adults (Bueno-Notivol et al., 2021). This is particularly important as children with a parent in psychological distress during the pandemic have been found to be more likely to also have MH problems (Newlove-Delgado et al., 2021).

For young people themselves, a United Kingdom survey reported that 83% of individuals aged thirteen to twenty-five with a MH history agreed that the COVID-19 pandemic has worsened their MH and 26% said that they were no longer able to access support (Youngminds, 2020). An online study in Australia exploring the impacts of the COVID-19 pandemic on young children (aged one to five years old) and their families found frequent exposure to COVID-19 information; parental worries about COVID-19; parental MH difficulties; child worries about the threat of COVID-19; avoidant or over-protective parenting and parent-child difficulties were risk factors for child MH difficulties (DeYoung et al., 2020).

In contrast, routine, warm and responsive caregiving, regularly doing things outside of the home and less confusion about COVID-19 were protective factors for child emotional wellbeing (DeYoung et al., 2020). Although many adolescents reported increases in depressive symptoms and anxiety and a decrease in life satisfaction during COVID-19 relative to the 12-months prior, with COVID-19 related worries, learning changes and conflict with parents predicting the increase in problems (Magson et al., 2021). Unfortunately, children’s social media usage and exposure to COVID-19 related media online increased throughout the early stages of the pandemic and has also been associated with increased levels of depression, anxiety, and psychological distress (Guessoum et al., 2020). Given the rapidly and continually evolving health situation, these emerging studies have identified factors that may exacerbate general MH difficulties in youth and families, however, little evidence exists on the impact of these factors on obsessive compulsive disorder (OCD) symptoms specifically.

OCD is a distressing disorder characterised by unwanted thoughts, images or urges and repetitive behaviours which occur in response to an experienced anxiety (American Psychiatric Association [APA], 2013). Davide et al. (2020) found that during the COVID-19 pandemic, there was a significant increase in the severity of symptoms in adults with OCD. It has been found that children with OCD experienced an exacerbation of contamination related symptoms during the COVID-19 pandemic (Tanir, 2020) and that children with long-term diagnoses of OCD experienced a worsening of symptoms compared to children with recent diagnoses (Nissen et al., 2020). A study investigating the impact of COVID-19 fears on OCD symptoms in adolescents with pre-existing mental disorders found that 90.4% of participants had significant worries and over half of these participants reported indicators of OCD symptoms (Khan et al., 2021). Research is emerging regarding the effects of the COVID-19 pandemic on MH, however, a systematic review conducted in December 2020 found only 19 papers were sufficiently rigorous to measure changes in MH due to COVID-19 and none included child populations (Newlove-Delgado et al., 2021). A recently published systematic review with studies from Denmark, Israel, United States, Turkey found that COVID-19 appears to be associated with worsening of OCD symptoms in children and adolescents (Cunning and Hodes, 2022).

Although this is important initial findings, the stability of the impact of COVID-19 on MH over time, during and post-lockdown, have not been studied in young populations. Several large-scale studies have been conducted (Bueno-Notivol et al., 2021; DeYoung et al., 2020; Newlove-Delgado et al., 2021; Waite et al., 2020; Youngminds, 2020), which focused on the general MH impacts of the COVID-19 pandemic on children. Although valuable findings have been reported in these studies, limited research has explored the paediatric experience of OCD symptoms in the context of the pandemic, particularly from a longitudinal perspective. Given the increase of MH symptoms from the COVID-19 pandemic in children, and studies such as Khan et al. (2021) demonstrating a link between pre-existing general mental health increasing OCD symptoms, not only will the current study focus on OCD diagnosed individuals, but also explore the possible increase of symptoms across other MH diagnosed groups and healthy groups.

The current longitudinal study will explore parent reported OCD symptomatology, anxiety and depressive symptoms during the initial COVID-19 lockdown and post lockdown. There will be a particular focus on how COVID-19 factors and prior MH difficulties impact on Australian children and families’ MH symptoms, specifically OCD, and the stability of this relationship over time, according to parental perspectives. This study will aim to investigate these impacts on children at various levels of risk for mental health, and therefore there will be a comparison of healthy, OCD diagnosed, and any MH diagnosed children. It is expected that the current sample of parents will report higher than previous community rates of clinical anxiety, depression and OCD symptoms during COVID-19 lockdown in Australia (June–September 2020), which will be associated with COVID-19 risk/impact factors, such as loss of employment or COVID-19 diagnosis. More specifically, this study aimed to determine whether child MH difficulties, as well as parental symptoms were significantly higher among families where the child has a pre-existing diagnosis of any MH disorder, or OCD specifically, relative to healthy children and whether they remained stable/increased at time 2, 3 months following baseline survey (post-lockdown). In contrast, MH symptoms of children in the healthy group were expected to remain steady at the second (post-lockdown) time point. This study also sought to determine the service needs of young people during the lockdown period. It was hypothesised that there would be a greater need for services as reported by parents among clinical sub-groups relative to healthy children. Preferences for service delivery were examined.

1. Method

1.1. Participants

A total of 141 parents of children ranging in age from 4 to 17 years (M = 9.21, SD = 4.23) were recruited from an Australian university undergraduate sample and through social media community pages for the first data collection timepoint (during lockdown June–September 2021). Recruitment campaigns advertised that the study was investigating OCD symptoms in the face of COVID-19 and that participants did not need to have any diagnosis to be eligible to participate. Participants had to be parents of children aged four to seventeen years old and living anywhere in Australia and were requested to complete the survey based on one of their children. Parents in the undergraduate sample received partial course credit for participating and community participants were given the opportunity to enter a draw to win a gift voucher as reimbursement. 106 participants did not provide data for the second time point (post lockdown November 2020–January 2021; attrition rate 75%), therefore resulting in a sample of 35 parents, children ranging in age from 4 to 17 years (M = 10.20 SD = 3.89) for the post lockdown analysis.

1.2. Materials

Consenting participants completed a battery of questionnaires, commencing with items requesting age, gender, ethnicity, income, relationship with child, location, education, medical conditions, education needs, OCD diagnoses, symptoms and prior treatment.

**COVID-19 Experiences Questionnaire.** The COVID-19 experiences questionnaire is an assessment of experiences, losses and impacts (negative and positive) on families as a result of COVID-19 (Waite et al., 2020). This is comprised of 10 items of various Likert scales requesting participants to rate their current isolation status, employment and schooling changes and COVID-19 diagnosis status. Categorical items were transformed to create item variables reflective of impact. Items were utilised to create a Total Impact of COVID-19 score. Cronbach’s alpha of the impact scale for the current sample was .91.

**Parent COVID-19 worries.** The parent COVID-19 worries questionnaire assessed parental worries and concerns regarding COVID-19.
A five-point Likert scale was utilised on 13 items, with participants rating their level of agreement on each of the statements, 0 = strongly disagree to 4 = strongly agree. Responses were summed, with a higher score indicative of higher severity of parental worries (Waite et al., 2020). For the current sample, parent COVID-19 worries Cronbach’s alpha was .92.

Mental health service provision preferences. Preferences for MH services were assessed across three items, utilising both Likert and multiple-choice scales (Waite et al., 2020). Participants were asked whether they feel they would benefit from support and participants who agreed were requested to indicate which areas would be helpful and how they would like to receive the support (Waite et al., 2020). Items were adapted from Waite et al. (2020) for the purposes of the current study to reflect OCD specific support required.

Coronavirus Stressful and Traumatic Events Scale. The Coronavirus Traumatic and Stressful Life Events Scale (COROTRAS) is a self-report inventory which contains 16 potential life events related to COVID-19 (Fontenelle et al., 2021). Participants were requested to indicate whether they have experienced these events, whether they found the event stressful, and rate the intensity of emotions experienced (Fontenelle et al., 2021). Intensity of emotions were measured on a five-point Likert scale, ranging from 0 = absent to 4 = extreme. The COROTRAS is considered a reliable assessment measure (α = 0.917) and demonstrates acceptable convergent validity (Fontenelle et al., 2021). For the current sample Cronbach’s alpha was .82.

Modification to a parent version of the Obsessive-Compulsive Inventory – Child Version (OCI-P). A modified parent report version of the established Obsessive Compulsive Inventory – Child Version (OCI-CV) was generated for the purposes of the current study to facilitate parent report. This instrument was administered at both baseline and follow-up. The OCI-P is a 21-item parental report questionnaire to assess the presence of OCD symptoms in children (Foa et al., 2010). The symptoms are assessed across six different dimensions: 1) doubting/checking, 2) obsessing, 3) hoarding, 4) washing, 5) ordering, and 6) neutralising symptoms. The presence of symptoms was rated on a 3-point Likert scale 0 = never to 2 = always. Evidence supports good psychometric properties for the original child-report version, including internal consistency, test/retest reliability and convergent validity (Foa et al., 2010). For the current sample, Cronbach’s alpha of the total scale was 0.94, and subscales doubting/checking (0.81), obsessing (0.81), hoarding (0.84), washing (0.88), ordering (0.88), and neutralising (0.73).

Revised Children’s Anxiety and Depression Scale – Parent report. Participants completed the revised (25 item) parent report children’s anxiety and depression scale at both baseline and follow-up (RCADS; Ebesutani et al., 2017). The questionnaire requests participants to indicate how often each applies to the child on a four-point Likert scale 0 = never to 3 = always. The RCADS has demonstrated significant correlations with both anxiety and depressive diagnostic groups and acceptable reliability (depression: α = 0.72; anxiety: α = 0.82 (Ebesutani et al., 2017). Current sample’s Cronbach’s alpha of total scale was 0.95, anxiety subscale, 0.90, and depression subscale, 0.93.

Depression, Anxiety and Stress Scale. As an assessment of parental MH symptoms, the depression, anxiety and stress scale-21 items (DASS-21) was administered at baseline and follow-up (Lovibond and Lovibond, 1995). Items were rated on a four-point Likert scale 0 = did not apply to me at all to 3 = applied to me very much or most of the time. The DASS-21 has high internal consistency (α = 0.94 for depression, 0.87 for anxiety) adequate construct validity, and has been validated across populations and settings (Antony, 1998). Current sample’s Cronbach’s alpha = .93 for depression, 0.89 for anxiety, 0.91 for stress.

1.3. Design and procedure

The current study utilised a cross-sectional and longitudinal survey design. Prior to completing the initial online survey, parents provided informed consent. Parents were given the opportunity to volunteer to participate in the follow-up survey and were subsequently asked three months following to complete a shortened version of the initial survey. The investigation was carried out in accordance with the latest version of the Declaration of Helsinki and the study design was reviewed by Griffith University ethical committee.

2. Results

2.1. Statistical analyses

Bivariate Pearson’s correlations were utilised to conduct exploratory analyses. A series of one-way between groups Welch ANOVAs (MH status (3 levels): OCD, any diagnosis, healthy) were conducted to explore the impact of COVID-19 across groups on the dependent variables of child MH symptoms. A mixed-factorial 3 (group: OCD, any diagnosis, healthy) X 2 (time: baseline, 3 months later) design was used to examine changes in symptoms over time across the three groups of children. MH status subgroups were determined by parent reported history of child diagnoses and/or clinical symptoms of a MH diagnosis. Participants within the any MH diagnosis group did not identify OCD symptoms/diagnoses, rather symptoms of other MH problems experienced during childhood, most often anxiety, depression, and neuro-developmental disorders. A descriptive analysis exploring frequencies and chi-square analyses was utilised to establish differences across groups in service needs.

2.2. Baseline findings

2.2.1. Frequency of OCD symptoms

During the COVID-19 lockdown survey, 7.1% (10 parents) of parents reported their child had a previous diagnosis of OCD, and of these parents, 100% (10 parents) reported a worsening of their child’s symptoms during the pandemic. Further, 22% (28 parents) of parents of healthy children reported an onset of OCD symptoms during COVID-19. Overall, regardless of MH status prior to COVID-19, 40% of parents reported an increase in OCD-like symptoms since COVID-19. At the second survey following the lockdown period, 43% (15 parents) of parents reported that their child had new onset of OCD symptoms since completing the previous survey, and 67% of these parents believed that this was due to COVID-19.

2.2.2. Associations between COVID-19 impact and symptoms during lockdown

Results of the bivariate correlations based on the lockdown are presented in Table 1. Parental worries about COVID-19 were significantly and positively associated with all MH symptoms. A significant positive correlation between parent reported number of COVID-19 related stressful events experienced and child OCD symptoms was found. A significant positive relationship was also found between parents’ subjective knowledge of COVID-19 and both parental depression and stress. The intensity of parental emotions reported as a direct result of experiencing a stressful COVID-19 related event were significantly and positively associated with a variety of child and parent reported clinical symptoms (Table 1).

2.2.3. Comparing mental health symptoms across clinical subgroups

To aid in interpretation of young people’s symptom levels in this study, we refer to previously published normative data, which although is based on a general population, provides a comparative benchmark to the level of symptoms being reported in the current study. When

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1. The assumption of homogeneity of variances was violated, as assessed by Levene’s test for equality of variances, hence the Welch test was used to analyse results.
compared to published normative data (Rough et al., 2020), the overall sample of parents reported higher symptom severity (≥1 SD above normative mean) for total OCD symptoms within their children, and for obsessing, washing, and neutralising OCD symptom sub-types on the OCI-P (see Table 2). In contrast, there were no observable elevations in parent reported child anxiety and depression (Ebesutani et al., 2017) and/or parental depression, anxiety, and stress (Henry and Crawford, 2005) when compared to published normative data (i.e., within 1 SD of normative means).

Based on the Welch test, a significant difference between groups was found for total child OCD symptoms, and on subscales of obsessing, hoarding, doubting/checking and ordering symptom subtypes; as well as across RCADS subscales, and parent depression and stress (see Table 3). To detect specific group differences a series of Games-Howell post-hoc analyses were conducted. Interestingly, the any MH diagnosis group reported significantly higher obsessing symptoms (MD = 1.91, $\sigma$ = 0.40, 95% CI = 0.91–2.90) and hoarding symptoms than the healthy group (MD = 1.23, $\sigma$ = 0.42, 95% CI = 0.21–2.26), with no significant differences between the OCD and healthy groups (p > .05).

Table 2

Descriptive Statistics of Child OCD Symptoms, Child Depression and Anxiety and Parental Depression, Anxiety and Stress and Published Normative Data.

| Current Sample Mean | SD | Published Normative Data Mean | SD |
|---------------------|----|-------------------------------|----|
| OCI-P (n = 127)     |    | Rough et al. (2020)           |    |
| Obsession           | 1.97| 1.89                         | 0.6| 1.1 |
| Washing             | 1.00| 1.53                         | 0.3| 0.7 |
| Hoarding            | 2.03| 1.73                         | 0.9| 1.1 |
| Doubting/Checking   | 1.83| 2.12                         | 0.8| 1.2 |
| Neutralising        | 0.84| 1.28                         | 0.2| 0.5 |
| Ordering            | 1.81| 1.72                         | 0.9| 1.3 |
| Total               | 9.48| 8.26                         | 3.6| 3.8 |
| RCADS (n = 125)     |    | Ebesutani et al. (2017)      |    |
| Anxiety             | 9.16| 7.57                         | 6.22| 4.58 |
| Depression          | 6.21| 6.04                         | 3.93| 3.38 |
| Total               | 15.37| 12.79                       | 10.15| 7.09 |
| DASS (n = 123)      |    | Henry & Crawford (2005)      |    |
| Depression          | 4.40| 4.59                         | 2.83| 3.87 |
| Stress              | 6.37| 4.48                         | 4.73| 4.20 |
| Anxiety             | 3.37| 3.88                         | 1.88| 2.95 |

Note. OCI-P = Obsessive-Compulsive Inventory Parent Version; RCADS = Revised Child Anxiety and Depression Scale Parent Report; DASS = Depression, Anxiety and Stress Scale.

Table 3

Associations between COVID-19 Impact on Child and Parental Mental Health Symptoms.

| COVID-19 Impact Score | ORCAS Stress Events | ORCOS Fear/Phobia | ORCOS Hopelessness | ORCOS Disgust | ORCOS Anger | ORCOS Guilt | ORCOS Shame | ORCOS Sadness | COVID-19 Parental Knowledge | COVID-19 Parental Recommendations | COVID-19 Child Problems | COVID-19 Parental Worries |
|----------------------|---------------------|-------------------|-------------------|--------------|------------|------------|------------|-------------|---------------------------|-------------------------------|--------------------------|-------------------------|
| Current Sample Mean  | Published Normative Data Mean |                      |                   |              |            |            |            |              |                           |                               |                          |                         |
|                     | Rough et al. (2020) |                    |                   |              |            |            |            |              |                           |                               |                          |                         |
| Obsession           | 1.97                | 0.6                | 1.1               |              |            |            |            |              |                           |                               |                          |                         |
| Washing             | 1.00                | 0.3                | 0.7               |              |            |            |            |              |                           |                               |                          |                         |
| Hoarding            | 2.03                | 0.9                | 1.1               |              |            |            |            |              |                           |                               |                          |                         |
| Doubting/Checking   | 1.83                | 0.8                | 1.2               |              |            |            |            |              |                           |                               |                          |                         |
| Neutralising        | 0.84                | 0.2                | 0.5               |              |            |            |            |              |                           |                               |                          |                         |
| Ordering            | 1.81                | 0.9                | 1.3               |              |            |            |            |              |                           |                               |                          |                         |
| Total               | 9.48                | 3.6                | 3.8               |              |            |            |            |              |                           |                               |                          |                         |
| RCADS (n = 125)     |                     | Ebesutani et al. (2017) |              |              |            |            |            |              |                           |                               |                          |                         |
| Anxiety             | 9.16                | 6.22               | 4.58              |              |            |            |            |              |                           |                               |                          |                         |
| Depression          | 6.21                | 3.93               | 3.38              |              |            |            |            |              |                           |                               |                          |                         |
| Total               | 15.37               | 10.15              | 7.09              |              |            |            |            |              |                           |                               |                          |                         |
| DASS (n = 123)      |                     | Henry & Crawford (2005) |              |              |            |            |            |              |                           |                               |                          |                         |
| Depression          | 4.40                | 2.83               | 3.87              |              |            |            |            |              |                           |                               |                          |                         |
| Stress              | 6.37                | 4.73               | 4.20              |              |            |            |            |              |                           |                               |                          |                         |
| Anxiety             | 3.37                | 1.88               | 2.95              |              |            |            |            |              |                           |                               |                          |                         |

Note. COVID-19 = Coronavirus disease; OCD = Obsessive Compulsive Disorder; ORCAS = Obsessive-Compulsive Inventory Parent Version; RCADS = Revised Child Anxiety and Depression Scale Parent Report; DASS = Depression, Anxiety and Stress Scale; COROTRAS = Coronavirus Stressful and Traumatic Events Scale; *p < .05, **p < .01.
significant difference in proportions between the healthy and any MH diagnosis group, \( p < .05 \), but no significant difference in proportions between the OCD group and both healthy and any MH diagnosis groups, \( p > .05 \).

Parents of children within the MH groups indicated a need for support within most areas, except for helping children to manage COVID-19 related restrictions and safety guidelines and managing the impact of OCD on the family within the any MH diagnosis group. There was a strong preference for online written materials across both MH groups, regardless of diagnosis. The OCD group did not prefer any of the other treatment options, whereas the any MH diagnosis group indicated a preference for face-to-face therapy for the parent and personalised telephone support.

### 2.3. Follow-up findings

Descriptive results of the mixed factorial ANOVAs are presented in Table 4.

#### 2.3.1. Child symptoms and behaviours

**Total OCD severity (OCI-P).** As seen in Fig. 1, total OCD severity appeared to be higher during lockdown than post lockdown, with the decline being stronger in the OCD group. The main effects for time (F(1, 30) = 4.66, \( \eta_p^2 = 0.13 \), \( p = .039 \) and group F(2, 30) = 7.32, \( \eta_p^2 = 0.33 \), \( p = .003 \) were significant. The any MH diagnosis group reported higher OCD symptoms than the healthy group (MD = 8.70, \( \sigma_x = 2.31 \), 95% CI = 3.98–13.42), however, no significant differences were found between the OCD and both healthy and any MH diagnosis groups (\( p > .05 \)). OCD symptoms, regardless of group, significantly reduced post lockdown, \( MD = 2.30, \sigma_x = 1.07 \), 95% CI = 0.12–4.48. The different rates of improvement in the groups was confirmed by a time \* group interaction, \( F(2, 30) = 5.04, \eta_p^2 = 0.25, p = .013 \). The improvement in OCD totals was significant for the OCD group, \( t(4) = 3.71, p = .021 \), \( d = 4.00 \), but not in the healthy, \( t(19) = −1.30, p = .208 \), \( d = 5.08 \), or any MH diagnosis group \( t(7) = 0.78, p = .462 \), \( d = 6.36 \).

**Total anxiety and depression severity (RCADS).** The main effect of time and interaction of time and group was not significant (\( p > .05 \)). A significant main effect of groups was found, \( F(2, 30) = 7.91, \eta_p^2 = 0.35, p = .003 \).
confirmed by a main effect for time, depression: anxiety and depression than both the OCD (MD = 17.61, σ2 = 5.26, 95% CI = 6.88–28.35) and healthy group (MD = 20.41, σ2 = 3.86, 95% CI = 12.54–28.35), however, there was no significant difference between the OCD and healthy group (p > .05).2

3.2.3. Parent symptoms

**Anxiety, Depression & Stress (DASS-21).** As seen in Fig. 2, parent depression and stress appeared to be higher during lockdown than post lockdown, with the decline being stronger in the OCD group. The overall improvement of parental depression and stress over lockdown was confirmed by a main effect for time, depression: F(1, 30) = 7.98, ηp2 = 0.21, p = .003 (MD = 2.69, 95% CI = 0.96–4.42) and stress: F(1, 30) = 7.61, ηp2 = 0.20, p = .010 (MD = 1.92, 95% CI = 0.70–3.34). A non-significant difference between groups was found for both depression and stress (p > .05). The different rates of improvement was confirmed by a time × group interaction for both depression F(2, 30) = 8.92, ηp2 = 0.37, p = .003 and stress F(2, 30) = 7.87, ηp2 = 0.34, p = .002. The improvement in depression was significant for the OCD group, t(4) = 3.39, p = .027, d = 4.09, but not in the any MH diagnosis groups t(7) = 1.11, p = .302, d = 1.70. The healthy group demonstrated a significant increase in depression, t(19) = −2.21, p = .040, d = 2.03. The improvement in stress was significant for the OCD group, t(4) = 2.95, p = .042, d = 4.10, but not in the any MH diagnosis groups t(7) = 0.93, p = .384, d = 4.57 or the healthy group, t(19) = −1.93, p = .068, d = 2.66. Parent anxiety demonstrated a non-significant main effect of time, groups, and interaction (p > .05).

3. Discussion

Given the recency of the pandemic, limited research currently exists in exploring the impact of the COVID-19 pandemic on child and parent MH, specifically on OCD symptoms. In addition, researchers are yet to consider the impact of this relationship over time and how outcomes may differ across various levels of risk for MH in children. The current study therefore aimed to explore how COVID-19 impacted MH symptoms, with a particular focus on OCD symptoms, the stability of this relationship over time and possible variations across symptom groups and the needs and preferences for MH support in response to child symptoms.

The current sample of parents reported elevated rates of clinical symptoms for their children during lockdown, consistent with initial predictions of this study. The overall sample, which included children within the healthy, OCD and any MH diagnosis group, observed elevated total OCD severity and obsessing, washing, and neutralising OCD symptoms compared to previously observed symptoms in a normative sample prior to COVID-19 (Rough et al., 2020). The findings are consistent with existing COVID-19 and paediatric OCD research which has demonstrated an increase in total OCD symptoms and washing and obsessing OCD symptoms during the COVID-19 pandemic (Tanir, 2020). Further, the findings are also consistent with COVID-19 research demonstrating an increase in MH symptoms and exacerbation of pre-existing MH diagnoses during COVID-19, particularly for OCD symptoms (Bueno-Notivol et al., 2021; Fountoulakis et al., 2021; Newlove-Delgado et al., 2021).

The expectation that elevations in symptom variables would be associated with COVID-19 risk/impact factors was partially found. Of note, parental worries about COVID-19 were strongly associated with all MH symptom variables, suggesting that parental worries could be a predictor of the development of MH difficulties within families during pandemics. Further, as parents’ self-rated knowledge of COVID-19 increased, the more stress and depressive symptoms they reported for themselves. Given that non-significant associations were found between MH symptom variables and COVID-19 stressful events and COVID-19 impact score, it is likely that COVID-19 worries/knowledge may mediate the association between MH and COVID-19 impacts.

The current study’s findings regarding the association between adult worries and MH symptoms is consistent with research during the lockdown stages of COVID-19, where it was found that adults with self-reported MH diagnoses reported higher COVID-19 related worries and subsequent worsening of MH symptoms (Newby et al., 2020). Parents reporting high frequency of worry during past pandemics has been shown to increase child anxiety experiences (Brand et al., 2013). Given the exacerbation of adult MH symptoms due to COVID-19 related worries, it is important to consider the subsequent impacts on children’s symptoms.

The prediction that MH difficulties would be greater in families of a child with pre-existing diagnoses/symptoms was found for majority of variables, including total OCD symptoms, and obsessing, hoarding, doubting/checking and ordering symptom subtypes, child anxiety and depression, and parent depression and stress. Although the any MH diagnosis group and OCD group washing symptoms remained significantly higher than previously reported in normative samples prior to COVID-19 (Rough et al., 2020), no significant difference was found between the groups on this variable. Therefore, increased washing symptoms associated with OCD during COVID-19 were observed within the sample of youth with OCD, but also within children with other pre-existing MH diagnoses. The current study is consistent with findings that the impact of COVID-19 has been greater for families with pre-existing diagnoses (Gussoum et al., 2020; Huang et al., 2020; Nissen et al., 2020).

Different rates of improvements and stability of MH variables were found across the groups over the lockdown period. Unexpectedly, improvement in OCD symptoms post-lockdown was found for the OCD group. OCD symptoms remained stable across time for both the healthy and any MH diagnosis groups, which is consistent with predictions. Regardless of lockdown period, the any MH diagnosis group OCD severity was as elevated as the OCD group, however, did not demonstrate the same trend of symptom improvement, and remained elevated (>3 SD above normative means (Rough et al., 2020). The high rates of comorbidity between OCD and other anxiety disorders are well established in the literature and therefore children with anxiety symptoms or diagnoses are generally more likely to develop OCD and in the context of COVID-19, symptoms may have emerged within this study due to the threat of infection for the any MH diagnosis group. More specifically, anxiety is a predictor of the development of OCD beliefs and symptoms within the context of previous pandemics such as Swine Flu (Brand et al., 2013). Further, parents of children with OCD diagnoses may better notice changes in OCD symptoms compared to parents of children without this diagnosis due to limited knowledge or awareness of these signs or symptoms (Tanir, 2020). Further research would be required to better understand the mechanisms behind this relationship.
Nevertheless, the current study demonstrates the vulnerability of children with pre-existing MH diagnoses in the development, exacerbation, and persistence of OCD symptoms during COVID-19 lockdowns and recovery.

Child anxiety and depression remained stable over the lockdown period and the stability did not differ across the groups. Regardless of lockdown time-point, the any MH diagnosis participants reported significantly higher anxiety and depression than both OCD and healthy groups, which are likely prevalent MH diagnoses within this clinical subgroup. An improvement in parental depression and stress was found following lockdown for the OCD group, however, the healthy and any MH diagnosis groups remained stable. The healthy group reported a worsening of depressive symptoms amongst parents post lockdown, however, this remained within the “normal” range of depression and is consistent with emerging research of adult experiences during COVID-19 (Fountoulakis et al., 2021).

Finally, it was predicted that a greater need for services would be reported by parents of children in the any MH and OCD groups relative to the healthy children. Findings were consistent with the initial predictions, with the any MH diagnosis group reporting a significantly greater need for support than the healthy group. Further, participants with children within the MH groups reported a strong preference for online written materials, with the OCD group having no preferences for any other treatment options. The any MH diagnosis group preferred face-to-face therapy for the parent and personalised telephone support. The findings could be explained by 40% of the sample reporting recent onset and increases of OCD-like symptoms since COVID-19. If the child has not demonstrated these behaviours previously, parents may be uncertain and confused by their child’s presentation and therefore seeking increased personalised support in this context.

This study has several limitations that should be noted. Firstly, the recruitment method of the current sample advertised that the study was investigating OCD symptoms in the context of COVID-19. As such, the results must be interpreted from the perspective of parental surveillance of OCD symptoms, rather than a representation of the general population of Australian children. Indeed, our study aimed to examine the impact of COVID-19 on children at various levels of risk for mental health, hence the comparison across symptom groups. Given the aim to have a mix of youth across the spectrum of vulnerability for MH, recruitment was aimed at both youth with OCD/any MH diagnoses and a normative sample (through an undergraduate sample of parents).

Secondly, the differences between MH symptoms before (normative means) and during COVID-19 lockdown were attributed to the COVID-19 pandemic; however, there could be several other factors that may have influenced these differences. This could be explained by the current sample recruiting a potentially more vulnerable population or individual factors relevant to each participant. Further, the differences between symptoms during and post lockdown were classified according to broader national Australian lockdown trends, however, several locations in the country may have been under a government or personally enforced lockdown during the second time point. The prevalence and impact of COVID-19 in Australia within the data collection period (June–September 2020 and November 2020–January 2021), according to Ritchie et al. (2020), appeared significantly less severe when compared to other countries such as United States, United Kingdom, Canada, Germany, and India. Australia demonstrated significantly less deaths, fewer confirmed cases, and lower hospital patients/admission including ICU, at a population level. However, despite this difference in disease impact of COVID-19, similar findings on mental health outcomes have been observed within the current study compared with other countries. A systematic review from various countries found that the COVID-19 was associated with worsening of OCD symptoms in children and adolescents (Connaughton et al., 2017; Ros-DeMarize et al., 2021). The present study is important as it investigated the impact of COVID-19 on parental and childhood MH symptoms and is one of the first to evaluate the stability of this relationship over time and the needs and preferences for MH support in response to child symptoms. A novel finding in this area included the strong association between symptom variables and parental worry regarding COVID-19, elevated scores of OCD during COVID-19 compared to normative samples, and the vulnerability of children with pre-existing MH in developing OCD symptoms and its persistence over the lockdown period. Although several important discoveries were made, it is valuable to continue longitudinal research in this area across regions in the world to better understand long-term effects of the COVID-19 pandemic on young people and their families.

Author statement

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