

The Relationship Of Suicide Risk With Cognitive Flexibility And Social Cognition In Patients With Obsessive Compulsory Disorder

Obsesif Kompulsif Bozukluk Tanılı Hastalarda İntihar Riskinin Bilişsel Esneklik Ve Sosyal Biliş İle İlişkisinin Değerlendirilmesi

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Abstract

Objective: There is a relationship between disease severity and suicide risk in individuals diagnosed with obsessive-compulsive disorder. Within the scope of this research, we aimed to elucidate the importance of treatments aimed at improving social cognitive skills and cognitive flexibility in preventing suicide by evaluating the effect of social cognition and cognitive flexibility on suicide risk in obsessive-compulsive disorder in a descriptive setting.

Method: This prospective, descriptive, cross-sectional study was conducted by face-to-face survey and data collection method. A total of 51 patients aged between 18 and 65, diagnosed with OCD according to DSM-5 criteria were randomized in this research. Yale-Brown Obsession Compulsion Scale (Y – BOCS), Suicide Probability Scale (SPS), Cognitive Flexibility Inventory (CFI), Implicit Test, and Reading Mind from Eyes Test (RMET) were applied to the study participants.

Results: When sociodemographic and clinical data were compared with SPS, suicidal ideation and suicide attempt, no statistically significant difference was found ($p > 0.05$). A positive correlation was found between the Y-BOCS scale and the SPS total and subscales. This correlation was statistically significant ($p < 0.05$). A negative correlation was found between the Y-BOCS scale and CFI, and a negative correlation was found between the total subscales of the SPS and CFI ($p < 0.05$). The CFI scores of people with past suicidal ideation were found to be low ($p < 0.05$). No statistically significant relationship was found between social cognition assessment scales and SPS ($p > 0.05$).

Conclusion: Our study observed that the severity of obsessions and compulsions increased with low cognitive flexibility. Cognitive rigidity can also increase the risk of suicide by increasing the severity of the disease. A significant negative correlation exists between suicidal ideation and cognitive flexibility in OCD patients. It has been evaluated that therapeutic interventions to cognitive flexibility will contribute positively to suicide risk and disease prognosis.

Keywords: Obsessive-Compulsive Disorder, Cognitive Flexibility, Suicide.

Özet

Amaç: Obsesif kompulsif bozukluk tanılı bireylerde hastalık şiddeti ile intihar riski arasında ilişki vardır. Bu araştırma kapsamında sosyal biliş ve bilişsel esnekliğin obsesif kompulsif bozuklukta intihar riskine etkisini betimsel bir ortamda değerlendirerek sosyal bilişsel becerileri ve bilişsel esnekliği geliştirmeye yönelik tedavilerin intiharı önlemedeki önemini ortaya koymayı amaçladık.

Yöntem: Bu prospektif, tanımlayıcı, kesitsel araştırma, yüz yüze anket ve veri toplama yöntemiyle yapılmıştır. Bu çalışmada DSM-5 kriterlerine göre OKB tanısı almış, yaşları 18 ile 65 arasında değişen toplam 51 hasta randomize edilmiştir. Çalışmaya katılanlara Yale-Brown Obsession Compulsion Scale (Y – BOCS), İntihar

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Olasılığı Ölçeği (İÖÖ), Bilişsel Esneklik Envanteri (BEE), Örtük Test ve Gözlerden Zihin Okuma Testi (GZOT) uygulandı.

Bulgular: İÖÖ, intihar düşüncesi ve intihar girişimi ile sosyodemografik ve klinik veriler karşılaştırıldığında istatistiksel açıdan anlamlı bir fark görülmemiştir ($p>0,05$). Y-BOCS ölçeği ile İÖÖ total ve alt ölçekleri arasında pozitif korelasyon saptanmıştır. Bu korelasyon istatistiksel olarak anlamlı ölçülmüştür ($p<0,05$). Y-BOCS ölçeği ile BEE arasında negatif korelasyon, İÖÖ total ve alt ölçekleri ile BEE arasında da negatif korelasyon saptanmıştır ($p<0,05$). Geçmiş intihar düşüncesine sahip kişilerin BEE skorları düşük olarak saptanmıştır ($p<0,05$). Sosyal biliş değerlendirme ölçekleri ile İÖÖ arasında istatistiksel olarak anlamlı bir ilişki saptanamamıştır ($p>0,05$).

Sonuç: Obsesif kompulsif bozuklukta bilişsel esnekliğin az olması ile, hastalık şiddetinin ve intihar olasılığının yüksek olması arasında ilişki saptanmıştır. Hastalık şiddetinin intihar olasılığını artırmasında bilişsel katılımın aracı rol üstlendiği düşünülmüştür. Bilişsel esnekliğe yapılacak terapötik müdahalelerin intihar riski ve hastalık prognozuna olumlu katkı yapacağı değerlendirilmiştir.

Anahtar Kelimeler: Obsesif Kompulsif Bozukluk, Bilişsel Esneklik, İntihar.

INTRODUCTION

Obsessive-compulsive disorder (OCD) is a mental disorder first described in the 19th century, characterized by obsessions, compulsions, or both. Obsessions are impulses, phantasies, or thoughts that repeatedly enter a person's mind, that cannot be dismissed by conscious effort, and that cause discomfort (1). Compulsions are behaviors or mental acts that a person does to neutralize obsessions. Although compulsions initially relieve the anxiety caused by the obsessions, they can also cause anxiety and distress throughout the disease. Obsessions and compulsions are alien to one's self, that is, ego-dystonic. OCD, like other mental disorders, causes loss of time and leads to impairments in social, occupational, and other important areas of functioning (2).

OCD is one of the most common mental disorders. As a result of studies conducted in different continents, the lifetime prevalence rate is thought to be 2 – 3%. Obsessive-compulsive disorder (OCD), described in the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM – 5), can be defined as the physical and mental actions taken to reduce obsessions and the anxiety they cause. It is defined by the co-existence of compulsions and significant loss of functionality due to obsessions and compulsions (3).

Obsessions and compulsions may vary according to age, gender, and genetic characteristics. The most common obsessions in adults are, in order, contagion, suspicion (skepticism), somatic obsessions, symmetry, aggression and sexual obsessions. The most common compulsions are in order; checking, washing, counting, verification, symmetry, and order, stacking. Contagion obsession is the most common type. Recent studies indicate that OCD increases the risk of suicide independently of other factors (2,4).

It is stated that cognitive functions are impaired in OCD patients compared to the healthy population. Although cognitive skills are not included in the diagnostic criteria of OCD, they significantly affect functionality and disease severity. The most researched cognitive functions in OCD are; short-term memory, executive functions, decision-making, attention, verbal fluency, and verbal memory (5). Many psychiatric disorders are characterized by impairments in the ability to successfully and meaningfully interact with people. Therefore, describing the social difficulties observed in psychiatric disorders as social cognition disorders gives us a new dimension of thought. One of the diseases in which social cognitive abilities are most impaired is obsessive-compulsive disorder (6).

There is a relationship between disease severity and suicide risk in individuals diagnosed with obsessive-compulsive disorder. Decreased cognitive flexibility; It increases the risk of suicide in obsessive-compulsive disorder patients. Social cognitive disability; increases the risk of suicide in obsessive-compulsive disorder patients (7).

In previous literature, there are studies on the effect of social cognition on the severity of OCD, but there is no study investigating its effect on suicide risk. At the same time, the effect of cognitive flexibility, which is a sub-branch of executive functions, on suicide risk in OCD has been separately studied in limited numbers in the literature (8). Within the scope of this research, we aimed to elucidate the importance of treatments aimed at improving social cognitive skills and cognitive flexibility in preventing suicide by evaluating the effect of social cognition and cognitive flexibility on suicide risk in obsessive-compulsive disorder in a descriptive setting.

METHOD

This is a prospective, descriptive, and cross-sectional study. It was conducted by face-to-face survey and data collection method. It was carried out between 1 May 2022 and 1 November 2022 in Balıkesir University Faculty of Medicine, Department of Psychiatry Outpatient Clinic and Clinic. A total of 51 OCD patients were randomized. All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Ethics committee approval has been granted from our institution on 22.03.2022 with protocol number 20224/37, and informed consent has been obtained from all participants.

Patients aged between 18 and 65, diagnosed with OCD according to DSM-5 criteria, and who completed at least five years of primary education were randomized in this research. Yale-Brown Obsession Compulsion Scale (Y – BOCS), Suicide Probability Scale (SPS), Cognitive Flexibility Inventory (CFI), Implicit Test, and Reading Mind from Eyes Test (RMET) were applied to the study participants.

In order to determine the study group, the sample size was determined through the G-Power 3.1 program. The statistical significance level was accepted as $\alpha=0.05$, and the power of the study was 80%. With this method, it was decided to include a minimum of 47 patients in the study.

Statistical Analysis

Statistical analyzes were performed using SPSS version 26 software. The conformity of the variables to the normal distribution was examined using visual (histogram and probability graphs) and analytical methods (Kolmogorov-Smirnov/ Shapiro-Wilk tests). Descriptive analyzes were given using mean and standard deviations for parametric variables. Student T-test and One Way ANOVA (post hoc Bonferroni) were preferred for parametric quantitative data for independent groups. Mann-Whitney U Test was preferred for non-parametric quantitative data when statistical significance was determined between two independent groups. Pearson Correlation Test was used to examine the correlation of parametric data, and Spearman Correlation Test was used for non-parametric data. Nominal data are given using crosstabs. The statistical significance level (p-value) was accepted as 0.05.

RESULTS

A total of 51 patients were included in this study. Twelve (23%) patients were male, and 39 (77%) were female. The mean age of the patients was 35.2 ± 12.93 (minimum 18, maximum

64). It was determined that 66.6% of the patients had high school or higher education. A majority of the patients(80%) lived with their families, and 20% lived alone.

Table1. Correlation of Y-BOCS Scale with Other Scales

		Y-BOCS TOTAL	Y-BOCS OBSESSION	Y-BOCS COMPULSION
SPS –total	r	0,388**	0,346**	0,348**
	p	0,005**	0,013**	0,012**
	n	51	51	51
SPS – negative self-esteem	r	0,417	0,376**	0,414**
	p	0,002**	0,007**	0,003**
	n	51	51	51
SPS – suicidal intention	r	0,372**	0,354**	0,346**
	p	0,007**	0,011**	0,013**
	n	51	51	51
SPS – hopelessness	r	0,278**	0,239	0,255
	p	0,049**	0,091	0,071
	n	51	51	51
SPS – hostility	r	0,174	0,19	0,071
	p	0,223	0,172	0,622
	n	51	51	51
Cognitive Flexibility	r	-0,431**	-0,398**	-0,423**
	p	0,002**	0,004**	0,002**
	n	51	51	51
Implicit Test	r	-0,032	-0,001	-0,049
	p	0,825	0,995	0,561
	n	51	51	51
RMET	r	-0,164	-0,108	-0,225
	p	0,251	0,452	0,112
	n	51	51	51

The previous psychiatric history of the patients revealed that 41.2% (n=21) had suicidal ideation in the past, and 9.8% (n=5) had a history of suicide attempts. Additionally, 17.6% (n=9) of the patients had suicidal ideation in their relatives, while 3.9% were in first-degree closeness, 9.8% were in second-degree closeness, and 3.9% were in the level of friends without any relationship.

Table 2. Correlations of SPS with Cognitive Flexibility

		SPS - hopelessness	SPS – suicidal intentions	SPS – hostility	SPS – Negative self- esteem	SPS – Total
Cognitive Flexibility Inventory	r	-0,181	-0,275	-0,139	-,301*	-,326*
	p	0,204	0,051	0,33	0,032	0,02
	N	51	51	51	51	51

The mean OCD duration of the patients was 10.29±9.28 years(minimum1, maximum 40). In terms of medication, 11.8% (n=6) of the patients were not currently using drugs, 88.2%

(n=45) were using drugs, and the most commonly used drug was selective serotonin reuptake inhibitors (SSRIs)(43.1%).

The comorbid disease was detected in 25.5% of the patients, and no additional disease was detected in 74.5% of the patients. The most common comorbidity was hypertension, with a rate of 3.9%. It was determined that 13.7% of the patients were hospitalized and treated for psychiatric illnesses. It was shown that 86.3% did not have a history of hospitalization.

A positive correlation was found between Y-BOCS scale scores and SPS-total, SPS-negative self-perception, SPS-hopelessness, and SPS-suicidal ideation subscales. The differences between them were statistically significant ($r=0.388, 0.417, 0.007$) ($p<0.05$). A negative correlation was found between Y-BOCS scores and Cognitive Flexibility Inventory, and this correlation was statistically significant ($r=- 0.431$) ($p<0.05$). When the Y-BOCS scores were compared with the Implicit Test(IT), which measures social cognition, and the RMET scores, no statistical difference was found between them ($p>0.05$) (Table 1, Table 2, and Table 3).

Table 3. Correlations of the Suicide Probability Scale with RMET and implicit test

		SPS – hopelessness	SPS – suicidal intentions	SPS – hostility	SPS – Negative self-esteem	SPS – Total
RMET	r	0,107	0,022	0,158	-0,163	0,06
	p	0,454	0,878	0,267	0,254	0,674
	N	51	51	51	51	51
Implicit Test	r	0,129	-0,046	0,116	-0,115	0,023
	p	0,365	0,749	0,419	0,422	0,875
	N	51	51	51	51	51

A negative correlation was found between cognitive flexibility and SPS and its sub-categories, and the negative correlations with SPS-Total, and SPS-Negative Self-Perception were statistically significant ($r=-0.326,-0.301$) ($p<0.05$).

The relationship between suicidal ideation history and cognitive flexibility was examined. While the mean \pm SD values of the Cognitive Flexibility Inventory were 10.91 for those with suicidal ideation (mean 60.75), it was calculated as 9.12 (mean 68.97) for those without suicidal ideation. A negative correlation was found between cognitive flexibility and suicidal ideation, and the difference between the two groups was statistically significant ($p<0.05$).

DISCUSSION

Previous literature elaborated that the risk of suicide in OCD patients was 3 times higher, and deaths due to suicide were 10 times higher compared to healthy individuals (9). According to published articles, 56% of OCD patients had a desire to die, 46% had thoughts of death, 20% had suicidal plans, and 10% were prepared to commit suicide (10). More than 90% of OCD patients had decreased self-esteem, 57% had suicidal ideation, and 12.2% had a history of suicide attempts. In a recent study conducted in 2022, lifetime thoughts of death in OCD were found to be 64.3%, and suicide attempts were found to be higher than expected, with 16.3% (11). Our study found that 41.2% of the patients had suicidal ideation, and 9.8% attempted suicide, consistent with the literature.

A study by Albert et al. found that the risk of suicide in OCD increased as the severity of obsessions and compulsions increased (12). Again, a recent meta-analysis stated that the risk

of suicide increases as the severity of obsessions increases (13). In our study, according to the literature, it was determined that as the Y-BOCS total and subscales scores increased, there was an increase in the SPS, which was found to be statistically significant.

Since the 2000s, the effects of executive functions on suicide have been investigated. In a study by Kim et al. on patients with schizophrenia, scores on psychomotor speed, attention, working memory, word memory, and executive functions were found to be higher in patients with a history of suicide than in patients without a history of suicide (14). Nangle et al. found that schizophrenic patients with better executive functions had more advanced suicide attempt planning skills (15). In the literature, when OCD patients are examined, it has been found that decision-making is impaired, and the decision-making time is prolonged, especially in cases of doubt and uncertainty. The effect of executive functions on the risk of suicide in OCD is also associated with past and active suicidal ideation and IOS scores decreased in OCD patients with high decision-making skills (16). Studies investigating the effects of cognitive flexibility defined under executive functions on suicide are limited. Impairments in cognitive flexibility are thought to lead to suicide, leading to mental illnesses such as major depressive disorder, OCD, and anorexia nervosa. Dickoff et al. stated that cognitive rigidity, inadequate problem-solving skills, and hopelessness can be seen together, which may be a predisposing factor to suicide (17).

Our study found a negative correlation between the cognitive flexibility inventory and the suicide probability scale total and negative self-perception subscale. Cognitive rigidity is thought to cause suicide by causing an exaggerated sense of responsibility, misinterpretation of meaning, and inability to develop alternative thoughts described in the cognitive model of obsessive-compulsive disorder. Differences between studies may be due to the sample size, the characteristics of the sample's diagnosis group, the socio-cultural and economic characteristics of the place where the study was conducted, the religious beliefs of the participants, and the different tests used. Our study determined that individuals with weak cognitive flexibility had a higher rate of past suicidal ideation. The same relationship was not found between suicide attempts and cognitive flexibility. This finding is thought to be consistent with previous studies (18). We think that our study is valuable in terms of investigating the risk of suicide in OCD, apart from cognitive flexibility and other executive functions.

Social isolation, deterioration in interpersonal interaction, social conflicts and separations, and loss of social support have an important place among the suicide risk factors determined by the World Health Organization (WHO) (19). The help-seeking behavior of individuals with weak social cognitive skills is thought to decrease, and the possibility of converting suicidal ideation into an attempt increases. The most studied area of social cognition is the theory of mind skills. Nestor et al. stated that the lack of theory of mind, which is defined as a negative perception of the thoughts and feelings of others, causes the person to see himself as a burden. On the contrary, some comments that seeing oneself as a burden may lead to disorders in the theory of mind. Despite two different interpretations, Nestor argues that excessive mentalization, which is considered a specific theory of mind disorder, increases suicidal ideation (20).

Considering the relationship between social cognition and suicide risk in psychiatric diseases, it was stated that weak social cognition functions increased the risk of suicide in patients with first-episode psychosis in 2022. This finding has explained that perceived social stress increases as a result of high sensitivity to social and emotional data, and the risk of suicide increases with disorders in stress management skills (17,21). Jollant et al. indicated the higher

imagination test scores in psychosis patients with a high risk of suicide to the increased sensitivity of individuals to social cues and verbal expressions (22).

Another group of diseases in which social cognition is frequently studied is depressive disorders. In a study with 189 participants in total, the severity of depression and face recognition test scores of students with and without active psychiatric complaints were compared. As the depression scores increased, difficulties in recognizing neutral and positive faces were detected. Negative schemas in depressed patients have been cited as the reason for this (23). Depressed patients describe neutral faces as sad and happy faces as neutral, no information was found in this study that defects in face recognition skills increase suicidal behavior. Depressed patients without suicidal behavior recognize negative faces as well as healthy controls, while the suicidal group has less success in recognizing negative faces. When the total scores were compared, the face recognition performance of the suicidal group was lower but not statistically significant (24). Szanto et al., on the other hand, compared depressed patients with and without suicide attempts and found a significant reduction in RMET scores in those who attempted suicide (25).

When OCD studies are analyzed, although it is seen that the importance of social cognition is neglected, chronic problems in social, cognitive, and emotional functions are stated in individuals with this disease. The fact that brain regions that provide social cognitive processes, such as the amygdala, anterior cingulate cortex, and insula, are also shown in the pathophysiology of OCD supports this relationship (26). Salazar et al. argue that with the development of social cognitive skills and social relations becoming one of the important issues in the prevention and treatment of OCD, treatment response will increase, and treatment discontinuation rates will decrease (27). Although social cognitive impairments are associated with decreased response to treatment, social cognition has not been specifically evaluated in OCD, and the disease's quality of life has generally been investigated (28).

Research on subtypes of social cognition, such as the theory of mind in OCD, is very scarce. Recent studies have reported low theory of mind skills in OCD (29). In 2022, Bora reported that in a meta-analysis study consisting of 1161 OCD patients and 1329 healthy controls, those with OCD showed theory of mind deficits (30). While Aigner et al. identified significant difficulty in recognizing sad faces in OCD, they found that neutral faces were evaluated as sad and happy faces as neutral or sad (31). In the study by Corcoran et al., OCD patients scored significantly lower than healthy controls in recognizing facial expressions of disgust (32).

Although social cognitive skills have been examined in many psychiatric diseases and suicide cases, no study has been found to evaluate the effect of social cognition on suicide risk in OCD. Our study found no significant relationship between the tests measuring social cognition and the suicidal probability scale total score and subscale values in OCD patients. Despite the knowledge that executive functions can affect social cognitive skills, the strength of our study was that RTOT is a test representing the emotional domain of social cognition and is not affected by executive functions. There was no significant relationship between past suicidal ideation and suicide attempt and social cognition tests. In our study, it was evaluated that social cognition had no effect on disease severity in OCD. This finding was considered among the reasons contributing to the lack of effect of social cognition on suicide risk. We think that the small sample size, the absence of active suicidal thoughts in the patients in our study, and the exclusion of the diagnosis of moderate to severe depressive episode were effective in our results. There is a need to repeat the tests with studies with large samples. The strengths of our study are that it is the first study in the literature on this subject, the diagnosis

of OCD is made in the presence of an experienced clinician, and the RMET is unaffected by executive dysfunctions.

CONCLUSION

Our study observed that the severity of obsessions and compulsions increased if cognitive flexibility was low. Cognitive rigidity can also increase the risk of suicide by increasing the severity of the disease. A significant negative correlation exists between suicidal ideation and cognitive flexibility in OCD patients. It has been evaluated that therapeutic interventions to cognitive flexibility will contribute positively to suicide risk and disease prognosis.

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Ethical Declaration: All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Ethics committee approval has been granted from our institution. Informed consent has been obtained from all participants.

Abbreviations

CFI	: Cognitive Flexibility Inventory
DSM – 5	: Diagnostic and Statistical Manual of Mental Disorders Fifth Edition
IT	: Implicit Test
OCD	: Obsessive-compulsive disorder
RMET	: Reading Minds from the Eyes Test
SD	: Standard Deviation
SPS	: Suicide Probability Scale
SPSS	: Statistical Package for the Social Sciences
SSRI	: Selective serotonin re-uptake inhibitor
WHO	: World Health Organization
Y – BOCS	: Yale-Brown Obsession Compulsion Scale

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