FPPC

Family Practice and Palliative Care

Research Article

Temperament, character traits and alexithymia in patients with obsessive compulsive disorder

Obsesif kompulsif bozukluk hastalarında mizaç, karakter özellikleri ve aleksitimi

Crossref

Mehmet Fatih Ustundag[a], Pinar Sen Gokceimam[a]

[a] Department of Psychiatry, Istanbul Erenkoy Psychiatric and Neurological Disorders Hospital, Istanbul, Turkey

Abstract

Introduction: Alexithymia levels have generally been found high in patients with obsessive compulsive disorder (OCD). It is thought that there is a correlation between alexithymia and the severity of OCD symptoms. One of the factors influencing alexithymia is temperament-character traits. In this study, it was aimed to investigate the temperament-character traits in OCD patients and the correlation of these traits with alexithymia.

Methods: This study included 43 OCD patients who applied to Atatürk University Psychiatry Outpatient Clinic and 33 healthy individuals as the control group. Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-IV), Sociodemographic and clinical data form, and Temperament and Character Inventory (TCI), Toronto Alexithymia Scale (TAS-20) were applied to participants whereas Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) was additionally applied to the patient group.

Results: No difference was detected between both groups in terms of age and gender. In the OCD group, harm avoidance (HA) and self-transcendence (ST) scores were found high, and self-directedness (SD), cooperativeness (C) and novelty seeking (NS) were found low when compared to the control group. In the OCD group, difficulty in expressing feelings (TAS-B), extroverted thinking (TAS-C) and TAS-20 scores were found to be higher than the control group. In the alexithymic OCD group, the mean disorderliness and persistence(P) scores were found to be lower compared to the non-alexithymic group. A positive correlation was discovered between Y-BOCS scores and TAS-C scores in OCD patients.

Conclusion: Alexithymia is observed at a high rate in OCD. The extroverted thinking sub-dimension of alexithymia is correlated with the severity of OCD symptoms. Some temperament-personality traits differ in alexithymic-OCD patients compared to those who are not alexithymic. The evaluation of alexithymia and the factors influencing alexithymia has the potential to offer a new approach to understand the etiology and treatment of OCD.

Keywords: Obsessive compulsive disorder, alexithymia, temperament, personality

Öz

Giriş: Obsesif kompulsif bozukluk (OKB) hastalarında aleksitimi düzeyleri genellikle yüksek olarak bulunmuştur. Aleksitimi ile OKB semptomlarının şiddeti arasında ilişki olduğu düşünülmektedir. Aleksitimiye etki eden faktörlerden biri mizaç-karakter özellikleridir. Bu çalışmada OKB hastalarında mizaç-karakter özellikleri ve bu özelliklerin aleksitimiyle ilişkisinin araştırılması amaçlanmıştır.

Yöntem: Bu çalışmaya Atatürk Üniversitesi Psikiyatri Polikliniği'ne başvuran 43 OKB tanılı hasta ile 33 sağlıklı birey kontrol grubu olarak alınmıştır. Katılımcılara DSM–IV Eksen-I Bozuklukları için Yapılandırılmış Klinik Görüşme Ölçeği (SCID-I), sosyodemografik ve klinik veri formu, Mizaç ve Karakter Envanteri (MKE), Toronto Aleksitimi Ölçeği (TAÖ-20) ile hasta grubuna ek olarak Yale-Brown Obsesyon Kompulsiyon Ölçeği (Y-BOKÖ) uygulanmıştır.

Bulgular: Her iki grup arasında yaş ve cinsiyet yönünden fark saptanmamıştır. OKB grubunda kontrol grubuna göre zarardan kaçınma (ZK), kendini aşma (KA) skorları yüksek, kendini yönetme (KY), işbirliği yapma (İY), yenilik arayışı (YA) düşük bulunmuştur. OKB grubunda; duyguları söze dökmede güçlük (TAS-B), dışa dönük düşünme (TAS-C) ve total OKB skorları kontrol grubuna göre yüksek saptanmıştır. Aleksitimik OKB grubunda aleksitimik olmayan gruba göre, düzensizlik ve sebat Etme (SE) skor ortalamaları düşük saptanmıştır. OKB'li hastalarda Y-BOCS puanları ile TAS-C puanları arasında pozitif korelasyon saptanmıştır.

Sonuç: Aleksitimi OKB'de yüksek oranda görülmektedir. Aleksitimin dışa-dönük düşünme boyutu OKB semptom şiddeti ile ilişkilidir. Aleksitimik OKB hastalarında bazı mizaç-kişilik özellikleri aleksitimik olmayanlara göre farklılaşmaktadır. Aleksitimi ve aleksitimiye etki eden faktörlerin değerlendirilmesi, OKB'nin etiyolojisi ve tedavisini anlamak için yeni bir yaklaşım sunma potansiyeline sahiptir.

Anahtar kelimeler: Obsesif Kompulsif Bozukluk, aleksitimi, mizaç, kişilik

Introduction

Obsessive-compulsive disorder (OCD) is defined as a chronic disease which is characterized by obsessions and compulsions, affects functionality in a negative way and takes a significant amount of time of the individual [1]. OCD is correlated with psychodynamic factors and personality pattern [2].

Cloninger defined the structure and development process of personality and mentioned about temperament and personality dimensions [3]. In the definition of the temperament dimensions of personality, individual differences are also taken into account in relational learning besides the concepts of innovation, danger, punishment and reward. The character dimension represents the differences of the individual in voluntary goals and values, based on our concepts of ourselves, other people and other objects [4]. Cloninger asserts that individuals with anxiety disorders may have higher Harm Avoidance (HA) scores, and lower Novelty Seeking (NS) and Reward Dependence (RD) scores at a lower level [3].
There are many studies attracting attention to personality traits in OCD. According to the study of Bejerot et al., it was found that the personality traits of OCD patients differed from those of the healthy control group. In this study, the scores of HA sub-dimension, anticipatory anxiety, fear of uncertainty, avoidance of strangers, getting tired quickly and Self-Transcendence (ST) sub-dimension scores and the rate of losing oneself are higher in patients with OCD [5]. Another similar study suggests that HA scores are consistently high in OCD patients [6].

The concept of alexithymia was firstly proposed by Sifneos in the 1970s as a condition-specific situation in individuals with psychosomatic diseases. Alexithymia can be defined as the inability to express feelings [7]. Alexithymia has been found to be correlated with many psychiatric disorders such as somatoform disorder, depression, panic disorder and OCD [8]. Previous studies have shown that when the level of alexithymia increases, the level of internal awareness decreases, and the low level of internal awareness is one of the predictors of alexithymia [9]. Katz and Campbell (1994) reported that the intensity of obsessive-compulsive traits may cause difficulties in expressing feelings for individuals [10]. It is declared that alexithymia has significant relationships with the severity and the excess number of OCD symptoms [11]. In a study measuring alexithymia and OCD symptom severities of individuals, a positive correlation was reported between difficulty identifying feelings (TAS-A), difficulty describing feelings (TAS-B) sub-dimension scores, total alexithymia scores and total Y-BOCS scores [12].

Some researchers investigating alexithymia and personality traits stated that alexithymia was a personality trait [13].In a study, it was reported that, despite the improvement of some accompanying depressive symptoms as a result of treatment and Cognitive Behavioral therapy, total TAS scores remained stable, and alexithymia might be a fixed personality trait in OCD [14].

While planning this research, no studies on this subject were encountered in our English and Turkish literature search, which included many search engines and commonly used medical search sites. The primary aim of this study is to determine alexithymia, temperament and character traits, and to investigate their correlation with the severity of OCD symptoms in patients diagnosed with OCD. Another aim of the study is to examine whether the presence of alexithymia causes a difference in temperament-personality traits in OCD patients.

Methods

Sampling Procedure

This cross-sectional case-control study included 43 individuals, who had consecutively applied to Psychiatry Outpatient Clinic of Atatürk University Hospital between January and April 2019, met the study inclusion criteria and were diagnosed with OCD, as the case group and 33 healthy individuals who met the study inclusion criteria and were recruited from the local community, as the control group. Exclusion criteria for OCD group was having a comorbid psychiatric disorder, for the control group previous or existence of a psychiatric disorder and for both groups having mental disability, active alcohol and/or substance use. OCD patients whose diseases were under control for the last six months were included. Patients were diagnosed with OCD by using Structured Clinical Interview for Axis-I Disorder (SCID-I). Data were obtained by the Yale-Brown Obsessive Compulsion Scale (Y-BOCS), Temperament and Character Inventory (TCI), and the 20-item Toronto Alexithymia Scale (TAS-20). Both groups are matched in terms of age and gender.

Ethical approval

The study was approved by the Ethics Committee of Atatürk University Faculty of Medicine (Decision Date: 04.03.2015; Decision No: B.30.2.ATA.0.01.00/) and carried out in accordance with the principles of the Helsinki Declaration. All participants signed the informed consent form for inclusion in the study.

Evaluation Tools

The Yale-Brown Obsessive-Compulsive Scale (Y-BOCS)

The scale was developed by Goodman et al. (1989) to measure the type and severity of obsessive-compulsive symptoms. The scale consists of 19 items, but only the first 10 items are used to determine the total score. The score of each question ranges from 0 to 4. In addition to the related scale, the Symptoms Checklist (Y-BOCS-SC) is also used [15]. Turkish adaptation and the validity-reliability study of the scale was conducted [16].

Temperament and Character Inventory (TCI)

In the beginning, Cloninger developed the Three-Dimensional Personality Scale in 1987, after then, Cloninger and his colleagues, added the temperament and the character dimension to the scale, and changed the name of the scale to "Temperament and Character Inventory (TCI) in 1993 [4]. The validity and reliability study of the "Turkish Temperament and Character Inventory" was conducted by Köse et al [17].

Toronto Alexithymia Scale (TAS-20)

The related scale is a Likert-type self-assessment questionnaire consisting of twenty items and scored between 1 to 5. Although its measures alexithymia, which is defined as the condition that the person does not recognize his / her feelings and emotions. Within the scale, there are three subscales, which are ; difficulty in recognizing emotions (TAS-A), difficulty in expressing feelings (TAS-B) and extroverted thinking (TAS-C).The participants with a score of 61 or more are considered as alexithymic. The scale developed by Bagby et al [18] and it was adapted to Turkish by Güleç et al [19].

Statistical Analysis

One of the most popular statistical packaged program which is called SPSS 16.0 (SPSS Inc.233 South Wacker Drive, 11th Floor Chicago, IL 60606-6412, USA) used for the analysis. The distribution normality of the variables was examined by the Kolmogorov-Smirnoff test. In the comparison of the variables, the Chi-Square test was used to analyze the categorical variables and the Student t-test and T-test were used to analyze the numerical variables. Pearson correlation test was used for correlation analysis and the significance level was accepted as $p<0.05$.

Results

A total of 76 participants were included in this study. 43 of these patients were diagnosed with OCD and the remaining 33 were healthy controls. Socio-demographic data of the participants are shown in Table 1. There is no significant difference found between the two groups in terms of gender, marital status, income level, and age. However, the education level of the control group was found significantly higher than the case group ($p<0.001$) (Table 1).

Table 1. Comparison of demographic and clinical traits of the control group and the patients with OCD

	OCD Group (n=43)	Control Group (n=33)	Statistical Analysis t/χ2	p
Gender, n (%)				
Female	31 (72.1)	24 (72.7)	0.04	0.95
Male	12 (27.9)	9 (27.3)		
Marital Status, n (%)				
Married	23 (53.5)	10 (30.3)	4.08	0.43
Single	20 (46.5)	23 (69.7)		
Educational Status, n (%)				
Illiterate	1(2.3)	0 (0.0)		
Primary School	13(30.2)	1 (3.0)	24.73	**<0.001**
High School	10 (23.3)	2 (6.1)		
Associate Degree	4 (9.3)	0 (0.0)		
Bachelor's Degree	15 (34.9)	30 (90.9)		
Income Level, n (%)				
Low/Middle income	37 (88.4)	31 (94.0)	1,29	0.52
High Income	5(11.6)	2(6.0)		
Age, n (%)			7.79	0.48
18-25	15 (34.9)	22 (66.7)		
25-30	6 (14.0)	3 (9.1)		
30-35	6 (14.0)	3 (9.1)		
35 and over	16 (37.2)	5 (15.2)		
Age of Onset (Mean ± Sd.)	24.9 ± 12.6			
Duration of Disease/Year (Mean ± Sd.)	7.8 ± 9.0			
YBOCS Score (Mean ± Sd.)	19.5 ± 6.2			

Y-BOCS: Yale-Brown Obsessive-Compulsive Scale, Statistical method: The Chı-Square and Student- t Test were performed

According to the TCI scores, one of the subdimensions of NS; " Exploratory Excitability and extravagance" scores were significantly higher in the control group compared to the OCD group ($p=0.001$). HA trait scores were significantly higher in all sub-dimensions scores in the OCD group compared to the control group ($p=0.00$). RD temperament trait score was only significantly higher for the "attachment" subscale in the control group ($p=0.033$). When the TCI character traits were examined, there was significant difference found between the two groups for the Self-transcendence (ST) trait total score ($p=0.002$). And in the ST trait, the scores of the "self-forgetful" subscale were significantly higher in the OCD group ($p=<0.001$) . Cooperativeness (C) trait total score (p: 0.029) and the "social acceptance" ($p=0.019$) dimension of the C trait were significantly higher in the control group. (Table 2).

The total score of the TAS-20 and subscales of it such as; difficulty in expressing feelings (TAS-B) and extroverted thinking (TAS-C) scores were significantly higher in the OCD group ($p=<0.001$). There was no significant difference found in the sub-dimension scores of difficulties in recognizing emotions (TAS-A), which is another subscale of the TAS-20 ($p=0.207$) (Table 3).

Table 2. Comparison of TCI scores of patients with OCD and the control group

	OCD Group (n=43)	Control Group (n=33)	p
Novelty Seeking	0.43±0.10	0.53±0.13	**0.001**
Exploratory Excitability	0.47±0.17	0.60±0.19	**0.003**
Impulsiveness	0.43±0.17	0.44±0.16	0.882
Extravagance	0.45±0.24	0.61±0.23	**0.003**
Disorderliness	0.39±0.18	0.47±0.21	0.064
Harm Avoidance	0.65±0.14	0.49±0.16	**<0.001**
Anticipatory Worry	0.68±0.20	0.51±0.22	**0.001**
Fear of Uncertainty	0.74±0.22	0.57±0.18	**<0.001**
Shyness	0.56±0.22	0.41±0.23	**0.005**
Fatigability	0.63±0.18	0.48±0.21	**0.002**
Persistence	0.55±0.23	0.60±0.17	0.277
Self-directedness	0.50±0.16	0.70±0.12	**<0.001**
Responsibility	0.39±0.24	0.70±0.22	**<0.001**
Purposefulness	0.59±0.24	0.79±0.16	**<0.001**
Resourcefulness	0.40±0.28	0.70±0.27	**<0.001**
Self-acceptance	0.55±0.17	0.53±0.22	0.652
Enlightened Second Nature	0.58±0.18	0.78±0.14	**<0.001**
Cooperativeness	0.61±0.15	0.68±0.15	**0.029**
Social Acceptance	0.59±0.26	0.73±0.25	**0.019**
Empathy	0.51±0.21	0.59±0.22	0.119
Helpfulness	0.57±0.16	0.64±0.18	0.066
Compassion	0.66±0.29	0.71±0.26	0.469
Pure-hearted Conscience	0.72±0.12	0.74±0.13	0.614
Self-transcendence	0.59±0.16	0.48±0.13	**0.002**
Self-forgetful	0.59±0.20	0.35±0.17	**<0.001**
Transpersonal Identification	0.52±0.23	0.45±0.21	0.146
Spiritual Acceptance	0.66±0.17	0.63±0.18	0.504
Reward Dependence	0.56±0.14	0.59±0.13	0.438
Sentimentality	0.72±0.18	0.68±0.20	0.374
Attachment	0.49±0.23	0.61±0.27	**0.033**
Dependence	0.48±0.23	0.47±0.16	0.768

TCI: Temperament and Character Inventory, OCD: Obsessive-compulsive disorder, Statistical Method: Pearson correlation test was performed.

Table 3. Comparison of the TAS-20 scores of the patients with OCD and the control group

	OCD Group (n=43)	Control Group (n=33)	*t*-test	*p*
TAS-20	2.77±0.43	2.18±0.41	6.051	**<0.001***
TAS-A	2.74±0.51	2.59±0.50	1.272	0.207
TAS-B	2.85±0.77	2.15±0.64	4.188	**<0.001***
TAS-C	2.75±0.74	1.74±0.53	6.567	**<0.001***

OCD: Obsessive Compulsive Disorder TAS-20: Toronto Alexithymia Scale TAS-A: Difficulty in recognizing emotions TAS-B: Difficulty in expressing feelings TAS-C: Extroverted thinking, Statistical method: T-test was performed.

There was no statistically significant relationship found between the Y-BOCS score and total TCI scores in OCD patients .There was no statistically significant relationship found between Y-BOCS and TAS-A, TAS-B subscales (p=0.684, p=0.927) Besides that, there was a positive correlation found with TAS-C subscale (p=0.030) (Table 4).

Table 4. Correlation of Y-BOCS scores with TAS-20 and TCI scores in patients with OCD

		Y-BOCS Score	
		r	p
Temperament			
	Novelty Seeking	-0.149	0.339
	Harm Avoidance	0.176	0.258
	Reward Dependence	0.240	0.121
	Persistence	-0.190	0.222
Character			
	Self-directedness	-0.210	0.176
	Cooperativeness	-0.278	0.071
	Self-transcendence	-0.170	0.276
TAS Score		-0.126	0.420
	TAS-A	0.064	0.684
	TAS-B	0.014	0.927
	TAS-C	-0.332	**0.030**[*]

Y-BOCS: Yale-Brown Obsessive Compulsive Scale, TAS-20:Toronto Alexithymia Scale, TCI: Temperament and Character Inventory, OCD: Obsessive-compulsive disorder TAS-A: Difficulty in recognizing emotions TAS-B: Difficulty in expressing feelings TAS-C: Extroverted thinking Statistical method: Pearson correlation test was performed.

Alexithymic and non-alexithymic patients were compared in terms of temperament and character trait scores in the OCD group. The non-alexithymic group had a higher score than NS in terms of temperament trait, although it was not statistically significant (p=0.076). In the non-alexithymic group, the exploratory excitability, which is one of the subscales of NS was found to be moderately higher than the statistically significant level (p=0.055), while the disorderliness score was statistically higher (p= 0.037). Non-alexithymic OCD patients scored significantly higher in Persistence (P) (p=0.002). There is no significant difference found between the patients with and without alexithymia in terms of personality traits (Table 5).

Table 5. Comparison of TCI scores of OCD patients with and without alexithymia

	Alexithymic (n=8)	Non-Alexithymic (n=35)	P
Novelty Seeking	0.37±0.08	0.45±0.11	0.076
Exploratory Excitability	0.36±0.20	0.49±0.16	0.055
Impulsiveness	0.45±0.17	0,43±0.18	0.856
Extravagance	0.41±0.17	0.46±0.25	0.645
Disorderliness	0.27±0.13	0.41±0.17	**0.037**
Harm Avoidance	0.70±0.13	0.64±0.14	0.277
Anticipatory Worry	0.69±0.27	0.67±0.18	0.850
Fear of Uncertainty	0.83±0.16	0.57±0.18	0.177
Shyness	0.65±0.16	0.54±0.22	0.193
Fatigability	0.64±0.14	0.63±0.19	0.958
Persistence	0.32±0.13	0.60±0.22	**0.002**
Self-directedness	0.48±0.17	0.51±0.15	0.696
Responsibility	0.45±0.17	0.38±0.25	0.488
Purposefulness	0.46±0.24	0.62±0.23	0.090
Resourcefulness	0.47±0.24	0.39±0.26	0.468
Self-acceptance	0.54±0.18	0.55±0.16	0.907
Enlightened Second Nature	0.50±0.23	0.60±0.16	0.149
Cooperativeness	0.59±0.09	0.61±0.16	0.755
Social Acceptance	0.56±0.14	0.60±0.27	0.713
Empathy	0.52±0.20	0.51±0.21	0.966
Helpfulness	0.51±0.10	0.58±0.17	0.294
Compassion	0.62±0.23	0.67±0.30	0.668
Pure-hearted conscience	0.77±0.11	0.71±0.30	0.229
Self-transcendence	0.51±0.10	0.61±0.16	0.137
Self-forgetful	0.55±0.14	0.60±0.21	0.600
Transpersonal Identification	0.43±0.17	0.55±0.23	0.177
Spiritual Acceptance	0.56±0.10	0.68±0.18	0.099
Reward Dependence	0.58±0.15	0.56±0.13	0.642
Sentimentality	0.67±0.20	0.74±0.18	0.381
Attachment	0.53±0.16	0.48±0.23	0.641
Dependence	0.56±0.21	0.46±0.23	0.277

TCI: Temperament and Character Inventory, OCD: Obsessive-compulsive disorder. Statistical method: Pearson correlation test was performed.

Discussion

In this study, which examined alexithymia and temperament-character traits in OCD patients and the healthy control group and which was the first in the literature reviewed, sociodemographic data, temperament-character traits and alexithymia levels of the participants, and the correlation between the symptom severity of OCD patients with alexithymia and temperament-character were investigated. Moreover, OCD patients were grouped in respect of the presence of alexithymia and compared in terms of temperament-character. In our study, the presence of temperament-character traits that differed in OCD patients compared to the control group and high levels of alexithymia were detected; it was revealed that the presence of alexithymia had an effect on OCD severity, and alexithymic OCD patients had different temperament-character traits from non-alexithymic OCD patients.

The sociodemographic findings of the OCD and control groups matched in terms of age and gender are similar. Education level was observed to be high in the control group. OCD is a disease that negatively affects the quality of life and is thought to lead to disability [11,14]. It can be assumed that OCD, which is a chronic disease, causes a low education level in the patient group. In our study, the mean onset age of the disease was 24.9 years, and this result is consistent with the findings in the literature [20].

While the total NS scores and the mean scores of attachments, one of the subdimension of RD, were found to be low, the total HA scores and all the mean sub-dimensional scores were observed to be high. In response to innovation, NS is seen as hereditary predisposition, tendency in the interaction of behaviors such as impulsive decision-making, extravagance, and disorderliness when the possibility of being rewarded appears [3,4]. There are studies which found the total NS scores low in OCD patients, which is similar to our study [21], some studies showed that OCD patients exhibited higher levels of motor and cognitive impulsiveness (NS sub-dimension) than healthy controls [22,23]. However, in our study, no significant difference was detected between the OCD group and the control group in respect of impulsiveness. The fact that the number of our participants was limited, and patients were under treatment can be thought to have affected this result. RD is seen as a hereditary predisposition in the continuity and sustainability of the attitudes such as excessive emotionality and dependence on others' approval [3,4]. It has been stated that high RD scores may be protective against depression [24]. In our study, low RD values may be associated with depressive symptoms that often accompany OCD [21,22]. It seems difficult to formulate the complex interplay between depression and personality. Prospective studies with more patients are needed to clarify this relationship. In parallel with our study, many studies detected high HA scores in OCD patients [6,25]. Lyoo IK et al. examined the post-treatment changes in temperament and character traits in OCD patients and reported that HA scores significantly dropped after treatment [25]. Bejerot et al. asserted that OCD patients were tense and exhausted due to high HA scores and explained the reason behind their avoidance behavior [6]. According to the study of Cloninger et al., people with high HA scores can be very anxious and pessimistic about stressful situations. It is observed that these people are usually nervous, suspicious and hesitant in order to prevent harmful situations [4]. Considering that OCD patients have difficulty in breaking their usual patterns and prioritize safety perceptions, high HA scores are an expected finding. Moreover, high HA levels may be associated with high anxiety levels often found in OCD patients.

In the character dimension of TCI, scores of SD, C total sub-dimensions and the social acceptance sub-dimension of the C dimensions were found to be low whereas the scores of ST total dimension and its Self-forgetful sub-dimension were detected to be high in the OCD group compared to the control group. In the literature, there are more studies that found the SD [26,27] and CS [21,27] scores of OCD patients low. It has been expressed that low SD and C scores reflect immaturity, and the concepts of responsibility belonging to people with low SD and C scores regarding autonomy, themselves and others are less developed [28]. As it is mentioned in the literature that low SD and C scores may indicate personality pathology [24], the results point at the necessity of evaluating the personality pathology in these patients. Another result, the high total ST score, appears to be experienced as losing oneself in OCD patients. Even though it is stated that this situation has not been clarified, in a regression model established in a study, ST was mentioned to be positively associated with anxiety symptoms [24].

As a result of our study, TAS-20 total, TAS-B and TAS-C sub-dimension scores were detected to be higher in the OCD group compared to the control group. While the mean TAS-A sub-dimension score was discovered to be high in the OCD group, this value did not reach a statistically significant level. In the literature, there are more studies in which alexithymia was found in OCD patients at a high level; however, it has been stated that this situation is not specific to OCD [8,11]. In a study, high TAS-A, TAS-B, and total TAS scores were associated with OCD [12]. In a study, in parallel with our results, the relationship between OCD symptoms and TAS-C scores was mentioned [8]. Several studies suggest that there was a positive relationship between alexithymia and obsessive-compulsive behaviors [12], and psychological symptoms were more common among those patients with high alexithymia scores. A study by Rufer and colleagues (2004) searched that alexithymia was permanent in OCD patients, and they tried to predict the permanence of alexithymia after the treatment [29]. As a result, it was found that there was a significant decrease in OCD symptoms and accompanying depressive symptoms with Cognitive Behavioral Therapy; though, it was also found that there was no significant difference in the total TAS score. It is observed that OCD patients have difficulty in defining and expressing their feelings. Our findings are not enough but considering the alexithymia scores that did not decrease despite the treatment, the presence of alexithymia may be related to treatment resistance in OCD patients. Treatment options specific to alexithymia can be tried in resistant OCD patients besides the available treatment.

In the temperament dimension of TCI, the disorderliness score (p: 0.037) and the P dimension score (p:0.002), which are among the sub-dimensions of NS, were found to be low in the alexithymic OCD group compared to the non-alexithymic OCD group. Again, the impulsiveness sub-dimension was found to be low (p: 0.055), which was close to the statistical significance level. Unlike the results which included all the patients with alexithymic and non-alexithymic OCD, the decrease in the disorderliness sub-dimension and especially P dimension scores appears to be evident together with the presence of alexithymia in OCD patients. Persistence can be seen as a hereditary predisposition in the continuity of behavior despite frustration, fatigue, and intermittent reinforcement [4]. This may be the result of experiencing the emotions observed in alexithymia and decreasing the motivation to ensure the continuity of the behavior with decreased emotional response. It may also explain the decrease in

impulsiveness in alexithymic OCD patients who are not in search of novelty.

When the Y-BOCS scores and TAS-20 and TCI correlations were examined in OCD patients, a positive correlation was detected between TAS-C, one of the TAS-20 subscales, and Y-BOCS scores. Similar to the results of our study, it has been reported in many studies that alexithymia increases the severity of OCD symptoms and negatively affects the disease process, including insight, in OCD patients [6,16,17]. TAS-C focuses rather on external reality. It expresses a way of thinking rather than an emotional deficiency [30]. Considering that total TAS-20 and TAS-C scores do not decrease despite treatment [14,29], lack of insight in OCD patients in the presence of alexithymia is observed more often, and the symptom severity increases, the treatment process becomes more difficult. This situation results in a need for specific treatment options in the presence of alexithymia. One of the options is alexithymia therapy. Even though the study of alexithymia is considered challenging by clinicians due to the difficulty in focusing on internal mental processes in OCD patients, some studies suggest that alexithymic features are not completely fixed and can improve with psychotherapy [25].

Limitations

Our study has some limitations. The study cannot represent the entire population due to the limited number of participants. Since the research design of our study was organized to be cross-sectional, causality cannot be determined among the variables. The size of the samples limits the power and generalizability of the study. Personality disorders likely to affect TCI scores were not excluded in patients and healthy controls. Another limitation is that all the scales used were based on self-report. Long-term prospective studies with larger sample sizes are needed to analyze the correlation between temperament-character traits and alexithymia.

Conclusion

In conclusion, OCD patients have temperament-character traits which are different from the healthy control group. High levels of alexithymia and correlations were found in OCD patients. The temperament-character traits in alexithymic OCD patients are different from those of non-alexithymic OCD patients, and the severity of the disease is high. Addition of treatments for alexithymia, especially in alexithymic OCD patients, may increase the effectiveness of treatment. In the presence of symptoms that do not change despite treatment, clinicians need to consider temperament-character and alexithymia. The correlation between temperament-character, alexithymia and drug compliance in OCD patients, response to treatment, symptom differences and prognosis is the subject of future studies.

Conflict of interest: The authors have no potential conflicts of interest to disclose.

	Author Contributions	Author Initials
SCD	Study Conception and Design	MFU, PSG
AD	Acquisition of Data	MFU
AID	Analysis and Interpretation of Data	PSG, MFU
DM	Drafting of Manuscript	MFU, PSG
CR	Critical Revision	MFÜ, PSG

Financial disclosure: All expenses of the research were covered by the authors.

References

1. Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-V). American Psychiatric Association. Translated to Turkish by Ertugrul Koroglu. Ankara: Hekimler Yayin Birligi, 2014.
2. Rice, E. Reflections on obsessive-compulsive disorders: a psychodynamic and therapeutic perspective. Psychoanal Rev 2004;91(1):23-44. https://doi.org/10.1521/prev.91.1.23.33826
3. Cloninger CR. A unified biosocial theory of personality and its role in the development of anxiety states. Psychiatr Dev 1986;4(3):167-226. https://pubmed.ncbi.nlm.nih.gov/3809156
4. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. Arc Gen Psychiatry 1993;50(12):97590. https://doi.org/10.1001/arcpsyc.1993.01820240059008
5. Bejerot S, Schlette P, Ekselius L, Adolfsson R, VonKnorring L. Personality disorders and relationship to personality dimensions measured by the Temperament and Character Inventory in patients with obsessive-compulsive disorder. Acta Psychiatr Scand 1998;98(3):243-9. https://doi.org/10.1111/j.1600-0447.1998.tb10075.x
6. Bejerot S, VonKnorring L, Ekselius L. Personality traits and smoking in patients with obsessive-compulsive disorder. Eur Psychiatry 2000;15(7):395-401. https://doi.org/10.1016/s0924-9338(00)00509-5
7. Sifneos PE. Alexithymia and its relationship to hemispheric specialization affect and creativity. Psychiatr Clin North Am 1988;11(3):287-93. https://pubmed.ncbi.nlm.nih.gov/3067225
8. Bankier B, Aigner M, Bach M. Alexithymia in DSM-IV disorder: comparative evaluation of somatoform disorder, panic disorder, obsessive-compulsive disorder and depression. Psychosomatics 2001;42(3):235-40. https://doi.org/10.1176/appi.psy.42.3.235
9. Herbert BM, Herbert C, Pollatos O. On the relationship between interoceptive awareness and alexithymia: is interoceptive awareness related to emotional awareness? J Pers 2011;79(5):1149-75. https://doi.org/10.1111/j.1467-6494.2011.00717.x
10. Katz IM, Campbell JD. Ambivalence over emotional expression and well-being: Nomothetic and idiographic tests of the stress-buffering hypothesis. J Personality Social Psychol 1994;67(3):513–24. https://doi.org/10.1037/0022-3514.67.3.513

11. Pozza A, Giaquinta N, Dèttore D. The contribution of alexithymia to Obsessive-Compulsive Disorder Symptoms Dimensions: an ınvestigation in a Large Community Sample in Italy. Psychiatry J 2015;2015:707850. https://doi.org/10.1155/2015/707850

12. Roh D, Kim WJ, Kim CH. Alexithymia in obsessive-compulsive disorder clinical correlates and symptom dimensions. J Nerv Ment Dis 2011;199(9):690-5. https://doi.org/10.1097/NMD.0b013e318229d209

13. Kosturek A, Gregory RJ, Sousou AJ. Alexithymia and somatic amplification in chronic pain. Psychosomatics 1998;39(5):399-404. https://doi.org/10.1016/S0033-3182(98)71298-8

14. Rufer M, Ziegler A, Alsleben H, Fricke S, Ortmann J, Bruckner E, et al. A prospective long-term follow-up study of alexithymia in obsessive-compulsive disorder. Compr Psychiatry 2006;47(5):394–8. https://doi.org/10.1016/j.comppsych.2005.12.004

15. Goodman WK, Price LH, Rasmussen SA, Mazure CM, Fleischmann RL, Hill CL, et al. The yale–Brown obsessive compulsive scale. I. Development use and reliability. Arch Gen Psychiatry 1989;46(11):1006-11. https://doi.org/10.1001/archpsyc.1989.01810110048007

16. Karamustafalioglu KO, Ucisik AM, Ulusoy M, Erkmen H. Validity and reliability study of Yale Brown obsession compulsion rating scale. Presented in 29th National Psychiatry Congress, 1993;p(86)

17. Kose S, Sayar K, Ak I, Kalelioglu U, Kirpinar I, Reeves RA, et al. Temperament and character inventory (Turkish TCI): validity, reliability and factor structure. Bull Clin Psychopharmacol 2004;14:107-31.

18. Bagby MR, Taylor GJ, Parker JDA. The twenty-item Toronto Alexithymia Scale-II: Convergent, discriminant, and concurrent validity. J Psychosom Res 1994;38(1):33-40. https://doi.org/10.1016/0022-3999(94)90006-x

19. Gulec H, Kose S, Yazici GM, Citak S, Evren C, Borckardt JJ, et al. Reliability and factorial validity of the Turkish version of the 20-item Toronto Alexithymia Scale (TAS-20). Bull Clin Psychopharmacol 2009;19(3):213-19.

20. De Berardis D, Campanella D, Gambi F, Sepede G, Salini G, Carano A, et al. Insight and alexithymia in adult outpatients with obsessive–compulsive disorder. Eur Arc Psychiatry Clin Neurosci 2005;255(5):350-8. https://doi.org/10.1007/s00406-005-0573-y

21. 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;157(1-3):159-68. https://doi.org/10.1016/j.psychres.2006.06.003

22. Chamberlain SR, Fineberg NA, Menzies LA, Blackwell AD, Bullmore ET, Robbins TW, et al. Impaired cognitive flexibility and motor inhibition in unaffected first-degree relatives of patients with obsessive-compulsive disorder. Am J Psychiatry 2007;164(2):335-8. https://doi.org/10.1176/ajp.2007.164.2.335

23. Grassi G, Pallanti S, Righi L, Figee M, Mantione M, Denys D, et al. Think twice: impulsivity and decision making in obsessive-compulsive disorder. J Behav Addict 2015;4(4):263–72. https://doi.org/10.1156/2006.4.2015.039

24. Jylhä P, Isometsä, E. Temperament, character and symptoms of anxiety and depression in the general population. Eur Psychiatry 2006;21(6): 389-95. https://doi.org/10.1016/j.eurpsy.2005.09.003

25. Lyoo IK, Yoon T, Kang DH, Kwon JS. Patterns of changes in temperament and character inventory scales in subjects with obsessive–compulsive disorder following a 4-month treatment. Acta Psychiatr Scand 2003;107(4):298–304. https://doi.org/10.1034/j.1600-0447.2003.00054.x

26. Bach M, Bach D. Predictive value of alexithymia: a prospective study in somatizing patients. Psychother Psychosom 1995;64(1):43-8. https://doi.org/10.1159/000288989

27. Casey JE, Joyce PR. Personality disorder and TCI in the elderly. Acta Psychiatr Scand 1999;100(4):302-8. https://doi.org/10.1111/j.1600-0447.1999.tb10865.x

28. Soderstrom H, Rastam M, Gillberg C. Temperament and character in adults with Asperger syndrome. Autism 2002;6(3):287-97. https://doi.org/10.1177/1362361302006003006

29. Rufer M, Hand I, Braatz A, Alsleben H, Fricke S, Peter H. A prospective study of alexithymia in obsessive-compulsive patients treated with multimodal cognitive behavior therapy. Psychother Psychosom 2004;73(2):101-6. https://doi.org/10.1159/000075541

30. Dere J, Tang Q, Zhu X, Cai L, Yao S, Ryder AG. The cultural shaping of alexithymia: values and externally oriented thinking in a Chinese clinical sample. Compr Psychiatry 2013;54(4):362-8. https://doi.org/10.1016/j.comppsych.2012.10.013