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Cognitive Behavioral Therapy in the Presence of Comorbidity in Children and Adolescents with Obsessive Compulsive Disorder

Sevim Berrin İnci İzmir

Department of Clinical Psychology, Işık University, Institute of Social Sciences, İstanbul, Türkiye

ABSTRACT

Obsessive compulsive disorder (OCD) is a common condition in children and adolescents that can impair social, emotional, and educational development if left untreated. This study investigated the effectiveness of cognitive behavioral therapy (CBT) in treating OCD in 54 participants aged 8–16 years, with or without psychiatric comorbidities. Patients were assessed at baseline and after 3 and 6 months of CBT. Comorbidity was present in 57.4% of the patients. Although no significant differences in symptoms were found between the age groups, comorbidities were more frequent in adolescents. After 6 months of CBT, Childhood Yale-Brown Obsessive-Compulsive Scale scores significantly improved in both groups, more notably in those without comorbidity (29.56–1.56) than in those with comorbidity (35.22–17.29). The findings emphasize that CBT was effective for both groups but improvement was limited when comorbidities were present.

Keywords: Adolescents, children, cognitive behavioral therapy, comorbidity, obsessive compulsive disorder.

ÖZ

Obsesif Kompulsif Bozukluğu Olan Çocuk ve Ergenlerde Komorbidite Varlığında Bilişsel Davranışçı Terapi

Obsesif Kompulsif Bozukluk (OKB), tedavi edilmezse sosyal, duygusal ve eğitimsel gelişimi bozabilecek, çocuklarda ve ergenlerde sık görülen bir durumdur. Bu çalışmada, psikiyatrik komorbiditesi olan veya olmayan 8-16 yaş arası 54 katılımcıda OKB tedavisinde Bilişsel Davranışçı Terapinin (BDT) etkinliği araştırıldı. Katılımcılar, başlangıçta ve üç ve altı aylık BDT sonrasında değerlendirildi. Örneklemin %57,4'ünde komorbidite mevcuttu. Yaş grupları arasında semptomlarda önemli bir fark bulunmazken, komorbiditeler ergenlerde daha sık görüldü. Altı aylık BDT'nin ardından, Çocukluk Yale-Brown Obsesif Kompulsif Ölçeği puanları her iki grupta da önemli ölçüde düştü; komorbiditesi olmayanlarda (29,56'dan 1,56'ya) komorbiditesi olanlara (35,22'den 17,29'a) göre daha belirgin bir iyileşme görüldü. Bulgular, BDT'nin her iki grup için de etkili olduğunu, ancak komorbiditelerin varlığında iyileşmenin daha sınırlı olduğunu vurgulamaktadır.

Anahtar Kelimeler: Ergenler, çocuklar, bilişsel davranışçı terapi, komorbidite, obsesif kompulsif bozukluk.

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Address for correspondence:
Sevim Berrin İnci İzmir.
Işık Üniversitesi, Sosyal Bilimler Enstitüsü, Klinik Psikoloji Anabilim Dalı, İstanbul, Türkiye
Phone: +90 555 461 92 62
E-mail:
inciberrin@gmail.com

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INTRODUCTION

Obsessive compulsive disorder (OCD) is a prevalent disorder defined by the presence of recurrent obsessions and compulsions that cause marked emotional distress (DSM-5). OCD prevalence in children and adolescents is estimated to be approximately 2% (Rapoport et al, 2000; Heyman et al, 2001). OCD often persists into adulthood if left untreated, resulting in significant impairment

across social, academic, and emotional domains. One of the major clinical concerns of pediatric OCD is its high comorbidity with other psychiatric disorders. Commonly associated conditions include depression, generalized anxiety disorder, specific phobias, attention deficit hyperactivity disorder, and oppositional defiant disorder (Weidle et al, 2014; Storch et al, 2010). Approximately 80% of children with OCD present with at least one comorbid disorder (Ercan et al, 2015; Storch et al, 2010). Previous studies have consistently highlighted the frequent occurrence of comorbidities among patients with OCD (Franklin et al, 2012; Weidle et al, 2014; Sanchez-Meca et al, 2014). The presence of such comorbidities not only increases clinical presentation severity but also complicates treatment planning and delivery. The simultaneous presence of two or more disorders in a patient has been associated with reduced treatment response and higher relapse rates following pharmacological and psychological interventions. Therefore, careful evaluation and accurate diagnosis of comorbid conditions are crucial in clinical practice. Storch et al. (2008) indicated that certain comorbid psychiatric disorders associated with OCD, such as disruptive behavior disorders, depression, and ADHD, can intensify OCD severity in children while impairing their psychosocial functioning, treatment response, and remission rates with CBT compared with those without comorbidity. Treatment adherence and response were consistently reduced across multiple comorbid conditions. Comorbidities complicate pharmacological and psychotherapeutic choices and predict chronicity, higher suicidality, and functional impairment (Pallanti et al, 2011). Farrell et al. (2012) reported that children with one or more comorbidities showed weaker responses to CBT, with outcomes declining as the number of comorbid conditions increased. Similarly, studies by Garcia et al. (2011) and Ginsburg et al. (2008), along with findings from Storch et al. (2008), indicated that poorer treatment response was predicted by externalizing disorders such as ADHD, oppositional defiant disorder, and conduct disorder. Furthermore, externalizing and depressive disorders were associated with reduced remission rates.

Pharmacological interventions are recommended for patients with severe OCD with more severe symptoms. A recent review by Mancuso et al. (2010), encompassing 21 studies with more than 1,300 pediatric patients, showed the efficacy of serotonergic medications in the short- and medium-term treatment of OCD. The Pediatric OCD Treatment Study (POTS, 2004) evaluated sertraline, CBT, and their combination in 112 youths aged 7–17 years. After 12 weeks, all treatment groups outperformed placebo, with the highest remission in the combined group (53.6%), followed by CBT (39.3%), sertraline (21.4%), and placebo (3.6%). CBT was superior to placebo but not significantly different from sertraline, whereas sertraline alone did not separate from placebo.

The AACAP (2012) recommended CBT as the first-line treatment for children with mild to moderate OCD. A meta-analysis by Reynolds, Wilson, Austin, and Hooper (2012) demonstrated that CBT yields large effect sizes in treating pediatric OCD. Empirical evidence strongly supports CBT as an effective treatment for OCD, particularly when combined with exposure and response prevention (ERP) (Farrell et al, 2016). In addition, it substantially decreases the severity of OCD symptoms compared with waitlist controls (Williams et al, 2010; Storch et al, 2010), placebo (POTS, 2004). Randomized controlled trials indicate that CBT provides significant therapeutic benefits in OCD treatment (Watson & Rees, 2008). Effective programs typically integrate psychoeducation, cognitive retraining, and ERP. Even short interventions (as brief as 5 weeks) can significantly improve CY-BOCS scores and overall functioning (Bolton et al, 2011). Weekly sessions are as effective as daily sessions (Storch et al., 2008). Parental involvement enhances outcomes, with models such as Positive Family Interaction Therapy yielding higher response rates than traditional CBT with limited parent participation (Peris & Piacentini, 2013). Telephone- and web-based CBT programs have proven as effective as in-person therapy to address accessibility issues; group CBT is equally efficacious (Storch et al, 2010; Turner et al, 2014). Finally, family-based CBT with ERP outperforms relaxation training in young children (ages 5–8), improving symptoms and daily functioning (Freeman et al, 2012). In a preliminary randomized trial, Merlo et al. (2009) demonstrated that children and adolescents with OCD who received CBT combined with motivational interviewing (MI) showed significantly greater reductions in CY-BOCS scores at mid-treatment (sessions 5 and 9) compared with those receiving CBT plus psychoeducation, with large effect sizes favoring MI. Although post-treatment outcomes were similar across groups, the MI group required, on average, three fewer sessions to achieve comparable gains and had no dropouts.

Despite this, 23%–49% of children with OCD and comorbid conditions respond poorly to treatment, and nearly two-thirds discontinue therapy prematurely. To address this challenge, integrating MI techniques into CBT has been recommended to improve adherence (Ögel & Coşkun, 2011). Preliminary findings indicate that combining CBT with MI may improve treatment outcomes in pediatric OCD (Franklin et al, 2015).

The identification and evaluation of comorbid psychiatric conditions is a key component of effective treatment planning for children with OCD. Only a few clinically based studies on this topic have been conducted in Turkey. This study aimed to investigate the efficacy of CBT for treating children and adolescents with OCD with or without comorbidity.

METHODS

This cross-sectional study sample included 54 children and adolescents, 8–16 years of age (12.00±2.69), including 25 girls and 29 boys, from the Child and Adolescent Private Psychiatry Clinic in Izmir, Türkiye, who were diagnosed with OCD according to DSM-5 criteria.

At the first psychiatric admission, parents and children were interviewed using the Kiddie Schedule for Affective Disorders and Schizophrenia for School-Age Children–Present and Lifetime Version (K-SADS-PL). Symptoms of obsessive and compulsive behaviors were assessed using the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS). Depression inventories were administered to the children and adolescents. As secondary outcome measures, the Clinical Global Impressions-Improvement (CGI-I) scale (Guy, 1976) and the Clinical Global Impressions-Severity (CGI-S) scale were used.

Assessment Procedure

The purpose of the study was explained separately to parents and adolescents. It was stated that the study was voluntary, and verbal and written consent was obtained that the data collected would be used in the study, with identity information kept confidential. Data were collected after all parents, children, and adolescents gave their consent to participate. A total of 54 children and adolescents with OCD were given CBT incorporating ERP, comprising 24 sessions with a trained CBT therapist for the 6th month. Participants were evaluated at baseline, at the end of the 3rd month, and at the end of the 6th month of treatment. Children and adolescents with intellectual disabilities, a history of head trauma involving loss of consciousness, neurological disorders, other serious medical conditions, or those receiving antipsychotic or antidepressant medications (except methylphenidate) were excluded from the study. Treatment-naïve children and adolescents were included in the study. The child and adolescent psychiatrist administered K-SADS-PL, CGI-I, and CGI-S. To prevent assessor bias, two psychologists administered CY-BOCS assessments simultaneously. Additionally, Beck depression inventory (BDI) and children's depression inventory (CDI) measurement tools were used to assess depressive symptoms, given the sample's age range. The study was conducted in accordance with the Helsinki Declaration. The ethical approval was obtained from the İnönü University Social and Human Sciences Ethics Committee (approval number: 17-04; date: August 16, 2025).

Therapy Procedure

CBT was based on the principles outlined by March and Mulle (2012). The primary treatment objective is to correct patients' misinterpretations regarding the significance of their unwanted intrusive thoughts and to disrupt the behavioral cycle in which compulsions and avoidance perpetuate anxiety and reinforce danger-related beliefs. Treatment begins with the therapist developing an initial case formulation. This formulation, which is refined throughout the therapy, provides the foundation for intervention. This study incorporates historical information about the emergence and progression of OCD, along with the cognitive distortions that sustain the disorder. The next step is psychoeducation. The OCD was explained to the patients using age-appropriate metaphors. Psychoeducation includes describing and drawing an anxiety curve and demonstrating that nearly everyone has intrusive thoughts. The importance of family accommodation to the child's OCD symptoms was also explained to the family. Assignments given to families focused on decreasing behavioral expectations of the child/adolescent, restructuring family activities and routines, and limiting assistance that allowed the avoidance of distress-inducing experiences, places, or objects. The third therapy step is cognitive reconstruction. It consists of the modification of the beliefs involved in and resulting in the misinterpretation of intrusive thoughts. Common cognitive distortions underlying obsessions include thought–action fusion, heightened sense of responsibility for harm prevention, rigid black-and-white thinking, and perfectionism coupled with difficulty tolerating uncertainty, which fosters the belief that tasks must be completed perfectly to avert negative outcomes; these responses include suppression and compulsive behaviors aimed at preventing disaster. Finally, behavioral techniques (exposure with response prevention) were planned for exposure to situations that cause distress without any compulsive behavior or safety-seeking behavior. Behavioral techniques aim to help children develop a sense of control and predictability and modify their beliefs and interpretations. When using ERP, triggers (situation, place, person, etc.) were first identified. Then, an anxiety hierarchy was created; it started with the trigger that caused the least distress. During exposure, the child or adolescent was prevented from using any distractions or compulsions. Their thoughts, distress level, and feelings before exposure were determined, and they were asked to note any changes in these after exposure. Additionally, the frequency and duration of the exposure work were planned on an individual basis. Finally, relapse prevention strategies were identified. Parents were involved at the end of the sessions. All participants received the same therapy protocol, regardless of whether they had comorbidities or not. Participant attendance and assessment completion were prospectively tracked. Sessions were scheduled around school hours with make-ups offered to minimize dropout, parents were routinely involved in the sessions, brief reminder contacts were used, and MI elements were incorporated to support adherence. All participants completed the 3- and 6-month evaluations.

Measures

Kiddie-SADS-Lifetime Version (KSADS-PL)

This is a semi-structured diagnostic interview widely used to assess a broad spectrum of psychiatric disorders in children and adolescents, based on DSM-III-R and DSM-IV criteria. The KSAD-PL was administered and scored by a child and adolescent psychiatrist through one-on-one interviews with the families and children. It is considered a highly reliable tool, and Gökler et al. (2004) established its Turkish reliability and validity.

CY-BOCS

CY-BOCS is regarded as the standard measure for evaluating the severity of OCD symptoms in older children and adolescents (aged 8–18 years) with an OCD diagnosis (Freeman et al, 2011). Two psychologists scored the CY-BOCS during one-on-one interviews with the families and children. The Turkish version of this scale is valid and reliable for assessing OCD symptoms in children (Yucelen et al, 2006). In this study, the internal consistency coefficient of the scale was reported as 0.85.

Clinical Global Impressions-Severity (CGI-S)

CGI-S consists of a single clinician-rated item that evaluates the overall severity of a patient's mental illness based on clinical experience with similar populations. CGI-S was scored by a child and adolescent psychiatrist and psychologist after one-on-one interviews with the families and children. It uses a 7-point scale ranging from 1 (normal, not at all ill) to 7 (among the most severely ill) (Busner & Targum, 2007).

Clinical Global Impressions-Improvement (CGI-I)

CGI-I is administered at each follow-up after treatment begins. The clinician assesses the patient's current clinical status in comparison with baseline at treatment initiation. CGI-I was scored by a child and adolescent psychiatrist and psychologist after one-on-one interviews with the families and children. The scale includes one question rated on a 7-point scale: 1=very much improved, 2=much improved, 3=minimally improved, 4=no change, 5=minimally worse, 6=much worse, and 7=very much worse (Busner & Targum, 2007).

BDI

This self-report scale was designed to assess depressive symptoms and attitudes. It contains 21 items scored on a Likert scale from 0 to 3, yielding total scores between 0 and 63 (Beck et al, 1961). Severity levels were categorized as follows: 0–9=minimal depression, 10–16=mild, 17–29=moderate, and 30–63=severe depression. It was completed by children and adolescents with the assistance of a psychologist. The validity and reliability of the Turkish version were established by Hisli (1988). In this study sample, the internal consistency of the scale was 0.84.

CDI

This questionnaire is a 27-item self-report designed to assess cognitive, behavioral, and affective symptoms of depression in children (Kovacs, 1981). The total scores range from 0 to 54. It was completed by children and adolescents with the assistance of a psychologist. The Turkish version and validation were performed by Oy (1991), who recommended a cut-off score of 19 for identifying depression. The scale demonstrated an internal consistency coefficient of 0.81 in the current study sample.

Data Analysis

Statistical analyses were conducted using SPSS version 18. Before data collection, we conducted an a priori G-power analysis for a mixed repeated-measures ANOVA with two groups (comorbid vs. non-comorbid) and three time points (baseline, 3 months, and 6 months) (Faul et al, 2007). Assuming a medium interaction effect ($f=0.25$), $\alpha=0.05$, desired power=0.80, correlation among repeated measures=0.50, and $\varepsilon=1.0$, approximately 48–52 participants were required. Therefore, we targeted ≥50 participants and enrolled n=54, which was sufficient for the primary hypothesis and provided additional precision for secondary outcomes (CGI-S/CGI-I, BDI/CDI). Descriptive statistics were applied to summarize the characteristics of participants with OCD. Before group comparisons, continuous variables were assessed for normality and homogeneity of variance. Normality of residuals was assessed using Shapiro–Wilk tests and Q–Q plots; homogeneity of variance was assessed using Levene's test with a $p>0.05$ rule; and sphericity was assessed using Mauchly's test. As the data met assumptions of normal distribution, ANOVA and independent-samples t-tests were conducted. Repeated-measures analyses were employed to evaluate treatment-related changes. Statistical significance was defined as a p-value below 0.05.

RESULTS

The participants had a mean age of 12.07±2.69 years; the sample consisted of 54 children aged 8–16 years, with 25 females and 29 males. The mean ages of females were 12.36±2.76 and of men were 11.8±2.64. The sociodemographic characteristics are shown in Table 1. The baseline group differences are shown in Table 2.

The most commonly observed obsessions were health-related, including fear of catastrophic family and individual events, whereas the most common compulsions reported

Table 1. Sociodemographic features of children and adolescents with obsessive compulsive disorder

	n	%
Age, Mean (SD)	12.07	2.67
Age groups		
8–11 years	9.32	1.09
12–16 years	13.97	1.58
Gender		
Male	29	53.7
Female	25	46.3
Socioeconomic level		
High	4	7.4
Medium	21	38.9
Low	29	53.7
Father's education		
Primary school	2	3.7
Middle school	–	–
High school	2	3.7
University	37	68.5
Master's degree	13	24.1
Mother's education		
Primary school	2	7.4
Middle school	2	3.7
High school	4	7.4
University	35	66.7
Master's degree	10	18.5
Comorbidities in children		
None	23	42.6
ADHD	5	9.3
MD	2	3.7
GAD	6	11.1
ADHD+ODD	7	13
ADHD+MD	8	14.8
ADHD+GAD	3	5.6

ADHD: Attention deficit hyperactivity disorder; ODD: Oppositional defiant disorder; MD: Major depression; GAD: Generalized anxiety disorder.

were controlling behaviors and hoarding/saving. There were no statistically significant differences across genders according to the observed obsessions and compulsions ($p>0.05$). Furthermore, no statistically significant differences were found between children (8–10 years old) and adolescents (11–16 years old) regarding these obsessions and compulsions ($p>0.05$).

Assessment of psychiatric comorbidities revealed that 57.4% of children with OCD presented with at least one comorbid disorder. ADHD was the most common comorbidity and was present in 50% of cases. The results indicated that 60% of females and 55.2% of males presented with at least one psychiatric comorbidity. No statistically significant differences were observed among genders according to psychiatric comorbidity ($\chi^2=0.13$; $p>0.05$). Table 1 presents the distribution of comorbidities. The comorbidity rate was higher in adolescents (61.3%) (11–16 years old) than in children (38.7%) (8–10 years old); however, the difference was not statistically significant ($\chi^2=0.124$; $p>0.05$).

At baseline, significant differences were observed between the groups in terms of compulsions ($t(52)=-3.87$, $p<0.001$) and obsessions ($t(52)=-3.54$, $p<0.001$). The total baseline means of compulsions and obsessions were higher in the comorbidity group than in the noncomorbidity group. In addition, there were statistically significant differences between them at the 3rd month of CBT means of compulsions ($t(52)=-10.26$, $p<0.001$) and obsessions ($t(52)=-10.56$, $p<0.001$) and at the 6th month of CBT means of compulsions ($t(52)=-12.25$, $p<0.001$) and obsessions ($t(52)=-12.36$, $p<0.001$). The total 3rd and 6th months of CBT means of compulsions and obsessions were higher in the comorbidity group than in the noncomorbidity group.

Bonferroni-adjusted pairwise comparisons showed that OCD severity decreased from baseline to 3 months (Mdiff=13.65, SE=1.05, 95% CI [11.05, 16.25], $p<0.001$), from 3 to 6 months (Mdiff=8.57, SE=0.56, 95% CI [7.20, 9.95], $p<0.001$), and from baseline to 6 months (Mdiff=22.22, SE=1.06, 95% CI [19.60, 24.84], $p<0.001$). Thus, CY-BOCS scores for obsessions and compulsions showed significant reductions in both groups after 3 months of CBT, regardless of comorbidity status. Moreover, improvements continued to be evident at the 6-month follow-up. Overall, total CY-BOCS scores demonstrated a statistically significant improvement as a function of treatment duration ($p<0.05$). The baseline mean of total CY-BOCS score in children with at least one comorbidity was decreased from 35.22±5.02 to 17.29±5.16 at the 6th month of treatment. For children with OCD without comorbid disorders, the baseline mean of total CY-BOCS score was decreased from 29.56±4.87 to 1.56±4.25 at the 6th month of treatment. There were statistically significant differences between children with OCD with or without comorbidity at the end of the 3rd month of therapy ($t(52)=-10.77$, $p<0.001$) and at the end of the 6th month of therapy ($t(52)=-11.90$, $p<0.001$). Figure 1 shows the improvements in the means of total CY-BOCS scores.

A repeated-measures ANOVA was conducted to assess the effect of therapy on CY-BOCS scores in the group without

Table 2. Baseline group differences

	t	df	p	Mean difference	SE difference	Cohen's d
Age	0.54	52	0.593	0.40	0.75	0.15
Gender	0.35	52	0.727	0.0490	0.14	0.097
BDI baseline	-1.48	30	0.149	-4.21	2.84	-0.53
CDI baseline	-1.99	20	0.061	-6.07	3.05	-0.85
CY-BOCS baseline	-4.14	52	<0.001	-5.66	1.37	-1.14

df: Degrees of freedom; SE: Standard error; BDI: Beck Depression Inventory; CY-BOCS: Childhood Yale-Brown Obsessive Compulsive Scale; CDI: Children's Depression Inventory.

Table 3. Group comparison of CY-BOCS scores

	With comorbidity		Without comorbidity		t	df	p	Cohen's d
	Mean	SD	Mean	SD				
Baseline compulsion total score	17.58	2.46	14.70	3.02	-3.87	52	<0.001	-1.06
Baseline obsession total score	17.59	3.02	14.83	2.53	-3.54	52	<0.001	-0.98
3rd month compulsion total score	12.84	2.34	5.44	2.97	-10.26	52	<0.001	-2.82
3rd month obsession total score	12.94	2.84	4.44	3.03	-10.58	52	<0.001	-2.91
6th month compulsion total score	8.68	2.45	0.83	2.14	-12.25	52	<0.001	-3.37
6th month obsession total score	8.84	2.54	0.74	2.13	-12.36	52	<0.001	-3.40

df: Degrees of freedom; SD: Standard deviation.

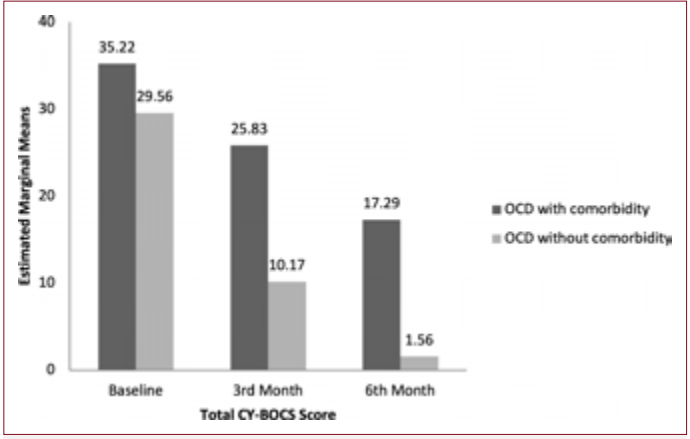

Figure 1. Means of total CY-BOCS score.

OCD: Obsessive compulsive disorder; CY-BOCS: Children's Yale-Brown Obsessive-Compulsive Scale.

comorbidity. The sphericity assumption was met according to Mauchly's test, $\chi^2(2)=0.71$, p=0.07. Significant differences were observed between the mean CY-BOCS scores (F(2, 44)=259.014, p<0.001, partial $\eta^2=0.92$). The variance in total CY-BOCS scores was explained by CBT at a rate of nearly 92%. In addition, Mauchly's test demonstrated compliance with the sphericity assumption, $\chi^2(2)=0.60$, p<0.001 for the comorbidity group. The analysis revealed statistically significant differences in CY-BOCS mean scores (F(2, 60)=204.60, p<0.001; partial $\eta^2=0.87$). Table 3 summarizes the detailed group comparison results for CY-BOCS scores at baseline and following 3 and 6 months of therapy.

Although the groups differed at baseline on the CY-BOCS subscales, a sensitivity analysis using repeated-measures ANCOVA with baseline CY-BOCS total as a covariate showed that the covariate was not a significant predictor, and the group × time conclusions were unchanged (F (2,50)=2.23, p=0.142). In the repeated-measures ANOVA conducted with comorbidity and three time intervals, the main effect of time was found to be very strong (F(2,51)=392.98, p<0.001, partial $\eta^2=0.94$). Bonferroni-adjusted pairwise comparisons showed that the improvement was D06>D03>D36 (all pairwise comparisons p<0.001), that is, the total improvement over 0–6 months was the largest, the improvement over 0–3 months was moderate, and the additional improvement over 3–6 months was the smallest. The time × group interaction was significant (F(2,104)=21.66, p<0.001, partial $\eta^2=0.30$). Children without comorbidities showed much greater improvement than those with comorbidities in the 0–3 and 0–6 intervals, whereas additional gains in the 3–6 interval were similar in both groups. According to the adjusted change means, the group without comorbidity achieved

Table 4. Rate of clinical global impressions-severity and improvement according to the existence of comorbidity

	OCD with comorbidity		OCD without comorbidity		p
	n	%	n	%	
CGI-S					
Normal, not at all ill	–	–	–	–	
Borderline mentally ill	–	–	–	–	
Midly ill	–	–	–	–	
Moderately ill	–	–	–	–	0.000
Markedly ill	2	3.2	42	91.3	
Severely ill	50	80.6	4	8.7	
Extremely ill	10	16.1	–	–	

	3 months of treatment		6 months of treatment		p	3 months of treatment		6 months of treatment		p
	n	%	n	%		n	%	n	%	
Very much worse	–	–	–	–		–	–	–	–	
Much worse	–	–	–	–		–	–	–	–	
Minimally worse	–	–	–	–		–	–	–	–	
No change	8	12.9	–	–	0.001	2	4.3	–	–	0.000
Minimally Improved	42	67.7	14	22.6		2	4.3	2	4.3	
Much improved	12	19.4	38	61.3		22	47.8	–	–	
Completely improved	–	–	10	16.1		20	43.5	44	95.6	

CGI-S: Clinical Global Impressions-Severity; CGI-I: Clinical Global Impressions-Improvement, OCD: Obsessive compulsive disorder.

13.69 points (SE=1.60, p<0.001) more improvement at 0–3 months and 14.40 points (SE=1.49, p<0.001) more improvement at 0–6 months compared with the comorbid group (partial η^2=0.589–0.646). The overall between-group difference was also significant (F(1,52)=37.04, p<0.001, partial η^2=0.42). The study demonstrated that comorbidity status has a significant impact on the response to CBT. Moreover, comorbidity weakens early gains and overall treatment effect; additional improvement between 3 and 6 months follows a similar trajectory.

When evaluating BDI total scores for adolescents according to whether they had any comorbidity, statistically significant differences were found between the means of BDI score at the end of the 3rd month of CBT (t(30)=–2.11, p<0.05) and at the end of the 6th month of CBT (t(30)=–3.13, p<0.01) (Fig. 2). The BDI scores of adolescents without comorbidities decreased more significantly after CBT than those with comorbidities. In addition, in the assessment of overall CDI scores for children adolescents according to whether they had any comorbidity, statistically significant differences were found between the means of CDI score at the baseline (t(13.29)=–2.15, p=0.05), at the end of the 3rd month of CBT (t(12.84)=–3.92, p<0.01) and at the end of the 6th month of CBT (t(13.16)=–5.87, p<0.001) (Fig. 3). Similar to adolescents, children without comorbidities showed a more significant decrease in CDI scores after CBT than those with comorbidities.

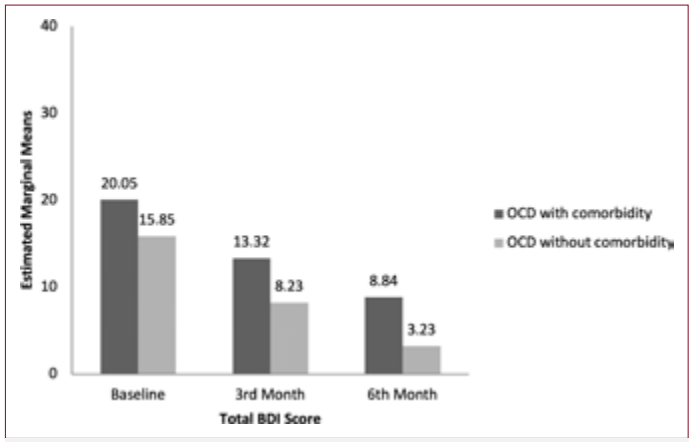

Figure 2. Means of the total BDI score in adolescents.

BDI: Beck Depression Inventory; OCD: Obsessive compulsive disorder.

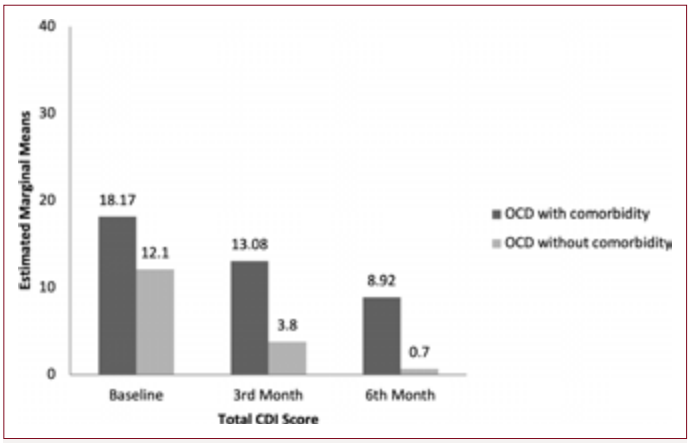

Figure 3. Means of the total CDI score in children.

CDI: Children's Depression Inventory; OCD: Obsessive compulsive disorder.

The CGI-S and CGI-I subscales also demonstrated significant improvements following CBT. Specifically, the severity of obsessions and compulsions was markedly reduced with treatment (Table 4). In total, 16.1% of children with OCD and comorbidity demonstrated dramatic improvements since the initiation of therapy, and 61.3% of them also showed significant improvement. In addition, 95.6% of the children with OCD without comorbidity showed complete improvement, whereas the remaining 4.3% demonstrated minimal improvement. The CGI-I scores of the children in the comorbidity group were lower than those of the children with only OCD. Specifically, the severity of the symptoms of OCD, regardless of the presence of comorbidity, decreased significantly during the 3rd month of CBT, with significant improvements observed during the 6th month of CBT as evaluated by the CGI-S and CGI-I subscales, respectively.

DISSCUSSION

This study assessed the efficacy of CBT for pediatric OCD in participants with and without psychiatric comorbidities. It showed that CBT was effective in both groups, although improvement was more limited in patients with comorbidities. Liber et al. (2010) stated that symptom severity and having a comorbid disorder affect the treatment response. However, some studies have stated that CBT is equally effective for children with anxiety disorders with or without comorbidity (Southam-Gerow et al, 2008). Some studies have emphasized that having comorbidity negatively impacts the treatment response of children (Kennard et al, 2005; Startevic, 2005).

Our results indicated that the most commonly observed obsessions were related to health, which includes fear of catastrophic family and individual events, and the most common types of compulsions observed were checking and hoarding/saving. Hojgaard et al. (2018) reported that the symmetry and hoarding symptom dimensions are more common in adolescents than in children. In addition, previous studies have indicated that the symmetry and hoarding dimensions are generally associated with a higher risk of comorbidity (Torres et al, 2016; Hojgaard et al, 2018).

Comorbidities often add complexity to the progression and clinical management of OCD. Garcia et al. (2011) reported that baseline OCD severity, impairment, insight, comorbid externalizing symptoms, and family accommodation reduced CBT treatment response. Consistent with the current study, Storch et al. (2008) stated that children with OCD who have any comorbidity had reduced treatment response to CBT. In contrast to this study, Farrell et al. (2012) found that having comorbidities did not negatively affect the treatment response. More recently, Farrell et al. (2020) observed that children with OCD+ADHD were less likely to be responders or remitters after CBT than those without ADHD. Garcia et al. (2011), Ginsburg et al. (2008), and Storch et al. (2008) reported that comorbid externalizing disorders, such as ADHD, ODD, and conduct disorder, were linked to poorer CBT response, and that externalizing and depressive comorbidities were associated with lower remission rates. This finding is consistent with our study results.

The treatment content of the disorder accompanying OCD has different effects on the treatment response. According to Pallantini et al. (2011), comorbidity is common in pediatric OCD and often dampens the CBT/ERP response unless treatment is adapted. Comorbid depression is linked to worse outcomes with behavioral therapy, likely by reducing motivation and learning, whereas bipolar spectrum comorbidity undermines compliance and requires mood stabilization first—otherwise standard OCD treatment (including SSRIs used alongside CBT) can destabilize mood. In contrast, youth with tic disorders tend to respond less well to SSRIs but show comparable benefit from CBT/ERP; therefore, graded, prolonged exposures with strict response prevention should be emphasized in therapy. Comorbid anxiety disorders (e.g., GAD, PD, and PTSD) heighten avoidance and indecisiveness, necessitating clearer rationales and heavier parent coaching to reduce family accommodation. ADHD/TS comorbidity brings attentional and organizational difficulties (and more hoarding); therefore, sessions often need a tighter structure, shorter exposure trials with repetition, and external support for homework. Psychosis-spectrum comorbidity (poor insight and delusional themes) complicates diagnosis and may limit CBT targets until psychosis is stabilized. Overall, comorbidities predict greater severity and chronicity; therefore, to preserve effectiveness, manualized CBT should be delivered with fidelity but tailored parent modules, homework scaffolding, careful pacing, and mood monitoring.

Comorbid psychiatric conditions are common in children with OCD. Storch et al. (2008) reported that 74% of adolescents with OCD had at least one additional psychiatric diagnosis. In line with the AACAP practice parameter (2012), our findings showed that 47.1% of children with OCD presented with at least one comorbid condition. ADHD and depression emerged as the most frequent comorbidities in the present study, consistent with earlier research reporting elevated rates of anxiety, ADHD, and tic disorders in pediatric OCD (Geller et al, 2001; Huang et al, 2014; Peris et al, 2017). Furthermore, Geller et al. (2001) noted that an earlier onset of OCD increases the likelihood of comorbid ADHD. While several studies have identified high rates of anxiety disorders among children and adolescents with OCD, our results showed that ADHD was the predominant comorbidity, with a prevalence of 42.6%. The variability in reported rates across studies may reflect differences in methodology, sample size, participant age, and inclusion or exclusion criteria. Peris et al. (2017) also observed that adolescents are more likely than children to present with internalizing comorbidities. Interestingly, although our study found higher comorbidity rates among adolescents than among children, the difference was not statistically significant.

In the CBT treatment of OCD, three fundamental elements form the cornerstone of intervention: psychoeducation, cognitive therapy, and ERP. Psychoeducation provides patients and their families with an understanding of the mechanisms of OCD, reducing stigma and misconceptions while preparing them for active treatment engagement. Cognitive therapy focuses on identifying and restructuring maladaptive beliefs and misinterpretations of intrusive thoughts, thereby reducing the perceived threat associated with obsessions. ERP, considered the gold standard behavioral technique, directly addresses avoidance and compulsive rituals, facilitating habituation and corrective learning through systematic and repeated exposure to feared stimuli. Beyond these established components, recent literature highlights the added value of MI as an adjunctive approach. Randall and McNeil (2017) noted that MI has been successfully applied alongside CBT in OCD and across a spectrum of anxiety disorders, demonstrating improvements in treatment adherence, engagement, and overall outcomes. In this study, we integrated MI techniques in CBT to enhance therapy motivation and treatment compliance.

In addition, managing family accommodation in the therapy process is an important factor for decreasing the child's OCD symptoms and enhancing treatment compliance because family members' responses to the child's OCD symptoms can have important implications for how symptoms are maintained. Previous studies have shown that higher levels of family accommodation reduce the efficacy of CBT, pharmacotherapy (sertraline), and combination treatment (CBT+sertraline) in pediatric OCD (Garcia et al, 2011; Merlo et al, 2009; Storch et al, 2010). Overall, family accommodation is an important clinical and prognostic variable to assess in children and adolescents with OCD to facilitate the treatment process. The findings of this study indicate that CBT was highly effective in alleviating OCD symptoms among children and adolescents, regardless of the comorbidity status.

AACAP guidelines (2012) identify CBT, psychoeducation, and family counseling as the preferred initial treatment approach for OCD. Several studies on children and adolescents with OCD have found that CBT is superior to placebo or waitlist and SSRIs treatment (POTS, 2004; Barrett et al, 2004). Randomized controlled trials have consistently shown that CBT is an effective intervention for pediatric OCD, with evidence indicating a reduction in symptom severity ranging from approximately 40% to 65% (Watson & Rees, 2008). The results of this study are consistent with the literature. In this study, the severity of OCD symptoms, regardless of the presence of comorbidity, decreased significantly during the 3rd month of CBT, with significant improvements observed during the 6th month of CBT as evaluated by the CGI-S and CGI-I subscales, respectively.

Overall, our results underline the effect of CBT in pediatric OCD with or without comorbidity. The coexistence of psychiatric comorbidities tends to intensify the severity of clinical presentations and adds complexity to the treatment process and procedures. Therefore, accurate diagnosis and careful evaluation of comorbid conditions are crucial. The identification of comorbidities has improved treatment strategies and therapeutic response. The most significant limitation of this study is its limited generalizability owing to a small sample size and a one-centered sample. Therefore, studying with a larger sample in future studies is considered more descriptive. The baseline severity of OCD symptoms in the comorbid group was another limitation. This may affect the results. Therefore, future studies must include an analysis of this confounding factor or ensure that symptom severity is equally distributed at the beginning of the study. Despite these limitations, the findings of this study have important implications for clinical treatment. Moreover, determining the comorbid disorders associated with OCD will positively affect the prognosis.

CONCLUSION

This study demonstrated that CBT is an effective intervention for children and adolescents with OCD, regardless of the presence of psychiatric comorbidities. Although participants with comorbid conditions exhibited less symptom reduction than those without, both groups benefited significantly from CBT over the 6-month treatment period. These findings

highlight the importance of providing early, evidence-based psychological interventions in young patients to reduce symptom severity and improve functioning. Moreover, the results underscore the clinical relevance of systematically assessing comorbidities, as their presence may complicate treatment response and require tailored therapeutic strategies. In particular, clinicians should anticipate smaller gains in comorbid cases and adapt CBT protocols accordingly (e.g., tailored exposure, motivational support, and stronger family involvement). Despite the sample size and single-center design limitations, this study contributes to the growing body of evidence supporting CBT as a first-line treatment for pediatric OCD. Future research with larger, multicenter samples is warranted to strengthen the generalizability of these findings and to explore the integration of adjunctive strategies, such as MI and family-focused interventions, in improving treatment outcomes.

Ethics Committee Approval: The İnönü University Social and Human Sciences Ethics Committee granted approval for this study (date: 16.08.2025, number: 17-04).

Informed Consent: Informed consent was obtained from all study participants and their parents.

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