

Obsessive Beliefs and Clinical Features in Patients with Comorbid Obsessive-Compulsive Disorder and Attention-Deficit/Hyperactivity Disorder

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ABSTRACT

Background: Obsessive-compulsive disorder (OCD) and attention-deficit/hyperactivity disorder (ADHD) are two common neuropsychiatric conditions. Obsessive beliefs, comprising the importance and control of intrusive thoughts, inflated sense of responsibility for harm, overestimations of threat, perfectionism, and intolerance of uncertainty have been suggested to influence OCD symptomatology. Although OCD patients with ADHD have been reported to have different clinical characteristics compared to patients with OCD without ADHD, it has not been previously investigated whether OCD patients with and without ADHD differ in terms of obsessive beliefs. The aim of this study was to compare the obsessive beliefs and obsessive-compulsive symptoms of OCD patients with and without ADHD.

Methods: The study included a total of 197 OCD patients who were assessed with the sociodemographic data form, Wender Utah Rating Scale, Turgay's Adult ADD/ADHD Diagnosis and Evaluation Scale, The Adult ADHD Self-Report Scale, Obsessive Beliefs Questionnaire-44 (OBQ-44), Yale-Brown Obsessions and Compulsions Scale, Dimensional Obsessive-Compulsive Scale (DOCS), Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI).

Results: The scores of all subscales of OBQ-44, the responsibility, unacceptable thoughts, and symmetry subscales of DOCS, BDI, and BAI scores were higher in the OCD with ADHD group than in the OCD only group. The results showed that when depression and anxiety were controlled, "the importance and control of intrusive thoughts" domain of obsessive beliefs was the unique predictor of OCD and ADHD comorbidity.

Conclusion: These findings provide a better understanding of cognitive features in OCD patients with ADHD.

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INTRODUCTION

Obsessive-compulsive disorder (OCD) and attention-deficit/hyperactivity disorder (ADHD) are two common and debilitating neuropsychiatric disorders. OCD is characterized by recurrent obsessions and/or compulsions,¹ and ADHD is a developmental disorder that begins in childhood and continues into adulthood.² Previous studies investigating the prevalence of adult ADHD in OCD have reported various comorbidity rates of 12.7%, 22.9%, and 47.7%.³⁻⁵ Some neuropsychological and structural-functional imaging studies have suggested similarities between ADHD and OCD.⁶⁻⁹ In addition, Geller et al¹⁰⁻¹² reported that OCD and ADHD are independent conditions and that OCD with ADHD is a distinct familial subtype. The comorbidity of OCD and ADHD has been reported to be related to the clinical course of OCD, manifesting as lower social and educational functioning, comorbid substance use, poor

response to treatment, and different obsessive-compulsive symptoms.^{4,13-15} There are studies in the literature reporting that a difference can be seen in the symptomatology of OCD patients with adult ADHD. de Mathis et al³ suggested that having ADHD as the first diagnosis was associated with a progressive worsening of obsessive-compulsive symptoms. In a study of 955 OCD patients by Blanco-Vieira et al¹⁶ the Dimensional Obsessive-Compulsive Scale (DOCS) was used, and obsessive-compulsive symptoms other than cleaning were found to be more severe in OCD patients with ADHD than in OCD only patients.

The cognitive model of OCD proposes that obsessions arise from dysfunctional obsessive beliefs. These dysfunctional beliefs are the tendency to overestimate threat and responsibility, the importance of and need to control thoughts, and the need for certainty and perfection.

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Avoidance, thought suppression, and rituals reduce the distress related to these dysfunctional beliefs while paradoxically maintaining the problem. Therefore, these obsessive beliefs are a target for cognitive behavioral therapy (CBT) of OCD.¹⁷⁻²¹ Manos et al²² also found that obsessive beliefs were related to obsessive-compulsive symptom severity in OCD. However, preliminary studies have indicated that adult ADHD is associated with more confirmation and higher severity of the early maladaptive schemas.^{23,24} It is thought that core beliefs are related to low self-esteem and inadequacy due to negative experiences resulting from symptoms such as attention deficits and impulsive behaviors in patients with ADHD. Patients with ADHD develop maladaptive coping strategies to cope with these beliefs. These strategies are usually avoidance and procrastination, and the use of these strategies consolidates the beliefs associated with low self-esteem and inadequacy.²⁵ The presence of anxiety and depression is related to clinically significant cognitive distortions, and these cognitive distortions worsen the functional difficulties of ADHD.²⁶

To the best of our knowledge, obsessive beliefs in OCD patients with ADHD have not been previously investigated and the current study reveals potential differences in obsessive beliefs of OCD patients with and without ADHD. These findings would support the idea that OCD patients with ADHD, who are claimed to have more severe symptoms in some symptom dimensions, are a different subgroup from OCD patients without ADHD. Consistent with the cognitive model of OCD, certain dimensions of OCD symptoms are associated with certain obsessive beliefs. Cordeiro et al²⁷ suggested that perfectionism predicted aggressive and symmetry dimensions, whereas responsibility beliefs predicted sexual and religious dimensions. It has also been suggested that DOCS better explores the relationship between OCD symptoms and dysfunctional beliefs.²⁸ Thus, the dimensional approach may provide better clarification on the association between obsessive beliefs and comorbidity of OCD and ADHD. The information to be acquired on this subject could also provide useful information about the mechanism by which these two disorders emerge together. Therefore, the focus of this study was on the diversity in obsessive beliefs of OCD patients with ADHD compared to OCD patients without ADHD. The hypothesis of the study was that the OCD with ADHD group, which has previously been shown to have more severe OCD symptoms at least in some dimensions,

would show obsessive beliefs more strongly than the OCD group without ADHD.

METHODS

Participants

Between March 2018 and March 2019, 209 consecutive patients were recruited for the study, all of whom were aged between 18 and 65 years, with a primary diagnosis, and were referred to a private clinic that provided treatment for OCD in Bakirkoy Prof. Dr. Mazhar Osman Training and Research Hospital for Psychiatric, Neurological and Neurosurgical Diseases. Patients who had not completed a primary school level of education were not included in the study. After the exclusion of subjects with incomplete data ($n=5$) and those who did not meet the study criteria ($n=7$), a total of 197 patients with OCD were included for evaluation. The patients were interviewed using the Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders 4th ed. (DSM-IV)/Clinician Version (SCID-I/CV);²⁹ to confirm the OCD diagnosis and to assess the presence of comorbid axis I disorders. Patients with schizophrenia or related psychotic disorders, bipolar disorder, mental retardation, Tourette's Syndrome (TS), or dementia were excluded from the study. Patients with any other anxiety disorder ($n=76$), unipolar depression ($n=47$), or alcohol use disorder ($n=1$) were not excluded from the study.

Procedure

In the assessment process, the sociodemographic data form was completed for each patient. The participants were first assessed with the Wender Utah Rating Scale-25 (WURS-25) to assess the childhood ADHD symptoms retrospectively. This scale was not used to ascertain the diagnosis of adult ADHD. To establish the diagnosis of ADHD in adulthood, the Turkish version of Turgay's Adult ADHD Diagnosis and Evaluation Scale (TADS)³⁰ was used. TADS is based on 18 DSM-IV diagnostic symptoms. The DSM-IV criteria for adult ADHD in TADS were questioned for the participants who scored above the cut-off score of 36 in the WURS-25. Thus, the OCD patients were separated into two groups as those with ($n=31$) and without ($n=166$) a comorbid diagnosis of ADHD. The subjects with WURS-25 scores of 36 or higher and no adult ADHD diagnosis were included in the OCD only group.³⁰

SCID-I and Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) were administered to all the patients by experienced clinicians (MD psychiatrists). Then, self-report scales were applied to all participants. All patients gave informed consent to participate in the study after the study protocols had been fully explained. All the study procedures were in compliance with the Declaration of Helsinki. The protocol was approved by the Ethics

MAIN POINTS

- OCD patients with ADHD endorse obsessive beliefs more strongly than OCD patients without ADHD.
- The obsessive beliefs about the need to control thoughts were associated with ADHD comorbidity.
- The dimensions of responsibility, unacceptable thoughts, and symmetry are more severe in OCD patients with ADHD.

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Measures

Wender Utah Rating Scale-25 (WURS-25): The WURS-25 is a 25-item self-reported questionnaire with responses on a 5-point Likert-type scale.³¹ This instrument is designed to assess childhood ADHD symptoms retrospectively. The Turkish version's validity and reliability study was determined in 2005 and demonstrated an excellent internal consistency.³²

Turgay's Adult ADHD Diagnosis and Evaluation Scale (TADS): TADS is a scale used to establish the diagnosis and the severity of ADHD in adulthood.³⁰ The scale consists of three sections. The first (attention deficit) and second (hyperactivity) sections of TADS are based on 18 DSM-IV diagnostic symptoms. The third section of the scale consist the most frequently associated symptoms in ADHD that were not in DSM-IV ADHD diagnostic criteria. At least six out of nine questions in both the first and second sections must be scored either 2 or 3 for diagnosis.

The Adult ADHD Self-Report Scale (ASRS): The Adult ADHD Self-Report Scale (ASRS)³³ was used to measure the severity of ADHD symptoms and includes 18 questions. There are subscales for inattention, hyperactivity, and impulsivity, and the maximum total score is 72. The validity and reliability study of the Turkish version was conducted by Dogan et al³⁴ Internal consistencies of the Turkish version were high.

Obsessive Beliefs Questionnaire-44 (OBQ-44): The OBQ-44 consists of 44 questions and contains three subscales: (a) threat overestimation and responsibility, (b) importance and control of intrusive thoughts, and (c) perfectionism and need for certainty. Individual items (e.g., "Having bad thoughts means I am weird or abnormal") are rated from 1 ("Disagree very much") to 7 ("Agree very much"). Internal consistency and convergent validity were found to be satisfactory.³⁵ The reliability and validity of the Turkish version were determined in 2010.³⁶ Internal consistencies of the Turkish version were good for the total scale and the subscales.

Yale-Brown Obsessive-Compulsive Scale (Y-BOCS): The Y-BOCS was used to measure the severity of obsessive-compulsive symptoms. It consists of 19 items in total, but only the first 10 items are used to measure the symptom severity. This scale was developed by Goodman et al.³⁷ and the validity and reliability study of the Turkish version was conducted by Tek et al³⁸ and found to be strong.

Dimensional Obsessive-Compulsive Scale (DOCS): The DOCS³⁹ is a 20-item self-reported scale developed to better capture dimensional aspects of OCD severity and assessed four dimensions of OCD symptoms: (a) contamination, (b) responsibility, (c) unacceptable thoughts, and (d) symmetry. The reliability and validity of the Turkish

language version of this test were determined in 2018.⁴⁰ Internal consistencies of the Turkish version were highly good for the total scale and very perfect for the subscales.

The Beck Depression Inventory (BDI): BDI was used to measure the severity of depressive symptoms. The BDI is a 21-item self-reported scale measuring the emotional, cognitive, somatic, and motivational symptoms of depression.⁴¹ Each item is scored on a scale from 1 to 3, and the total score is calculated as the total of all the item scores. The validity and reliability study of the Turkish version of the scale was conducted by Hisli⁴² and showed good internal consistency.

The Beck Anxiety Inventory (BAI): BAI is a 21-item self-reported inventory that measures anxiety severity.⁴³ Each item is rated on a scale from 0 to 3. The validity and reliability study of the Turkish version of the scale was conducted by Ulusoy et al⁴⁴ and showed a high internal consistency.

Statistical Analysis

Statistical analyses were performed using IBM Statistical Package for the Social Sciences (SPSS) version 22.0 (IBM SPSS Corp.; Armonk, NY, USA). Analysis of normality was performed with the Kolmogorov-Smirnov test. The two groups were compared using the chi-square test for categorical variables. The Independent samples *t*-test was used to compare the quantitative variables with normal distribution. Correlations were assessed using Pearson's correlation analysis. Logistic regression analysis was used to determine the association of OCD and ADHD comorbidity with depression, anxiety, obsessive-compulsive symptom dimensions and obsessive belief domains. The level of statistical significance was accepted as $P < .05$.

The power analysis was made with OBQ total scores. The mean OBQ total score was 212.77 ± 46.67 in the OCD with ADHD group and 170.31 ± 46.38 in the OCD only group. The power of the study was 99.6% at the 95% confidence level.

RESULTS

Evaluation was made of 197 participants, comprising 119 (60.4%) females and 78 (39.6%) males with a mean age of 30.98 ± 9.20 years. The education level of the study subjects was reported as 28.4% ($n=56$) primary school, 25.4% ($n=50$) high school, and 46.2% ($n=91$) university graduates. The rate of current comorbid ADHD diagnosis was 15.7%. Of the patients in the OCD with ADHD group ($n=31$), the ADHD type was determined as inattention in 64.5% ($n=20$), hyperactivity in 16.1% ($n=5$), and combined type in 19.4% ($n=6$). The comparisons of the groups in terms of sociodemographic characteristics are shown in Table 1. There were no significant differences between the groups with respect to age, gender, and duration of education. The rate of single patients was higher in the OCD with ADHD group than the OCD only group.

Table 1. Comparison of Groups with Regard to Sociodemographic Features

	OCD Only (n=166)	OCD with ADHD (n=31)	Test Statistics		
	Mean±SD/n (%)	Mean±SD/n (%)	t/X ²	df	P
Age	31.2±9.3	29.6±8.4	0.883	195	.379
Marital status (single/married)	90 (54.2%)/76	23 (74.2%)/8	4.262	1	.039
Education level					
Primary school	51 (30.7)	5 (16.1)	2.877	2	.237
High school	40 (24.1)	10 (32.3)			
University	75 (45.2)	16 (51.6)			

SD, standard deviation. $P < .05$, Chi-square test was used for categorical variables and Independent Samples t test was used to for the quantitative variables.

There was no significant difference between the OCD with ADHD (74.2%) and the OCD only (68.1%) groups despite being in pharmacological treatment ($X^2=0.458$, $P > .05$). The mean duration of pharmacological treatment was 18.49 ± 8.02 months in the OCD with ADHD group and 12.83 ± 24.76 months in the OCD only group. There was no statistically significant difference between the duration of the pharmacological treatment of the two groups ($t = -1.063$, $df = 195$, $P = .289$). Two of the OCD patients with ADHD were currently being treated with psychostimulants, but information on whether they used psychostimulants in childhood could not be obtained.

The results showed that the OCD with ADHD group obtained higher scores than the OCD only group in the OBQ subscales, DOCS-responsibility, DOCS-unacceptable thoughts, DOCS-symmetry, DOCS-total, BDI, BAI and ASRS scores. There was no significant difference between the two groups in terms of DOCS-contamination and Y-BOCS total score (Table 2).

The severity of ADHD symptoms (ASRS total score) was positively correlated with OBQ-threat overestimation and responsibility ($r = 0.404$, $P < .001$), OBQ-importance and control of intrusive thoughts ($r = 0.379$, $P < .001$), OBQ-perfectionism and need for certainty ($r = 0.342$, $P < .001$), DOCS-contamination ($r = 0.272$, $P < .001$), DOCS-responsibility ($r = 0.353$, $P < .001$), DOCS-unacceptable thoughts ($r = 0.276$, $P < .001$), DOCS-symmetry ($r = 0.329$, $P < .001$), DOCS-total ($r = 0.441$, $P < .001$), Y-BOCS ($r = 0.144$, $P = .044$), BDI ($r = 0.509$, $P < .001$), and BAI ($r = 0.524$, $P < .001$). OBQ-threat overestimation and responsibility and OBQ-importance and control of intrusive thoughts, and OBQ-perfectionism and need for certainty subscale scores were positively correlated with DOCS subscales, Y-BOCS, BAI, and BDI total scores (Table 3).

Binary logistic regression was used to predict the outcome of OCD and ADHD comorbidity in the 197 participants. The variables showing a significant correlation with ASRS total scores were taken as predictors. The BDI and BAI were

Table 2. Comparison of Groups with Regard to Clinical Evaluation Scores

	OCD Only (n=166)	OCD With ADHD (n=31)	Test Statistics*			Effect Size
	Mean (SD)	Mean (SD)	t	df	P	Cohen's d
Obsessive Beliefs Questionnaire (OBQ)						
Threat overestimation and responsibility	61.5 (19.5)	79.3 (19.2)	-4.662	195	<.001	0.919
Importance and control of intrusive thoughts	40.5 (14.9)	53.9 (16.4)	-4.499	195	<.001	0.855
Perfectionism and need for certainty	68.1 (18.9)	79.4 (20.6)	-2.996	195	.003	0.571
BDI	17.6 (9.8)	30.4 (10.1)	-6.639	195	<.001	1.286
BAI	15.8 (11.6)	28.4 (12.7)	-5.450	195	<.001	1.035
Y-BOCS	20.5 (6.9)	22.8 (7.5)	-1.600	195	.111	0.319
Dimensional Obsessive-Compulsive Scale (DOCS)						
Contamination	8.2 (5.4)	10.2 (4.9)	-1.888	195	.061	0.387
Responsibility	6.9 (4.6)	10.1 (5.3)	-3.463	195	.001	0.644
Unacceptable thoughts	8.9 (5.1)	12.3 (5.8)	-3.275	195	.001	0.622
Symmetry	5.5 (4.6)	7.7 (5.5)	-2.308	195	.022	0.433
Total	29.7 (13.6)	40.4 (14.1)	-4.001	195	<.001	0.772
ASRS	25.7 (10.9)	46.1 (8.5)	-11.576	195	<.001	2.142

BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; Y-BOCS, Yale-Brown Obsessions and Compulsions Scale; ASRS, The Adult ADHD Self-Report Scale

$P < .05$ and independent samples t test.

Table 3. Correlation Analysis between Obsessive Beliefs, Obsessive-compulsive Symptom Dimensions, ADHD Severity, Depression, and Anxiety Levels

	DOCS Contamination		DOCS Responsibility		DOCS Unacceptable thoughts		DOCS Symmetry		DOCS Total		YBOCS		BDI		BAI		ASRS	
	r	P	r	P	r	P	r	P	r	P	r	P	r	P	r	P	r	P
OBQ-Threat overestimation and responsibility	0.323	<.001	0.422	<.001	0.427	<.001	0.363	<.001	0.553	<.001	0.204	.004	0.443	<.001	0.435	<.001	0.404	<.001
OBQ-Importance and control of intrusive thoughts	0.233	.001	0.145	.042	0.416	<.001	0.187	.009	0.358	<.001	0.202	.004	0.375	<.001	0.281	<.001	0.379	<.001
OBQ-Perfectionism and need for certainty	0.352	<.001	0.229	.001	0.349	<.001	0.374	<.001	0.471	<.001	0.157	.028	0.345	<.001	0.371	<.001	0.342	<.001
ASRS	0.272	<.001	0.353	<.001	0.276	<.001	0.329	<.001	0.441	<.001	0.144	.044	0.509	<.001	0.524	<.001	-	-

$P < .05$, Pearson correlation analysis was used for correlations.

OBQ, Obsessive Beliefs Questionnaire; ASRS, The Adult ADHD Self-Report Scale; DOCS, Dimensional Obsessive-Compulsive Scale; BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory; Y-BOCS, Yale-Brown Obsessions and Compulsions Scale.

included in the first block using the enter method. OBQ-threat overestimation and responsibility, OBQ-importance and control of intrusive thoughts, and OBQ-perfectionism and need for certainty, DOCS-contamination, DOCS-responsibility, DOCS-unacceptable thoughts, and DOCS-symmetry were included in the second block using the backward method. The final model (in the seventh step) was able to explain between 21.8% and 37.5% of the variance. The model was found to fit the data adequately (Hosmer and Lemeshow's $\chi^2=9.149$, $P=.330$) and was able to predict ADHD comorbidity with OCD (*Omnibus* $\chi^2(3)=48.482$, $P<.001$). Assumptions for linearity and multicollinearity were satisfied. Overall, the model was able to predict 88.3% of all cases. BDI and OBQ-importance and control of intrusive thoughts predicted ADHD status (squared Wald statistics are shown in Table 4). The results showed that when depression and anxiety were controlled, OBQ-importance and control of intrusive thoughts were associated with an increased odds ratio of OCD and ADHD comorbidity ($OR=1.034$).

DISCUSSION

The current study is the first to have compared obsessive beliefs in OCD patients with and without ADHD. The results showed that OCD patients with ADHD endorse obsessive beliefs more strongly than OCD patients without ADHD. Moreover, when confounding factors such as depression and anxiety were controlled, obsessive beliefs about the need to control thoughts were associated with ADHD comorbidity.

Obsessive beliefs are significant cognitive structures in the emergence and maintenance of OCD, and a relationship with OCD severity has been reported.^{45,46} Therefore, it is an important finding of this study that OCD comorbid ADHD patients have more strong obsessive beliefs. When ADHD accompanies OCD, there seems to be a relationship between the extent of obsessive beliefs and the direct and indirect effects of (anxiety and depressive symptoms) ADHD. This association may be explained by findings reported in previous studies that there is a relationship between increased OCD symptoms and ADHD comorbidity in OCD patients.^{5,47,48} Comorbid patients may show more severe OCD symptoms as they have more strong obsessive beliefs than OCD patients without this comorbidity. The positive correlations determined in this study between obsessive beliefs and symptom dimensions support this view.²⁷

The most important finding of this study was that the extent of obsessive belief related to the control of thoughts in OCD patients is a unique predictor of ADHD comorbidity. Abramovitch and Schweiger⁴⁹ reported that intrusive thoughts were a significant phenotypic characteristic of adult ADHD. Mitchell et al⁵⁰ reported that negative automatic thoughts and problematic thinking patterns were more evident in adult ADHD patients than in control

Table 4. Hierarchical Logistic Regression Analysis for the Association of OCD and ADHD Comorbidity with Obsessive Compulsive Symptom Dimensions, Depression, Anxiety and Obsessive Belief Domains (n = 197)

	Cox and Snell, R ²	Nagelkerke, R ²	Wald ²	df	P	Exp(B)	95% CI for Exp(B)	
							Lower	Upper
Model	0.218	0.375						
BDI			12.595	1	<.001	1.105	1.046	1.168
BAI			3.199	1	.074	1.036	0.997	1.077
Obsessive Beliefs Questionnaire (OBQ)								
Importance and control of intrusive thoughts			4.870	1	.027	1.034	1.004	1.065
Constant			39.312	1	<.001	0.002		

BDI, Beck Depression Inventory; BAI, Beck Anxiety Inventory. (Dependent variable is OCD and ADHD comorbidity and predictor variables are BDI, BAI, DOCS subscales, and OBQ subscales scores.)

subjects. In addition to these cognitive features in ADHD patients, cognitive inhibition deficits also have been shown in these patients in neuropsychological studies.⁵¹ It has been reported that there are excessive mind wandering⁵² and episodes of long-lasting, highly focused attention termed ‘hyperfocus’ in adults with ADHD.⁵³ Therefore, it is possible to say that obsessive beliefs related to controlling thoughts are seen more strongly in comorbid patients and this theoretically supports the view that it predicts ADHD comorbidity. New studies focusing on the effect of these obsessive beliefs in comorbid patients on clinical characteristics could help in the understanding of etiopathogenesis. In OCD patients with adult ADHD, there is the question of whether obsessive-compulsive symptoms are made more severe with the attempt to suppress intrusive thoughts with the effect of this obsessive belief as in the cognitive theory of OCD²² or can it be said that ADHD is already present, and cognitive inhibition disorders supported by neurobiological evidence⁵¹ cause the severity of these beliefs? New studies using neuropsychological or functional neuroimaging methods are needed to answer these questions. Serine et al²⁶ suggested that an investigation of the potential link between ADHD symptom severity, other common comorbidities, and cognitive distortions would provide a better understanding of the experiences of adults with ADHD.

Another significant finding of the current study was that OCD patients with ADHD showed more strong beliefs of “inflated responsibility and overestimation of threat” and “perfectionism and need for certainty” than the patients with OCD without ADHD. In those with ADHD comorbidity, inflated responsibility and overestimation of threat may have developed due to childhood attention problems and impulsive behaviors that can harm themselves and others. Inflated responsibility and overestimation of threat deal with cognitions relating to preventing harm from happening to oneself or others, the consequences of inaction, and responsibility for bad things happening.⁵⁴ However, it is difficult to explain why beliefs related to perfectionism, which is frequently seen in OCD, are seen more often in OCD with ADHD. Strohmeier et al⁵⁵ found that the cognitive

distortion category of perfectionism was endorsed most frequently in adult ADHD patients. Perfectionism was viewed as potentially “front-end” perfectionism that circumstances must be “just right” for an individual with ADHD before starting a task. This would serve as a permission-giving belief or rationalization for avoidance and promote procrastination.⁵⁶ Thus, Strohmeier et al⁵⁵ suggested that treatment may assist individuals to change their dichotomous self-statements and to encourage behaviors associated with approaching, rather than avoiding a task. This belief may be a coping strategy formed to cope with the feeling of inadequacy seen in ADHD, and the avoidance behaviors formed as a result of feeling inadequate may strengthen the beliefs related to perfectionism. When ADHD accompanies OCD, beliefs of perfectionism may be more severe, but in the current study, there was not determined to be a strong relationship that could predict OCD and ADHD comorbidity. It has been suggested that obsessive beliefs are related to treatment response and the severity of OCD symptoms, and that the severity of obsessive beliefs at the beginning of treatment may be associated with less reduction in symptoms with CBT and a decrease in the severity of obsessive beliefs with treatment.^{57,58} Diedrich et al⁵⁸ reported that changes in obsessive beliefs during the first 6 weeks of CBT predicted end-of-treatment symptoms. Therefore, patients with OCD and ADHD may be a group that requires more focus on obsessive beliefs in their treatment with CBT.

In the current study, Y-BOCS scores were not significantly different in patients with and without ADHD. However, the OCD with ADHD group had more severe symptoms, excluding the contamination dimension, than the OCD without ADHD group, thereby confirming the hypothesis. Blanco-Viera et al¹⁶ found that the dimensions of responsibility, unacceptable thoughts, and symmetry are more severe in comorbid patients than in the non-comorbid group, as in the current study. Other studies in the literature have also reported that religious, sexual, symmetry obsessions and ordering/arranging, and hoarding compulsions were more severe in the OCD patients with ADHD.^{5,48} However, some studies reported no difference in symptom dimensions

between these two groups.⁵⁹ In general, these results suggest that patients with OCD and ADHD may have more severe symptoms in the dimensions of responsibility, unacceptable thoughts, and symmetry than OCD patients without ADHD.

When evaluating the results of this article, the view that ADHD and OCD comorbidity is an artifact resulting from ADHD-like symptoms in OCD should be taken into account.^{60,61} It has been suggested that this situation may be due to executive dysfunction seen in OCD.⁶² In some studies examining neurobiological mechanisms, an increase in frontostriatal activity has been observed in OCD, while contrasting findings such as hypoactivity in the frontostriatal area in ADHD have led to the interpretation of OCD and ADHD comorbidity as a misdiagnosis by some authors.⁶⁴ The fact that Guzick et al⁶³ found improvements in attention deficits in children and adolescents with OCD and inattention after OCD treatment also support the above-mentioned artifact hypothesis.

There are some limitations in this study. The patients were outpatients who were admitted to specialized psychiatric clinics, and the patients recruited from such clinics may present more clinical complexity and comorbidity. The DSM IV and SCID I were used instead of DSM 5 since the Turkish version of SCID 5 had not been published at the time of the study.⁶⁴ Thus, the use of DSM IV criteria and SCID I is one of the limitations of the study. The intelligence level was not assessed in this study and this may be a limitation. Although the education level between the two groups was not statistically significant, differences in education levels may reveal limitations in understanding and completing the scales. This study was cross-sectional in design, there was no control group, and most of the patients were in pharmacological treatment before entry into the study. Therefore, further prospective studies with larger medication-naïve patients are needed to explore the effects of OCD and ADHD comorbidity on cognitive features.

The results of this study suggest that OCD patients with ADHD show more strongly obsessive beliefs than OCD patients without ADHD. “The importance and control of intrusive thoughts” domain of obsessive beliefs is uniquely associated with ADHD comorbidity in OCD. These findings may contribute to the identification and implementation of cognitive interventions for specific obsessive beliefs in CBT of OCD comorbid ADHD patients. Future studies showing the change in obsessive beliefs after CBT in OCD patients with ADHD will be able to contribute more to this field.

Ethics Committee Approval: Ethics committee approval was received from the Ethics Committee of Bakirkoy Prof. Dr. Mazhar Osman Training and Research Hospital for Psychiatric, Neurological and Neurosurgical Diseases (February 6, 2018-128).

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REFERENCES

1. American Psychiatric Association. *Diagnostic and Statistical Manual of Mental Disorders*. 5th ed. Washington, D.C.: American Psychiatric Association; 2013.
2. Wender PH, Wolf LE, Wasserstein J. Adults with ADHD: an overview. *Ann N Y Acad Sci*. 2001;931:1-16.
3. de Mathis MA, Diniz JB, Hounie AG, et al. Trajectory in obsessive-compulsive disorder comorbidities. *Eur Neuropsychopharmacol*. 2013;23(7):594-601. [\[CrossRef\]](#)
4. Anholt GE, Cath DC, Van Oppen P, et al. Autism and ADHD symptoms in patients with OCD: are they associated with specific OC symptom dimensions or OC symptom severity? *J Autism Dev Disord*. 2010;40(5):580-589. [\[CrossRef\]](#)
5. Kilic SM, Dondu A, Memis CO, Ozdemiroglu F, Sevincok L. The clinical characteristics of ADHD and obsessive-compulsive disorder comorbidity. *J Atten Disord*. 2020;24(12):1757-1763. [\[CrossRef\]](#)
6. Bradshaw JL, Sheppard DM. The neurodevelopmental frontostriatal disorders: evolutionary adaptiveness and anomalous lateralization. *Brain Lang*. 2000;73(2):297-320. [\[CrossRef\]](#)
7. Schatz DB, Rostain AL. ADHD with comorbid anxiety. a review of the current literature. *J Atten Disord*. 2006;10(2):141-149. [\[CrossRef\]](#)
8. van den Heuvel OA, van der Werf YD, Verhoef KM, et al. Frontal-striatal abnormalities underlying behaviours in the compulsive-impulsive spectrum. *J Neurol Sci*. 2010;289(1-2):55-59. [\[CrossRef\]](#)
9. Brem S, Grünblatt E, Drechsler R, Riederer P, Walitza S. The neurobiological link between OCD and ADHD. *Atten Defic Hyperact Disord*. 2014;6(3):175-202. [\[CrossRef\]](#)
10. Geller DA, Biederman J, Faraone SV, et al. Attention deficit hyperactivity disorder in children and adolescents with obsessive-compulsive disorder: fact or artifact? *J Am Acad Child Adolesc Psychiatry*. 2002;41(1):52-58. [\[CrossRef\]](#)
11. Geller D, Petty C, Vivas F, et al. Further evidence for co-segregation between pediatric obsessive compulsive disorder and attention deficit hyperactivity disorder: a familial risk analysis. *Biol Psychiatry*. 2007a;61(12):1388-1394. [\[CrossRef\]](#)
12. Geller D, Petty C, Vivas F, et al. Examining the relationship between obsessive-compulsive disorder and attention deficit hyperactivity disorder in children and adolescents: a familial risk analysis. *Biol Psychiatry*. 2007b;61(3):316-321. [\[CrossRef\]](#)

13. Geller DA, Coffey B, Faraone S, et al. Does comorbid attention-deficit/hyperactivity disorder impact the clinical expression of pediatric obsessive-compulsive disorder? *CNS Spectr.* 2003;8(4):259-264. [\[CrossRef\]](#)
14. Sukhodolsky DG, Do Rosario-Campos MC, Scahill L, et al. Adaptive, emotional, and family functioning of children with obsessive-compulsive disorder and comorbid attention deficit hyperactivity disorder. *Am J Psychiatry.* 2005;162(6):1125-1132. [\[CrossRef\]](#)
15. Fullana MA, Vilagut G, Mataix-Cols D, et al. Is ADHD in childhood associated with lifetime hoarding symptoms? An epidemiological study. *Depress Anxiety.* 2013;30(8):741-748. [\[CrossRef\]](#)
16. Blanco-Vieira T, Santos M, Ferrão YA, et al. The impact of attention deficit hyperactivity disorder in obsessive-compulsive disorder subjects. *Depress Anxiety.* 2019;36(6):533-542. [\[CrossRef\]](#)
17. Salkovskis PM. Understanding and treating obsessive-compulsive disorder. *Behav Res Ther.* 1999;37(suppl 1):S29-S52. [\[CrossRef\]](#)
18. Rachman S. A cognitive theory of compulsive checking. *Behav Res Ther.* 2002;40(6): 625-639. [\[CrossRef\]](#)
19. Safren SA. Cognitive-behavioral approaches to ADHD treatment in adulthood. *J Clin Psychiatry.* 2006;67(suppl 8):46-50.
20. Young S, Bramham J. *ADHD in Adults: A Psychological Guide to Practice, Young-Bramham Programme.* Chichester, England: Wiley; 2007.
21. Ramsay JR. *Cognitive Behavioral Therapy for Adult ADHD.* New York: Routledge; 2014.
22. Manos RC, Cahill SP, Wetterneck CT, et al. The impact of experiential avoidance and obsessive beliefs on obsessive-compulsive symptoms in a severe clinical sample. *J Anxiety Disord.* 2010;24(7):700-708. [\[CrossRef\]](#)
23. Miklósi M, Máté O, Somogyi K, Szabó M. Adult attention deficit hyperactivity disorder symptoms, perceived stress, and well-being: the role of early maladaptive schemata. *J Nerv Ment Dis.* 2016;204(5):364-369. [\[CrossRef\]](#)
24. Philipsen A, Lam AP, Breit S, et al. Early maladaptive schemas in adult patients with attention deficit hyperactivity disorder. *Atten Defic Hyperact Disord.* 2017;9(2):101-111. [\[CrossRef\]](#)
25. Newark PE, Stieglitz RD. Therapy-relevant factors in adult ADHD from a cognitive behavioural perspective. *Atten Defic Hyperact Disord.* 2010;2(2):59-72. [\[CrossRef\]](#)
26. Serine AD, Rosenfield B, DiTomasso RA, et al. The relationship between cognitive distortions and adult attention deficit hyperactivity disorder after accounting for comorbidities and personality traits. *Cogn Ther Res.* 2020;44(5):967-976. [\[CrossRef\]](#)
27. Cordeiro T, Sharma MP, Thennarasu K, Reddy YC. Symptom dimensions in obsessive-compulsive disorder and obsessive beliefs. *Indian J Psychol Med.* 2015;37(4):403-408. [\[CrossRef\]](#)
28. Wheaton MG, Abramowitz JS, Berman NC, Riemann BC, Hale LR. The relationship between obsessive beliefs and symptom dimensions in obsessive-compulsive disorder. *Behav Res Ther.* 2010;48(10):949-954
29. First MB, Gibbon M, Spitzer R, Williams J, Benjamin L. *Structured Clinical Interview for DSM-IV Axis II Personality Disorders (SCID-II).* Washington, D.C.: American Psychiatric Press, Inc.; 1997
30. Gunay S, Savran C, Aksoy UM, et al. The norm study, translational equivalence, validity reliability of Adult Hyperactivity Scale in Turkish adult population. *Atatürk Eğitim Fak Eğitim Bilimleri Derg.* 2006;21:133-150.
31. Ward MF, Wender PH, Reimherr FW. The Wender Utah Rating Scale: an aid in the retrospective diagnosis of childhood attention deficit hyperactivity disorder. *Am J Psychiatry.* 1993;150(6):885-890. [\[CrossRef\]](#)
32. Öncü B, Olmez S, Sentürk V. Validity and reliability of Turkish version of Wender-Utah Rating Scale for attention deficit hyperactivity disorder in adults. *Türk Psikiyatri Derg.* 2005;16(4):252-259.
33. Kessler RC, Adler L, Ames M, et al. The World Health Organization Adult ADHD Self-Report Scale (ASRS): a short screening scale for use in the general population. *Psychol Med.* 2005;35(2):245-256. [\[CrossRef\]](#)
34. Dogan S, Öncü B, Varol-Saraçoğlu G, Küçüköncü S. Erişkin Dikkat Eksikliği Hiperaktivite Bozukluğu Kendi Bildirim Ölçeği (ASRS-v1.1): Türkçe formunun geçerlilik ve güvenilirliği [Validity and reliability of the Turkish version of the Adult ADHD]. *Anadolu Psikiyatr Derg.* 2009;10:77-87.
35. Steketee G, Frost R, Bhar S, Bouvard M, Calamari J. Psychometric validation of the obsessive belief questionnaire and interpretation of intrusions inventory - Part 2: factor analyses and testing of a brief version. *Behav Res Ther.* 2005;43(11):1527-1542. [\[CrossRef\]](#)
36. Boysan M, Besiroglu L, Cetinkaya N, Atli A, Aydın A. The validity and reliability of the Turkish version of the obsessive Beliefs Questionnaire-44 (OBQ-44). *Noropsikiyatri Ars.* 2010;47:216-222.
37. Goodman WK, Price LH, Rasmussen SA, et al. The Yale-Brown Obsessive Compulsive Scale: I. Development, use, and reliability. *Arch Gen Psychiatry.* 1989;46(11):1006-1011. [\[CrossRef\]](#)
38. Tek C, Uluğ B, Rezaki BG, et al. Yale-Brown Obsessive Compulsive Scale and US National Institute of Mental Health Global Obsessive Compulsive Scale in Turkish: reliability and validity. *Acta Psychiatr Scand.* 1995;91(6):410-413. [\[CrossRef\]](#)
39. Abramowitz JS, Deacon BJ, Olatunji BO, et al. Assessment of obsessive-compulsive symptom dimensions: development and evaluation of the dimensional obsessive-compulsive Scale. *Psychol Assess.* 2010;22(1):180-198. [\[CrossRef\]](#)
40. Şafak Y, Say Öcal D, Özdel K, Kuru E, Örsel S. Dimensional approach to obsessive-compulsive disorder: dimensional obsessive-compulsive scale with Turkish psychometric properties. *Türk Psikiyatri Derg.* 2018;29(2):122-130. [\[CrossRef\]](#)
41. Beck AT, Ward CH, Mendelson M, Mock J, Erbaugh J. An inventory for measuring depression. *Arch Gen Psychiatry.* 1961;4:561-571. [\[CrossRef\]](#)
42. Hisli Sahin N. Use of the Beck Depression Inventory with Turkish University students: reliability, validity and factor analysis. *Türk Psikol Derg.* 1989;7:1-14.
43. Beck AT, Epstein N, Brown G, Steer RA. An inventory for measuring clinical anxiety: psychometric properties. *J Consult Clin Psychol.* 1988;56(6):893-897. [\[CrossRef\]](#)
44. Ulusoy M, Sahin N, Erkmén H. Turkish version of the Beck Anxiety Inventory: psychometric properties. *J Cogn Psychotherap.* 1998;12:163-172.

45. Abramowitz JS, Khandker M, Nelson CA, Deacon BJ, Rygwall R. The role of cognitive factors in the pathogenesis of obsessive-compulsive symptoms: a prospective study. *Behav Res Ther.* 2006;44(9):1361-1374. [\[CrossRef\]](#)
46. Abramowitz JS, Nelson CA, Rygwall R, Khandker M. The cognitive mediation of obsessive-compulsive symptoms: a longitudinal study. *J Anxiety Disord.* 2007;21(1):91-104. [\[CrossRef\]](#)
47. Walitza S, Zellmann H, Irblich B, et al. Children and adolescents with obsessive-compulsive disorder and comorbid attention deficit hyperactivity disorder: preliminary results of a prospective follow-up study. *J Neural Transm.* 2008;115(2):187-190. [\[CrossRef\]](#)
48. Çelebi F, Koyuncu A, Ertekin E, Alyanak B, Tükel R. The features of comorbidity of childhood ADHD in patients with obsessive-compulsive disorder. *J Atten Disord.* 2020;24(7):973-980. [\[CrossRef\]](#)
49. Abramovitch A, Schweiger A. Unwanted intrusive and worrisome thoughts in adults with attention deficit hyperactivity disorder. *Psychiatry Res.* 2009;168(3):230-233. [\[CrossRef\]](#)
50. Mitchell JT, Benson JW, Knouse LE, Kimbrel NA, Anastopoulos AD. Are negative automatic thoughts associated with ADHD in adulthood? *Cogn Ther Res.* 2013;37(4):851-859. [\[CrossRef\]](#)
51. Ossmann JM, Mulligan NW. Inhibition and attention deficit hyperactivity disorder in adults. *Am J Psychol.* 2003;116(1):35-50. [\[CrossRef\]](#)
52. Seli P, Smallwood J, Cheyne JA, Smilek D. On the relation of mind wandering and ADHD symptomatology. *Psychon Bull Rev.* 2015;22(3):629-636. [\[CrossRef\]](#)
53. Hupfeld KE, Abagis TR, Shah P. Living “in the zone”: hyperfocus in adult ADHD. *Atten Defic Hyperact Disord.* 2019;11(2):191-208. [\[CrossRef\]](#)
54. Levy N. Obsessive-compulsive disorder as a disorder of attention. *Mind Lang.* 2018;33(1):3-16. [\[CrossRef\]](#)
55. Strohmeier CW, Rosenfield B, DiTomasso RA, Ramsay JR. Assessment of the relationship between self-reported cognitive distortions and adult ADHD, anxiety, depression, and hopelessness. *Psychiatry Res.* 2016;238:153-158. [\[CrossRef\]](#)
56. Ramsay JR. The relevance of cognitive distortions in the psychosocial treatment of adult ADHD. *Prof Psychol.* 2017;48(1):62-69. [\[CrossRef\]](#)
57. Adams TG, Riemann BC, Wetterneck CT, Cisler JM. Obsessive beliefs predict cognitive behavior therapy outcome for obsessive-compulsive disorder. *Cogn Behav Ther.* 2012;41(3):203-211. [\[CrossRef\]](#)
58. Diedrich A, Sckopke P, Schwartz C, et al. Change in obsessive beliefs as predictor and mediator of symptom change during treatment of obsessive-compulsive disorder: a process-outcome study. *BMC Psychiatry.* 2016;7(16):220.
59. Tan O, Coban D. Prevalence of attention deficit hyperactivity disorder among distinct symptom dimensions in adult patients with obsessive-compulsive disorder. *J Mood Disord.* 2016;6(4):211-217. [\[CrossRef\]](#)
60. Abramovitch A, Dar R, Mittelman A, Schweiger A. Don't judge a book by its cover: ADHD-like symptoms in obsessive-compulsive disorder. *J Obsessive Compuls Relat Disord.* 2013;2(1):53-61. [\[CrossRef\]](#)
61. Abramovitch A, Dar R, Mittelman A, Wilhelm S. Comorbidity between attention deficit/hyperactivity disorder and obsessive-compulsive disorder across the lifespan: a systematic and critical review. *Harv Rev Psychiatry.* 2015;23(4):245-262. [\[CrossRef\]](#)
62. Abramovitch A, Dar R, Hermesh H, Schweiger A. Comparative neuropsychology of adult obsessive-compulsive disorder and attention deficit hyperactivity disorder: implications for a novel executive overload model of OCD. *J Neuropsychol.* 2012;6(2):161-191. [\[CrossRef\]](#)
63. Guzick AG, McNamara JPH, Reid AM, et al. The link between ADHD-like inattention and obsessions and compulsions during treatment of youth with OCD. *J Obsessive Compuls Relat Disord.* 2017;12:1-8. [\[CrossRef\]](#)
64. Elbir M, Alp Topbas O, Bayad S et al. DSM-5 Bozuklukları için Yapılandırılmış Klinik Görüşmenin Klinisyen Versiyonunun Türkçeye Uyarlanması ve Güvenilirlik Çalışması [Adaptation and Reliability of the Structured Clinical Interview for DSM-5-Disorders - Clinician Version (SCID-5/CV) to the Turkish Language]. *Türk Psikiyatri Dergisi* 2019;30(1):51-56.