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Research Article

How Does ADHD Affect Temperament and Character in OCD and BD Comorbidities?

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Abstract

Aim: Our study aimed to investigate the comorbidity of attention deficit and hyperactivity disorder (ADHD) with bipolar (BD) and obsessive-compulsive disorder (OCD) and to determine common temperament traits. Furthermore, the study aimed to examine the effect of possible comorbid ADHD temperament traits in OCD and BD patients.

Materials and Methods: 50 patients diagnosed with bipolar disorder (BD group) and 50 patients diagnosed with obsessive-compulsive disorder (OCD group) based on the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) criteria were included in our study. Participants were administered a sociodemographic data form, a Structured Clinical Interview for DSM-5, an Adult ADHD Self-Report Scale, and a Temperament and Character Inventory. The two groups were compared regarding temperament and character traits, as well as possible ADHD comorbidity.

Results: The comorbidity of possible ADHD was higher in the OCD group than in the BD group. There was no difference in the total scores of novelty-seeking, reward dependence, persistence, cooperativeness, and self-transcendence between the two groups, regardless of a possible ADHD comorbidity. Harm avoidance was high in the OCD group, as was self-directedness in the BD group. There was no statistically significant difference in temperament and character traits between BD and OCD patients with possible ADHD comorbidity.

Conclusion: When the harm avoidance and self-directedness personality traits that were found to be significantly different between the OCD and BD groups were accompanied by a possible ADHD comorbidity, they lost their significance and no difference could be found between the two groups. This suggests that these temperament and character traits might have changed under the influence of ADHD.

Keywords: Attention deficit and hyperactivity disorder; Bipolar disorder; Character; Obsessive-compulsive disorder; Temperament

Introduction and Aim

Attention deficit and hyperactivity disorder (ADHD) is a disorder with a prevalence rate of 4–5% in adults, characterized by primary symptoms such as excessive activity, difficulty maintaining attention and inadequate impulse control inappropriate for the corresponding developmental stages [1, 2]. ADHD in adults is often associated with negative outcomes, such as impaired psychosocial functioning and a low quality of life, including poor academic and occupational performance, interpersonal relationships, driving skills, as well as low socioeconomic status, low self-esteem, and high criminality rates [1–3]. Although common in the adult population, it is frequently unrecognized, underdiagnosed, and undertreated due to masking by comorbidities [4]. It has been suggested that undiagnosed ADHD may be a common comorbidity in patients receiving treatment for another psychiatric disorder [5, 6]. Overlapping symptoms between ADHD and mood, anxiety, or substance use disorders (SUDs) present several barriers to diagnosis and treatment [7, 8].

Comorbid conditions, such as anxiety and depressive disorders, bipolar disorder (BD), eating disorders, obsessive-compulsive disorder (OCD), SUDs, personality disorders and impulse control disorders, are extremely common in adults [9–11].

Up to 30% of children and adolescents with OCD and 2 to 2.9% of adults meet the diagnostic criteria for ADHD [12]. Recent studies suggest that OCD and ADHD may share genetic susceptibility factors or are related to dysfunctions in similar neurotransmitter pathways [12, 13]. A detailed examination of the comorbidity of ADHD and OCD is particularly significant because ADHD medication can exacerbate obsessive-compulsive symptoms in patients with OCD [14].

Although the association between BD and ADHD has not been sufficiently studied in the adult population, it was found that patients with BD have a four-fold increased risk of being diagnosed with ADHD, and the risk of being diagnosed with BD in families with ADHD and BD cases increased five times. The comorbidity of ADHD and BD was related to shorter remission periods and a more severe course of mood disorders [15].

In some studies, certain similarities were found between the BD and OCD endophenotypes. For instance, patients with both BD and OCD show impaired performance in verbal episodic memory. Other cognitive endophe-

notypes observed in OCD and BD patients include deficient response inhibition and difficulty maintaining attention. Impulsivity levels, which are higher in OCD patients compared to controls, are also seen during manic episodes [15, 16].

Studies suggesting that OCD, BD, and ADHD are related or have at least overlapping symptoms led us to investigate some common features among these pathologies. It was thought that Cloninger's psychobiological theory, which describes temperament and character traits, would be beneficial for this purpose.

A personality profile may contribute to the onset of a psychiatric disorder by creating a susceptibility to developing a particular psychopathology. According to Kraepelin [17], temperament type predicts the nature and course of the disease. Furthermore, in his theory, Cloninger assumes that personality configuration is strongly associated with a specific disorder. He suggests that this can be achieved in three ways. Personality configuration, as a risk factor, may predispose an individual to develop a disorder as a reaction to the stress and difficulties encountered. It could be an early symptom of the disorder resulting from a combination of symptoms that meet diagnostic criteria. Personality configuration and psychopathology may arise from a common underlying cause. In his psychobiological model, Cloninger proposed that personality consists of temperament and character traits. Temperament, which is heritable, manifests early in life and includes pre-conceptual biases in perceptual memory and habit formation. The character matures in adulthood and influences personal and social effectiveness through insight into and learning about self-concepts [18].

We tried to clarify a problem encountered in clinical practice by investigating whether there are overlapping temperament and character traits in OCD and BD patients with or without ADHD comorbidity. When ADHD accompanies OCD or BD, the clinical course is more severe, the response to treatment is worse, and patients are more prone to substance use [13]. Many people with ADHD receive treatment for comorbid mood disorders or OCD, but not for ADHD. The fact that stimulant drugs used to treat ADHD in bipolar patients can cause manic shifts and mood destabilization, as well as exacerbate and provoke OCD symptoms, is an important factor that complicates treatment in comorbid cases [7, 19]. In a study investigating the use of paroxetine in OCD patients with coexistent ADHD, OCD response rates were significantly lower in patients with coexistent ADHD than in patients with OCD alone. Additionally, OCD relapses are more common in cases with accompanying ADHD [19, 20].

It is therefore crucial to diagnose and treat ADHD symptoms in OCD and BD patients. In our study, ADHD symptoms were screened with a scale; thus, it was considered a probable ADHD diagnosis based on the cut-off score rather than a definitive diagnosis. Our study aimed to investigate the comorbidity of ADHD and overlapping temperament-character traits in BD and OCD patients. If common temperament characteristics can be identified, it will be possible to recommend treatment methods based on these characteristics.

Method

We conducted a cross-sectional and descriptive study. A total of 100 patients from the adult psychiatry clinic of the University of Health Sciences Bursa Yüksek İhtisas Training and Research Hospital, 50 diagnosed with BD and 50 with OCD according to the Structured Clinical Interview for the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) (SCID-5), were grouped with or without ADHD according to the Adult ADHD Self-Report Scale (ASRS) and compared with the Temperament and Character Inventory (TCI) in terms of temperament and character traits.

Research Sample

Among the patients from the adult psychiatry clinic, 50 patients diagnosed with BD and 50 patients with OCD who volunteered to participate in the study and gave written consent were included. Diagnostic assessment was performed using the clinician version of the SCID prepared for DSM-5 (SCID-5-CV) [21, 22]. Administrative and ethical permissions were obtained, allowing the work to be done. The inclusion criteria were being between the ages of 18 and 65, being literate, having one or both of the diagnoses of BD and OCD, and, for patients with BD, being in remission, while the exclusion criteria were being under the age of 18 or over the age of 65, having a mental retardation or dementia, and being illiterate.

Data Collection Tools

The researchers created a sociodemographic data form collecting participants' age, gender, educational, socioeconomic and employment status, current psychiatric drug use, psychiatric diagnoses received in childhood, family history of psychiatric diagnoses, lifetime alcohol and substance use, and suicide attempts. Each patient was assessed using the ASRS and the TCI.

The ASRS, developed by Kessler et al. to help diagnose adult ADHD, is designed to determine how frequently each symptom has occurred in the past six months [23]. Doğan et al. conducted a Turkish validity and reliability study [24]. ASRS is a self-report scale consisting of 18 items, each scored from 0 to 4. The scale has two subscales: "inattention" and "hyperactivity/impulsivity," each containing nine questions.

The TCI is based on Cloninger's Psychobiological Model of Personality. The model is a seven-factor model examining the dimensions of temperament and character, the two primary components of personality [18]. The TCI consists of four temperaments (novelty seeking [NS], harm avoidance [HA], reward dependence [RD], and persistence [PS]) and three characters (self-directedness [SD], cooperativeness [C], and self-transcendence [ST]). It is a self-report scale with answers marked as true or false that can be conducted with people from the age of 17 and up [25]. Arkar et al. conducted the Turkish validity and reliability studies [26].

Statistical analyses were performed with the IBM SPSS Statics 22.0 statistical analysis program. The Kolmogorov-Smirnov test was used to determine whether the data fit a normal distribution. Normality tests of the dependent and independent variables were performed with Kolmogorov-Smirnov since ASRS-HyImp (Hyperactivity-Impulsivity), ASRS-Total, NS-Total, and ST-Total values conformed to the normal distribution. The independent samples t-test was used to evaluate the differences between the disease groups, and the Mann-Whitney U test was used for variables not fitting the normal distribution. Categorical variables were indicated with n and percentage values, and Pearson's chi-squared and Fisher's exact tests were used for comparisons. A p-value of less than 0.05 was considered significant. To determine whether there were overlapping temperament and character traits in OCD and BD patients with and without comorbid ADHD, the patients were divided into two groups: those with and those without comorbid ADHD.

Results

When comparing the sociodemographic data for both patient groups, no statistically significant difference was found in terms of gender, educational, employment and income status, childhood psychiatric diagnosis, and history of substance abuse and suicide attempts (table 1). The mean age in the BD group was 39.16 years (20–60) and 32.50 years (19–64) in the OCD

group. There was a statistically significant difference between the mean ages between the groups (p<0.004). Whether the age had an effect on ADHD symptom levels in both patient groups was tested using univariate analysis of variances, and conclusively, the difference in mean age was found not to have an effect on the values related to ADHD.

There were significantly more divorced and widowed participants in the BD group. A family history of psychiatric illness was significantly more common in the OCD group. Regarding the use of psychiatric medication, 2% of the patients with BD and 20% of those with OCD did not take any medication.

Table 2 gives a comparison of ASRS and TCI scores in the OCD and BD groups The OCD group without comorbid ADHD had significantly higher scores than the BD group without ADHD in the HA Total and in the HA-1, HA-2 and HA-3 subgroups. SD Total as well as SD-1 and ST-2 subgroup scores were significantly higher in the BD group without comorbid ADHD compared to the OCD group without ADHD.

Table 3 compares the TCI subscale values of the patient groups without ADHD comorbidity according to the ASRS cut-off point by using the Mann-Whitney U test. The attention deficit and hyperactivity subtest scores, as well as the total ASRS score, were significantly higher in OCD patients than in BD patients. OCD patients scored significantly higher than BD patients on the HA-1, HA-2, HA-3, and HA Total, whereas those with BD had higher scores on the SD-1, SD-2, SD-5, SD Total, ST-2, and ST Total.

The OCD group without comorbid ADHD had significantly higher scores than the BD group without ADHD in the HA Total as well as the HA-1, HA-2 and HA-3 subgroups. The BD group without comorbid ADHD had significantly higher scores in SD Total as well as SD-1 and ST-2 subgroups compared to the OCD group without ADHD.

According to the ASRS cut-off point, two BD patients and five OCD patients with possible ADHD were detected. There was no statistically significant difference in any of the TCI subscale values.

Discussion

The aim of this study was to examine the ADHD diagnosis and temperament characteristics of BD and OCD patients and to identify common temperament traits.

Our sample's divorced and widow categories differed between the BD group and the OCD group. In their study, Walid et al. report-

Table 1: Comparison of Sociodemographic Data of Patient Groups

		BD		OCD		TOTAL		P
		n	%	n	%	n	%	
Gender	Men	36	32	17	34	33	33	0.832
	Woman	34	68	33	66	67	67	
Marital Status	Single	13	26	29	58	42	42	**0.004**
	Married	29	58	18	36	47	47	
	Widowed	8	16	3	6	11	11	
Educational Status	Primary School	8	16	6	12	14	14	0.478
	High School	16	32	12	24	28	28	
	University	26	52	32	64	58	58	
Socioeconomic Status	<3000 TL	25	50	21	42	46	46	0.422
	>3000 TL	25	50	29	58	54	54	
Working Status	Working	18	36	27	54	45	45	0.070
	Unemployed	32	64	23	46	55	55	
Childhood Psychiatric Diagnosis	Yes	6	12	5	10	11	11	0.749
	No	44	88	45	90	89	89	
Psychiatric Diagnosis in the Family	Yes	19	38	32	64	51	51	0.009
	No	31	62	18	36	49	49	
Alcohol or Substance Use	Yes	11	22	10	20	21	21	0.806
	No	39	78	40	80	79	79	
Suicide Attempt	Yes	5	10	6	12	11	11	0.749
	No	45	90	44	88	89	89	

BD: Bipolar disorder; OCD: Obsessive-compulsive disorder; TL: Turkish liras.

ed that divorce and lonesomeness rates were highest in bipolar and schizophrenia patients, with OCD patients also included in the never-married group [27]. Our findings are consistent with those in this study. Moreover, all ADHD patients in our study were found to be single. ADHD, which is associated with impaired rather than disinhibited interpersonal relationships, has a strongly negative association with early marriage [28]. The deficiencies in executive functions, inhibition control, and attention processes, all main features of ADHD, may be effective in close relationships such as marriage, leading ADHD patients to prefer singleness.

The literature reports rates of childhood BD and ADHD comorbidity of 38–98% and 9–35% in the adult population, respectively [29]. In our study, the ADHD comorbidity rate in BD patients was 4%. There could be several reasons why this rate is lower than in the literature. Compared to other studies, 64% of the BD patients in our sample were unemployed and from a lower socioeconomic group. Mild or sub-threshold ADHD symptoms are thought to be more manageable in this group. The fact that ADHD symptoms were severe enough to interfere with the patients' professional lives or that assessment methods were insufficient to detect ADHD may have also contributed to this result. Another possible explanation may be that our sample comprises mostly women (66%). According to Kessler et al., the diagnosis rate for ADHD is 5.4% in men compared to 3.2% in women [10].

The incidence of ADHD in OCD patients varies between 0 and 44% [16, 30, 31]. In our study, this rate was found to be 10%. In our study, OCD patients had significantly higher scores on both the attention deficit and hyperactivity subtests, as well as the total ASRS scores, than BD patients. Although our study included euthymic BD patients, 33% of patients with bipolar type 1 had decreased chronic symptoms and social functions [32]. The reliability of BD patients in the ASRS test may thus be low and may need to be higher in our study.

While novelty seeking (NS) scores are reported to be higher in BD and ADHD patients than in controls [32], some studies found that NS scores in OCD patients were lower than in controls [33]. Individuals with high NS scores are described as impatient, impulsive, extravagant, and actively avoiding frustration. In contrast, individuals with low NS scores are described as slow-blooded, sluggish, monotonous, and long-suffering [33, 34]. Excessive anticipatory anxiety about potential problems and a tendency to inhibit exploratory activity that could lead to new potentially dangerous situations are thought to be compatible with the cognitive characteristics of OCD patients, as shown in both harm avoidance (HA) and low NS scores [33]. However, studies do not support this point of view and report no difference in NS scores between OCD and BD patients and controls [35, 36]. In our study, there was no difference between the NS scores of OCD and BD patients. Although temperament traits are known to be primarily of biological origin and do not tend to change over time [18], some studies in the literature indicate that NS scores decrease with age [26]. The fact that there was no difference in NS scores between OCD and BD patients in our study could be due to the lower scores of BD patients being tied to their higher mean age compared to OCD patients.

HA reflects the tendency to stop a behavior in order to avoid punishment or disappointment without gaining a reward [33]. High HA scores are associated with social inhibition,

Table 2: Comparison of Adult Attention Deficit Hyperactivity Disorder (ADHD) Self-Report Scale (ASRS) and Temperament and Character Inventory (TCI) Scores between the Obsessive-compulsive (OCD) and Bipolar Disorder (BD) Groups

	Disorder	N	p
ASRS-AD	BD	50	**0.002**
	OCD*	50	
ASRS-HA	BD	50	**0.049**
	OCD*	50	
ASRS Total	BD	50	**0.020**
	OCD*	50	
HA-1	BD	50	**0.000**
	OCD*	49	
HA-2	BD	50	**0.003**
	OCD*	50	
HA-3	BD	50	**0.005**
	OCD*	49	
HA Total	BD	50	**0.000**
	OCD*	48	
SD-1	BD*	50	**0.007**
	OCD	50	
SD-2	BD*	50	**0.028**
	OCD	50	
SD-5	BD*	50	**0.046**
	OCD	50	
SD Total	BD*	50	**0.006**
	OCD	50	
ST-2	BD*	50	**0.005**
	OCD	50	

ASRS-AD: ASRS attention deficit; ASRA-HA: ASRS hyperactivity; HA: Harm avoidance; HA-1: Anticipatory worry; HA-2: Fear of uncertainty; HA-3: Shyness; SD: Self-directedness; SD-1: Responsibility; SD-2: Purposeful; SD-5: Enlightened second nature; ST: Self-transcendence; ST-2: Transpersonal identification.
* Statistically significant difference

fear of uncertainty, avoidance of strangers, excessive anxiety, and fatigue. High HA, the most consistent finding in studies of BD patients, seems to be associated with a sub-threshold depression experienced by patients between attacks [37]. Typical OCD patients are anxious, easily fatigued, and avoid potentially harmful situations, which may explain their high HA scores [33]. However, in ADHD patients, higher HA was consistent with the comorbidity of ADHD with anxiety disorders and depression [38].

In our study, OCD patients had significantly higher scores of HA, anticipatory anxiety, fear of uncertainty, fear of strangers, and total HA than BD patients. High HA scores in OCD patients and an exaggerated perception of risks may explain why OCD patients perceive a new situation as dangerous until it is proven safe. Furthermore, a study found that high HA scores in OCD patients improve with treatment [38, 39]. The fact that in our study, the number of patients not receiving treatment was significantly higher in the OCD group than in the BD group could also explain this finding.

Individuals with high reward dependence (RD) are described as cute, emotional, and friendly; those with low levels are described as rigid, insensitive, and indifferent to being alone. Engström et al. reported that reward-dependence scores were lower in BD patients than in controls [36]. This is consistent with the fact that patients with BD describe themselves as less emotional and more independent [36]. Anckarsater et al. found lower RD scores in ADHD patients than in controls [40]. There are studies that state that RD scores in OCD patients are higher than in controls [41] and vice versa [35]. While there was no difference in the total score of RD in our study, the dependence subgroup score was significantly lower in BD patients compared to OCD patients. Those with a low score on the dependency subscale prefer personality over intimacy and do not share their feelings with those around them [34, 35]. Their isolation from society may be explained by subclinical depressive episodes and chronic symptoms of bipolar disorder. In our study, the difference in dependency scores disappeared when excluding potential ADHD patients. This could indicate that the possible ADHD accompanying OCD, with its dominant independence characteristic, lowered the scores in the dependency subgroup.

Table 3: Comparison of Temperament and Character Inventory (TCI) Scores of Bipolar (BD) and Obsessive-compulsive Disorder (OCD) groups without Attention Deficit Hyperactivity Disorder (ADHD) comorbidity using the Mann Whitney U test

	Disorder	N	Mean Rank	Sumo f Ranks	p
HA-1	BD	48	36.43	1748.50	**0.000**
	OCD*	44	57.49	2529.50	
HA-2	BD	48	39.51	1896.50	**0.005**
	OCD*	45	54.99	2474.50	
HA-3	BD	48	39.70	1905.50	**0.010**
	OCD*	44	53.92	2372.50	
HA Total	BD	48	37.25	1788.00	**0.001**
	OCD*	43	55.77	2398.00	
SD-1	BD*	48	53.10	2549.00	**0.23**
	OCD	45	40.49	1822.00	
SD Total	BD*	48	53.53	2569.50	**0.016**
	OCD	45	40.03	1801.50	
ST-2	BD*	48	54.80	2630.50	**0.004**
	OCD	45	38.68	1740.50	

HA: Harm avoidance; HA-1: Anticipatory worry; HA-2: Fear of uncertainty; HA-3: Shyness; SD: Self-directedness; SD-1: Responsibility; ST: Self-transcendence; ST-2: Transpersonal identification.
* Statistically significant difference

Individuals with high persistence (PS) scores tend to be hardworking, stubborn, and determined even when fatigued, whereas individuals with low scores are more likely to be unstable, lazy, and indecisive. In the literature, PS scores were found to be lower in BD and ADHD patients than in controls [42], while OCD patients were generally found to be similar to the control group [33]. In our study, there was no significant difference regarding PS scores between BD and OCD patients.

Self-directedness (SD) is associated with being purposeful and responsible [43]. In the literature, low SD scores were generally found in BD, OCD and ADHD patients [35, 36, 40].

In the current study, the scores of BD patients were significantly higher than those of OCD patients in both the total SD score as well as in the responsibility-taking, purposefulness, and enlightened second nature SD subscores. There was no difference between the two groups in terms of resourcefulness and self-acceptance. The fact that the SD scores, which were detected to be lower in both diseases according to the literature, were lower in OCD patients in our study may be related to the decrease in their ability to regulate their thoughts and behaviors due to invasive obsessions and compulsions. Studies also report a correlation between low SD scores and OCD symptom severity [35]. Since symptom severity was not assessed in the OCD group included in our study, high symptom severity may have contributed to this finding.

The enlightened second nature subgroup was low in OCD patients, but there was no difference between the BD and OCD groups after ADHD patients were excluded. Those scoring low on this subscale have inconsistent habits that make it difficult to achieve valuable purposes. Even though they know they will suffer, their willpower appears to be too weak to overcome powerful temptations [44]. This feature seems to be compatible with the impulsivity of ADHD patients.

According to the literature, cooperation (C) scores in BD, OCD, and ADHD patients are lower than controls [33, 42]. People with low cooperative traits tend to be selfish, intolerant, critical, unhelpful, vengeful, and opportunistic [18]. Consistent with the literature, our study found no difference in C scores when ADHD was co-diagnosed. Low levels of SD and C scores are also frequently observed in personality disorders [18]. Since personality disorders were not excluded in either the literature or our study, the fact that there was no difference between these two character dimensions and all three diseases could be related to the high prevalence of personality disorders associated with these disorders.

According to the literature, self-transcendence (ST) scores were higher in the BD group compared to healthy controls. According to the theory proposed by Cloninger et al., high ST combined with high SD scores results in mature creativity and spirituality. However, high levels of ST combined with low SD may indicate a predisposition to psychosis. Therefore, it is thought that high ST scores in BD may reflect residual symptoms [37].

In character studies with ADHD patients, ST scores were found to be higher [45] or lower [43] than controls. Low ST scores may indicate that ADHD patients struggle to focus on or delve deeper into any subject [43].

In our study, the transpersonal identity scores of the ST subgroup were higher in the BD group than in the OCD group, which is consistent with the literature. When examining the group with possible ADHD comorbidity, no difference was found between OCD and BD. This is consistent with the fact that in our study, the transpersonal identity scores of BD patients with possible ADHD were lower and comparable to those of OCD patients.

In our study, there was no difference in character and temperament trait scores between the BD and OCD groups with possible ADHD comorbidity. This suggests that ADHD can have an effect on temperament in patients with comorbidities. Due to the small sample size in our study and the lack of previous studies in the literature comparing the temperament traits of BD and OCD patients, more studies are needed to understand this situation.

Strengths and Weaknesses of the Study

Although there are studies in the literature that examine ADHD comorbidities and temperament-character traits in OCD and BD patients separately, we found no one examining the temperament traits of both diseases and the effect of ADHD comorbidity on them. Even though we found that ADHD comorbidity increased the similarity of temperament and character in individuals with both diseases, the small sample size was the most significant limiting factor for this study. The difference in mean age and gender between the patient groups could have affected the results and may have created bias. The use of self-report scales is another limitation of the study.

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Conclusion

In the presence of ADHD comorbidity, treating OCD and BD becomes more difficult, and the course of the disease worsens. Although the small sample size of our study does not allow generalization, it supports the notion that ADHD may influence the accompanying psychiatric picture. It is important for clinicians to be more sensitive to the possible presence of ADHD in patients with OCD and BD and to approach ADHD treatment in the context of managing comorbid conditions.

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Ethics Statement
Written informed consent was obtained .

Conflict of Interest Statement
The authors have no potential conflicts of interest to declare.

Author Contributions
Both authors made substantial contributions to the conception and design of the work and to the acquisition, analysis and interpretation of data; both drafted and revised the manuscript and gave final approval of the version to be published.

Data Availability Statement
The data supporting the results of this study are available on request from the corresponding author.

Recommended References
33 Alonso P, Menchón JM, Jiménez S, Segalàs J, Mataix-Cols D, Jaurrieta N, et al. Personality dimensions in obsessive-compulsive disorder: relation to clinical variables. Psychiatry Res. 2008 Jan;157(1-3):159-68.
35 Kim SJ, Kang JI, Kim CH. Temperament and character in subjects with obsessive-compulsive disorder. Compr Psychiatry. 2009;50(6):567-72.
36 Engström C, Brändström S, Sigvardsson S, Cloninger R, Nylander PO. Bipolar disorder: I. Temperament and character. J Affect Disord. 2004 Oct;82(1):131-4.
38 Faraone SV, Kunwar A, Adamson J, Biederman J. Personality traits among ADHD adults: implications of late-onset and subthreshold diagnoses. Psychol Med. 2009 Apr;39(4):685-93.
43 Guney E, Dinc G, Iseri E, Guzel H, Sener S, Yalcin O. Temperament and character dimensions of adolescents and young adults with attention deficit hyperactivity disorder. Anadolu Psikiyatri Derg. 2013;14(4):362.

References
You will find the full list of references online at https://sanp.swisshealthweb.ch/en/article/doi/sanp.2024.1330893365/.