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Long-Term Impact of the COVID-19 Pandemic on Obsessive-Compulsive Disorder Symptoms in Children and Adolescents: A One-Year Follow-Up Study



Çocuk ve Ergenlerde COVID-19 Pandemisinin Obsesif-Kompulsif Bozukluk Belirtileri Üzerindeki Uzun Vadeli Etkisi: Bir Yıllık İzlem Çalışması

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Abstract

Objective: To examine how COVID-19 affected obsessive-compulsive disorder (OCD) symptom trajectories in children and adolescents across pre-, during-, and post-pandemic periods over one year.

Materials and Methods: Thirty-six youth with a prior diagnosis of OCD ($M_{age}=13.5$ years, $SD=2.9$) completed the Children's Yale-Brown Obsessive Compulsive Scale (CY-BOCS) and the Clinical Global Impression-Severity (CGI-S) scale at three time points: before the pandemic, during the pandemic, and after the pandemic. Nonparametric repeated-measures tests (Friedman) with Dunn-Bonferroni post hoc contrasts evaluated the change over time.

Results: Time effects were significant for global severity (CGI-S: $\chi^2(2)=7.35$, $p=0.025$) and CY-BOCS total ($\chi^2(2)=6.44$, $p=0.040$), with descriptively highest total symptoms during the pandemic (18.66 ± 6.73) versus pre-pandemic (14.55 ± 5.20 ; $p=0.08$) and post-pandemic (12.80 ± 8.00 ; $p=0.17$); pairwise contrasts for totals were not significant. Obsessions showed a significant during-to-post reduction ($\chi^2(2)=9.27$, $p=0.010$; Dunn-Bonferroni $p=0.047$), with a marginal pre-to-during increase ($p=0.055$). Compulsion had a significant effect ($\chi^2(2)=6.33$, $p=0.042$), but post hoc comparisons were not significant.

Öz

Amaç: COVID-19'un, çocuk ve ergenlerde obsesif-kompulsif bozukluk (OKB) belirti seyirlerini pandemi öncesi, pandemi sırası ve pandemi sonrası bir yıllık izlem boyunca incelemek.

Gereç ve Yöntemler: OKB tanısı olan 36 genç (ortalama yaş=13,5, $SS=2,9$) pandemi öncesi, pandemi sırası ve pandemi sonrasında üç zaman noktasında değerlendirildi. Ölçümler için Çocuk Yale-Brown Obsesif Kompulsif Ölçeği (CY-BOCS) ile Klinik Genel İzlenim-Şiddet Ölçeği (CGI-S) kullanıldı. Zamana bağlı değişimi test etmek üzere parametrik olmayan tekrarlı ölçümler için Friedman testi ve Dunn-Bonferroni düzeltmeli ikili karşılaştırmalar uygulandı.

Bulgular: Zamana bağlı etkiler, CGI-S (CGI-S: $\chi^2(2)=7,35$, $p=0,025$) ve CY-BOCS toplamı için anlamlıydı ($\chi^2(2)=6,44$, $p=0,040$); toplam belirti düzeyleri betimsel olarak pandemi sırasında en yüksekti ($18,66\pm 6,73$), pandemi öncesine ($14,55\pm 5,20$; $p=0,08$) ve pandemi sonrasına ($12,80\pm 8,00$; $p=0,17$) kıyasla; toplam puanlar için ikili karşılaştırmalar anlamlı değildi. Obsesyonlar, pandemi sırasından pandemi sonrasına anlamlı bir azalma gösterdi ($\chi^2(2)=9,27$, $p=0,010$; Dunn-Bonferroni $p=0,047$) ve pandemi öncesinden pandemi sırasına artış marjinaldi ($p=0,055$). Kompulsiyonlar için genel etki anlamlıydı ($\chi^2(2)=6,33$, $p=0,042$), ancak post-hoc karşılaştırmalar anlamlı değildi.



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Conclusion: Youth with OCD showed increased severity during the pandemic that later eased; obsessions improved post-pandemic, while total and compulsion scores showed no clear pairwise changes. This pattern indicates partial recovery and underscores the need for continued monitoring and timely evidence-based care during and after crises.

Keywords OCD · COVID-19 · children · adolescents · obsessions · compulsion

Sonuç: Pandemi döneminde genel şiddet arttı ve sonrasında hafifledi; obsesyonlarda pandemi sonrası belirgin iyileşme görüldü, toplam ve kompulsiyon puanlarında ise net ikili değişimler saptanmadı. Bulgular kısmi iyileşmeye ve kriz dönemlerinde sürekli izlem ile kanıta dayalı tedavinin önemine işaret etmektedir.

Anahtar Kelimeler OKB · COVID-19 · çocuklar · ergenler · obsesyonlar · kompulsiyonlar

INTRODUCTION

The coronavirus disease 2019 (COVID-19) pandemic, first detected in December 2019 (1), has rapidly become a global health crisis with far-reaching consequences. As of March 2023, the pandemic has resulted in more than 6 million deaths worldwide (2). In Turkey, the first official case was reported on March 10, 2020 (3), and by March 2023, the country had recorded over 17 million cases and more than 100,000 deaths (4-6). In response to the pandemic, authorities implemented numerous health measures, including border closures, hygiene-promoting guidelines, and remote learning initiatives (3, 7-10). While these measures helped control the spread of the virus, they have also had significant psychological consequences, including increased anger, heightened feelings of loneliness, and exacerbation of psychiatric symptoms (11-16).

Among the disorders notably affected by the pandemic is obsessive-compulsive disorder (OCD), a condition characterised by obsessions—recurrent, intrusive thoughts—and compulsions—ritualistic behaviours aimed at reducing the anxiety caused by these obsessions (17). Research has shown that contamination-related obsessions and washing-related compulsion are particularly prevalent in individuals with OCD, with at least half of the patients reporting these symptoms as their primary concerns (18). Ball et al. similarly found that nearly 50% of individuals with OCD report contamination fears and washing behaviours as dominant features of their disorder (19). Consequently, public health guidelines emphasising hygiene during the COVID-19 pandemic have likely contributed to the worsening of OCD symptoms in these individuals (20, 21).

OCD also significantly affects children and adolescents, with approximately 1%–3% of the young population diagnosed with the disorder (22). Similar to adults, children and adolescents with OCD have internalised behaviours such as avoiding touching public surfaces, frequent handwashing, and maintaining social distance as a means of preventing contamination (23, 24). The emergence of pandemic-related hygiene practices may intensify pre-existing symptoms, significantly impacting this vulnerable population (8). Despite early studies, there is limited research exploring the long-

term impact of COVID-19 on OCD symptoms in children and adolescents. Most studies focus on the short-term effects, with only one longitudinal study to date examining the sustained impact of the pandemic on OCD symptoms in youth (1). This creates a gap in our understanding of how OCD symptoms evolve in young populations during prolonged periods of health crises and social disruption.

The purpose of the present study was to address this gap by evaluating the long-term effects of the COVID-19 pandemic on OCD symptoms in children and adolescents over one year. This study builds upon the initial work of Tanir et al., which assessed the short-term increase in OCD severity in Turkish children aged 6-18 during the early stages of the pandemic (8). One year after our initial assessment, this study aimed to characterise within-person changes in OCD symptoms across three periods, pre-pandemic, during the COVID-19 pandemic, and post-pandemic, using repeated-measures analyses. Based on prior work on stress-linked symptom fluctuation and partial remission following acute stressors, we hypothesised that all outcomes would be highest during the pandemic.

MATERIAL AND METHODS

Following the quantitative research reporting standards, we detail our data exclusions, sample size determination, manipulations, and measures. Data, analysis code, and research materials are available from the corresponding author upon request. The study was not preregistered because preregistration was not part of our standard practice at the time of conception. Institutional Review Board approval was obtained from the Istanbul University Faculty of Medicine (No: 29624016-050.99-961; Date: July 3, 2020).

Participants

The participants in this follow-up study were originally part of a previous investigation conducted during the first wave of the COVID-19 pandemic in April 2020 (8). The initial study comprised 61 youth ($M=13.6\pm 2.72$ years), all diagnosed with obsessive-compulsive disorder (OCD), and were referred to or recruited by the Child and Adolescent Psychiatry outpatient clinic at Istanbul University Faculty of Medicine, Istanbul,



Türkiye. The clinic is a well-known child psychiatry and provides diagnostic and therapeutic services. Its patients include children with various developmental, behavioural, and emotional needs, alongside typically developing peers whose parents have consented to their participation in the research. Informed consent was obtained from parents and children before participating in the study, with the children providing assent where appropriate.

The eligibility criteria for the study were as follows: a) a diagnosis of OCD based on the DSM-5 criteria; b) available pre-pandemic scores on the Clinical Global Impression Severity (CGI-S) scale and the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS); c) no comorbid diagnoses of autism spectrum disorder, schizophrenia spectrum disorder, intellectual disability, or substance use disorders; and d) verbal informed consent and assent provided for participation in the study.

This follow-up study was conducted one year later, in May 2021, to assess the long-term effects of the pandemic on OCD symptoms. From the original sample, 36 participants ($M=13.52\pm 2.94$ years) completed the follow-up assessment. Twenty-five participants were excluded from the follow-up due to refusal to participate ($n=20$) or because they could not be reached ($n=5$). Participants who consented to the follow-up were assessed through either face-to-face interviews ($n=26$) or telephone interviews ($n=10$), based on their preference and availability, to accommodate pandemic-related safety protocols.

Measures

Clinical Global Impression–Severity Scale (CGI-S)

The Clinical Global Impression–Severity (CGI-S) scale was used to assess the overall severity of symptoms. The CGI-S is part of the broader Clinical Global Impression (CGI) scale, which also includes subscales for Improvement (CGI-I) and Efficacy (CGI-E). For this study, only the CGI-S subscale was used, which measures illness severity on a 7-point scale, ranging from 1 (normal, not at all ill) to 7 (extremely ill). This clinician-rated measure is widely used in psychiatric research and clinical practice for its simplicity and reliability (25).

Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS)

The CY-BOCS is a semi-structured, clinician-administered measure specifically designed to assess the severity of obsessive-compulsive symptoms in children and adolescents. It consists of 10 items, each rated on a 5-point Likert scale, where higher scores indicate greater symptom severity. The CY-BOCS generates two subscale scores, one for obsessions

and one for compulsions, and a total severity score, the sum of all 10 items. The CY-BOCS has demonstrated strong psychometric properties, including adequate internal consistency and convergent and discriminant validity (26, 27). The Turkish version of the CY-BOCS has been validated and is reliable in clinical settings (28).

State-Trait Anxiety Inventory (STAI)

The State-Trait Anxiety Inventory (STAI) is a widely used self-report measure designed to assess the severity of both state and trait anxiety (29). The STAI consists of two subscales: the state anxiety subscale, which measures how a person feels “right now” at the moment, and the trait anxiety subscale, which measures general feelings of anxiety across time. Each subscale comprises 20 items, rated on a 4-point Likert scale, with total scores ranging from 20 to 80. Higher scores reflect greater anxiety levels. The Turkish version was validated (30).

Demographic and Clinical Information Form

A demographic form was used to collect the participants' sociodemographic and clinical characteristics, including age, gender, parental education, family income, and COVID-19-related experiences. The form also captured participants' daily preoccupation with the pandemic, duration of OCD diagnosis, and treatment status.

Analysis Plan

All statistical analyses were conducted using SPSS version 26.0 (IBM Corp., Armonk, NY, USA). Descriptive statistics for continuous variables were reported as means and standard deviations ($M\pm SD$) or medians, where appropriate, based on the data distribution. Categorical variables are presented as frequencies and percentages. The normality of the distribution for continuous variables was assessed using the Shapiro-Wilk test. The Friedman test was applied for comparisons involving more than two independent groups where the data did not meet the normality assumption, followed by Dunn's post hoc test to identify specific group differences. Statistical significance was set at $p<0.05$ for all tests. Missing data were handled using pairwise deletion, and no imputation techniques were applied.

RESULTS

Sample characteristics

The analytic sample comprised 36 participants (mean age=13.5 years, $SD=2.9$); 53% identified as male and 47% as female. The fathers' mean education was 9.6 years ($SD=3.7$), and the mothers' mean education was 9.02 years ($SD=3.7$). Regarding socioeconomic status, 83% of the families reported incomes



above the minimum wage and 17% below. Participants reported spending 1.5 hours per day (SD=1.2) preoccupied with COVID-19-related concerns. The mean duration of OCD diagnosis was 2.2 years (SD=1.7). At the time of assessment, 45% were receiving SSRIs only, 30% were treated with SSRIs plus aripiprazole or risperidone, 8% received SSRIs plus CBT, and 17% were not in treatment. Table 1 summarises clinical and sociodemographic characteristics.

Table 1. Clinical and sociodemographic characteristics of the participants

Variable	N(%) / M(SD)
Age (years)	13.52±2.94
Gender	
Male	19 (52.8%)
Female	17 (47.2%)
Mean duration of father's education (years)	9.65±3.78
Mean duration of mother's education (years)	9.02±3.70
Family income	
Below the minimum wage	6 (16.7%)
Above the minimum wage	30 (83.3%)
Current OCD diagnosis in the parent(s)	5 (13.9%)
COVID-19 diagnosis in someone familiar	8 (22.2%)
Information source about COVID-19	
TV	35 (97.2%)
Talking/searching in the social environment	24 (66.7%)
Internet	23 (63.1%)
Social media	20 (55.6%)
Daily preoccupation about COVID-19 (hours/day)	1.52±1.20
Duration of OCD diagnosis (years)	2.19±1.78
Treatment status	
Only SSRIs	16 (44.7%)
SSRIs + aripiprazole or risperidone	11 (30.6%)
SSRI + CBT	3 (8.3%)
No current treatment	6 (16.7%)

Note. N: number of participants; %: percentage; M±SD: the mean value with its standard deviation; OCD: obsessive-compulsive disorder; SSRIs: selective serotonin reuptake inhibitors; CBT: cognitive-behavioural therapy; TV: television.

Primary analyses

A Friedman test was performed on clinical severity (CGI-S) and obsessive-compulsive symptoms (Y-BOCS) across three time points: pre-pandemic, during the pandemic, and post-pandemic (Table 2). For CGI-S, the Friedman test was significant (χ^2 (df=2, N=36)=7.35; p=0.025); however, Dunn-Bonferroni post-hoc contrasts did not reach significance (during vs pre=0.13; during vs post p>0.05). For Y-BOCS total, the Friedman test was significant (χ^2 (df=2, N=36)=6.44; p=0.040); means were descriptively highest during the

pandemic (M=18.66±6.73) versus pre-pandemic (M=14.55±5.20, p=0.08) and post-pandemic (M=12.80±8.00, p=0.17), with the pre is post contrast also non-significant. For obsessions, the Friedman test was significant (χ^2 (df=2, N=36)=9.27; p=0.010); post-hoc comparisons indicated a during to post reduction (9.52±3.54 vs 5.94±4.13; p=0.047), while pre vs during was marginal (p=0.055). For compulsions, the Friedman test was significant (χ^2 (df=2, N=36)=6.33; p=0.042); post > pre (6.86±4.27 vs 7.36±2.62; p=NS), and during is post was not significant (p=0.178). All post hoc p-values are Dunn's test with Bonferroni adjustment. Figure 1 displays the trajectories over time.

Table 2. Results of Friedman's test and post hoc comparisons across the pre-, during-, and post-pandemic periods

Variables	Before Pandemic (1) #	During Pandemic (2) #	After Pandemic (3) #	Friedman	Comparison Group	Post hoc p-value
CGI-S	3.05±0.67	3.58±1.05	2.83±1.40	0.025*	1 vs 2 1 vs 3 2 vs 3	0.135 NS 0.118
YBOCS	14.55±5.20	18.66±6.73	12.80±8.00	0.040*	1 vs 2 1 vs 3 2 vs 3	0.088 NS 0.178
Obsession	7.19±2.64	9.52±3.54	5.94±4.13	0.010*	1 vs 2 1 vs 3 2 vs 3	0.055 NS 0.047
Compulsion	7.36±2.62	9.13±3.46	6.86±4.27	0.042*	1 vs 2 1 vs 3 2 vs 3	0.135 NS 0.178

Note. # Data presented as Median (25%-75%); *A significant statistical difference with p<0.05; **A significant statistical difference with p<0.01; CGI-S: Clinical Global Impression-Severity; YBOCS: Yale-Brown Obsessive Compulsive Scale; NS: not significant; Friedman reports the p-value from the Friedman test (a nonparametric test for repeated measures); Post hoc p-value reflects the significance of pairwise comparisons between time points (1 vs 2, 1 vs 3, and 2 vs 3). Post-hoc p-values are Dunn's post-hoc with Bonferroni adjustment.

Correlations

We also examined the associations between anxiety and reductions in symptoms from during to post-pandemic (Table 3). State anxiety (STAI-S) was negatively correlated with a reduction in Y-BOCS (r=-0.364, p=0.035), and trait anxiety (STAI-T) showed a stronger negative correlation (r=-0.653, p<0.001), indicating that higher anxiety scores were associated with smaller Y-BOCS decreases (Figure 2). Trait anxiety was also negatively correlated with the reduction in CGI-S (r=-0.559, p<0.001); the state-anxiety correlation with CGI-S did not reach significance (r=-0.294, p=0.086).



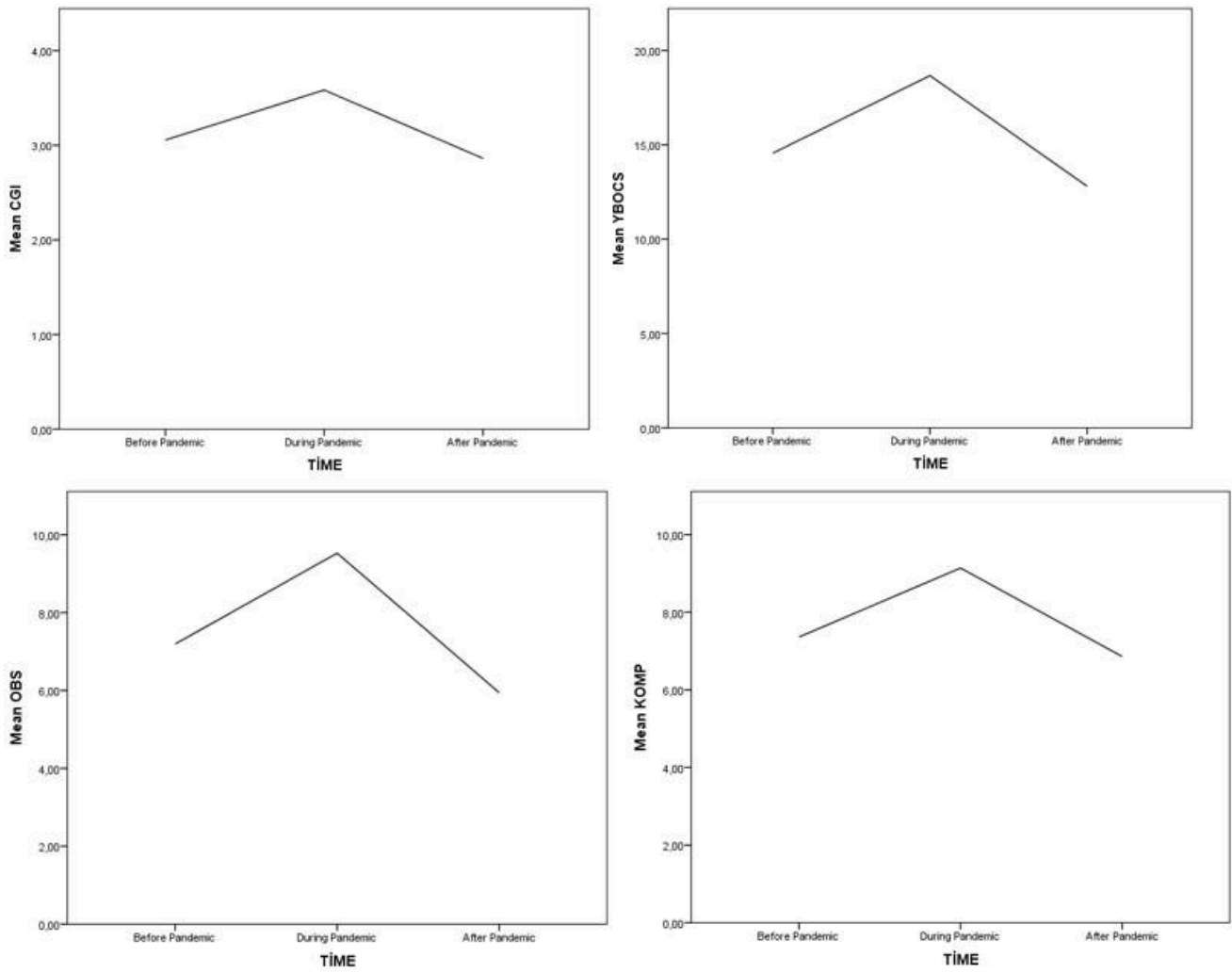
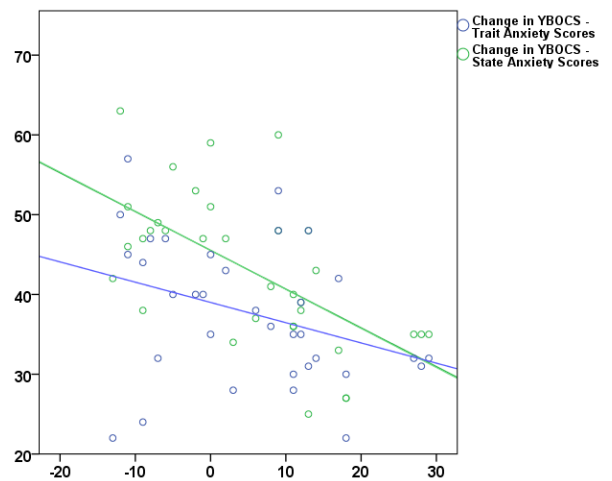


Figure 1. Trends in symptom severity over three distinct time points: before, during, and after the COVID-19 pandemic: a) Clinical Global Impression-Severity (CGI-S), b) Yale-Brown Obsessive Compulsive Scale (YBOCS), c) obsession (symptoms peaked during the pandemic and declined afterward), and d) compulsion (symptoms peaked during the pandemic and declined afterward).

Table 3. Correlation results between state and trait anxiety and change in symptom severity

	State Anxiety (STAI-S)	Trait Anxiety (STAI-T)
OCD Severity (YBOCS)	-0.36*	-0.65**
Symptom Severity (CGI-S)	-0.29	-0.56**

Note. STAI-S: State Anxiety (State-Trait Anxiety Inventory-State); STAI-T: Trait Anxiety (State-Trait Anxiety Inventory-Trait); YBOCS: Yale-Brown Obsessive Compulsive Scale; CGI-S: Clinical Global Impression-Severity; OCD: obsessive-compulsive disorder; *a statistically significant correlation with $p < 0.05$; **a statistically significant correlation with $p < 0.01$.



Note. YBOCS: Yale-Brown Obsessive Compulsive Scale.

Figure 2. The correlation between changes in the severity of obsessive-compulsive symptoms and state and trait anxiety levels



DISCUSSION

This study investigated the long-term impact of the COVID-19 pandemic on obsessive-compulsive disorder (OCD) symptoms in children and adolescents. Our results indicate that symptoms were highest during the pandemic and later attenuated over one year. These findings add to the work on COVID-19-related mental health effects and support the importance of early detection and consistent management of OCD in children and adolescents during and after large-scale health crises.

Our findings are consistent with those of previous reports that pandemic-related stressors (e.g., heightened hygiene focus, prolonged social restrictions) were associated with exacerbations of obsessive-compulsive presentations, particularly contamination-related concerns, in other samples (20). Extending this literature, our three-time-point follow-up showed significant time effects for global severity and total symptoms, with scores peaking during the pandemic and attenuating afterward. However, pairwise contrasts for total scores were not significant, indicating attenuation rather than clear, statistically confirmed shifts at the level of overall severity. Notably, obsessions decreased significantly from during- to post-pandemic, whereas pairwise changes for compulsion were not significant. Taken together, the pattern is consistent with domain-specific improvement during partial recovery and underscores the value of ongoing monitoring and access to evidence-based care.

The post-pandemic reduction may reflect the easing of public health restrictions and diminished threat salience; however, these are plausible explanations rather than demonstrated causal mechanisms in our data. The pattern aligns with previous work showing that the pandemic-era emphasis on cleanliness and contamination could have transiently amplified OCD-related fears, with symptoms easing as acute stressors receded (11, 20). More broadly, youth with pre-existing mental health conditions may be particularly sensitive to such stressors (11, 20). The attenuation observed here is compatible with resilience processes, highlighting the potential benefits of sustained access to care during crises to help mitigate longer-term adverse outcomes.

Exploratory analyses of anxiety indicated that higher anxiety might be associated with less improvement in obsessive-compulsive symptoms and overall clinical severity from during- to post-pandemic, with a potentially stronger association for trait anxiety. Because these analyses were exploratory and not the primary focus of the study, they should be interpreted cautiously. If replicated in larger studies, such associations would support integrated interventions that address both state and trait anxiety alongside OCD symptoms during periods of heightened stress.

A study strength is its longitudinal design, which enabled tracking of symptom trajectories across pre-, during-, and post-pandemic periods using standardised measures. Limitations include the modest sample size, which reduces precision and power, particularly for pairwise tests, and may contribute to the Type II error. Furthermore, we did not use structured diagnostic interviews at baseline or follow-up to systematically rule out psychiatric comorbidities. Undetected comorbidities may have influenced the outcomes, limiting causal inference; future studies should include standardised interviews and document comorbidity-specific treatments.

In addition, although multiple clinical indices were collected, we did not directly model potential influences such as treatment exposure, family and social supports, or school disruption, which could shape symptom change. Given the sample size, these covariates were not included, so the results are best viewed as within-person changes over time rather than treatment- or policy-driven effects. Future work with larger samples, detailed characterisation of treatments and context, and symptom-dimension analyses can clarify who benefits most over time, whether improvements extend beyond obsessions to overall severity, and how anxiety processes interact with OCD trajectories.

CONCLUSION

In this sample, obsessive-compulsive symptoms appeared higher during the pandemic and tended to lessen a year later; obsessions declined significantly post-pandemic, while total and compulsion scores showed no clear pairwise differences. These patterns may suggest partial improvement and support a cautious emphasis on early identification and sustained, evidence-based support during and after crises.



Ethics Committee Approval Ethics committee approval was received for this study from the ethics committee of İstanbul University (Date: 03.07.2020, Number: 29624016-050.99-961).

Informed Consent Written informed consent was obtained from the families of the participants who participated in this study.

Peer Review Externally peer-reviewed.



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Conflict of Interest The author of this article is also the editor-in-chief of this journal. This situation is considered to be a relationship that may create a conflict of interest. In order to ensure an impartial and transparent refereeing process, the refereeing and publication decision regarding this article was carried out by the guest editor assigned to the journal. Coauthors declare that there is no conflict of interest.

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