

# Relationship Between Obsessive Beliefs, Suicidal Ideation, and Biological Rhythm in Patients with Depressive Disorder

Meltem Puşuroğlu,<sup>1</sup> Bülent Bahçeci,<sup>2</sup> Fatmagül Helvacı Çelik,<sup>3</sup>  
Kader Semra Karataş,<sup>2</sup> Çiçek Hocaoglu<sup>3</sup>

<sup>1</sup>Department of Psychiatry,  
Rize State Hospital, Rize, Turkey

<sup>2</sup>Department of Mentality of  
Mental Health and Diseases,  
Recep Tayyip Erdoğan University  
Faculty of Medicine, Rize, Turkey

<sup>3</sup>Department of Psychiatry,  
Muş State Hospital, Muş, Turkey

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Correspondence:  
Meltem Puşuroğlu,  
Rize Devlet Hastanesi, Psikiyatri  
Polikliniği, 53100 Rize, Turkey  
E-mail: eritem@hotmail.com



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## ABSTRACT

**Objective:** The aim of the present study was to examine the relationship between obsessive beliefs, suicide behavior, and biological rhythm in patients with depressive disorder.

**Methods:** A total of 100 patients and 100 controls were included in the study. The Hamilton Depression Rating Scale, the Suicide Behaviors Questionnaire, the Obsessive Beliefs Questionnaire, and the Biological Rhythms Interview of Assessment in Neuropsychiatry were used to assess the participants. Statistical analysis was performed using IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp., Armonk, NY, USA).

**Results:** A higher level of obsessive belief was found in the depressive disorder patients compared with the control group. A positive relationship was determined between obsessive beliefs and suicide behavior and biological rhythm, but no relationship was seen between obsessive beliefs and suicide.

**Conclusion:** The study results indicate that there is a relationship between the obsessive beliefs of depressive patients and their biological rhythm.

## INTRODUCTION

Depressive disorder is a disease that negatively affects quality of life and can lead to a decreased ability to function well.<sup>[1,2]</sup> It is a syndrome with a course of profound sadness, which can lead to thoughts and feelings of pessimism and hopelessness, and to a deterioration of biological rhythms, such as appetite and sleep.<sup>[3]</sup> Suicidal ideation is also a significant issue in depressed patients. It was reported that 60% of those who died as a result of suicide had been diagnosed with depressive disorder or another mood disorder.<sup>[4,5]</sup> Among those with severe depression, 7% to 11% attempt suicide.<sup>[6]</sup> Therefore, individuals with depression should be carefully evaluated in terms of the risk of suicide.

Obsessive personality traits, such as meticulousness, taking on excessive commitments, and perfectionism, are frequently observed in patients with depression.<sup>[7-9]</sup> Such characteristics have a negative effect on quality of life when they become extreme or compulsive. Obsessive beliefs make it difficult for individuals to adapt to life experiences, which can increase feelings of despair. Suicidal ideation and suicide attempts are observed more frequently in this population compared with the healthy population.<sup>[10]</sup> For this reason, the relationship between suicidal thoughts and obsessive beliefs has great importance. Studies have also reported that in individuals with obsessive-compulsive disorder (OCD), in which obsessive beliefs have a significant role, the circadian rhythm is impaired.<sup>[11]</sup> The physiological processes and biological rhythms of living beings are

part of evolution and ensure adaptation to the universe.<sup>[12]</sup> Numerous activities, such as eating, drinking, migration, and photosynthesis, occur according to such rhythms.<sup>[13]</sup> Disorders of the 24-hour cycle of the circadian rhythm are often seen in depression. The central nervous system is affected by deterioration of the circadian rhythm and disorders of sleep pattern. Other regulatory systems, such as metabolism, the immune system, and body heat can also suffer ill effects. Among patients with depressive disorder, 90% are observed to have insomnia, while a smaller number sleep excessively. The most common symptom of depression is trouble falling asleep. Patients often experience difficulty sleeping through the night, and instead, feel restless and distressed. Patients also often wake up at a certain time 2 or 3 hours earlier than intended and are unable to fall back to sleep (terminal insomnia).<sup>[7]</sup>

The objective of this study was to analyze the importance of obsessive beliefs in depressive disorder and the association with biological rhythm and suicidal ideation. Awareness of the significant role of the beliefs of an individual in the cognitive basis of anxiety disorders is increasing every day. There are numerous studies examining obsessive beliefs in anxiety disorders and OCD. However, obsessive beliefs in depressive disorder and the clinical reflection of this cognitive impairment have not been explored. When the prevalence of depressive disorder and the risk of suicide are taken into consideration, awareness of cognitive disorders underlying the disease would seem to be important in treatment of these patients. The present study is intended to contribute to the literature by demonstrating the fact that obsessive beliefs not only contribute to anxiety disorders, but to depression, as well.

## MATERIAL AND METHODS

A total of 100 patients aged between 18 and 65 years who met the criteria for depressive disorder according to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition, were literate, not using psychotropic medication, and were without any additional medical condition were included in the study, as well as 100 healthy individuals from the hospital personnel as a control group. The control group and the patient group were comparable in terms of age and gender distribution. The following scales were administered to the study participants:

The Hamilton Depression Rating Scale (HAM-D) measures the severity of depression and changes in the level of severity. A validity and reliability study of the Turkish version of the scale has been conducted. A score of 0–7 is considered to be normal, 8–13 suggests mild depression, 14–18 moderate depression, 19–22 severe depression, and a score of 23 points or more is indicative of very severe depression.<sup>[14]</sup>

The Suicide Behaviors Questionnaire (SBQ) was created in 1981 by Linehan et al. A Turkish validity and reliability study of the scale was performed by Bayam et al. in 1995.<sup>[15]</sup> It is a measure of risk of suicidal behavior based on past suicidal thoughts and attempts.

The Obsessive Beliefs Questionnaire (OBQ) was developed by the Obsessive Compulsive Cognitions Working Group. It is a scale consisting of 44 items that assess heightened sense of responsibility/exaggerated threat perception, perfectionism/ intolerance of uncertainty, and the importance given to one's thoughts /controlling thoughts.

The Turkish version of the Biological Rhythms Interview of Assessment in Neuropsychiatry (BRIAN) is an interviewer-administered Likert-type instrument with 21 items that examines 4 main areas related to circadian rhythm disturbance, namely: sleep, activities, social rhythms, and eating patterns.<sup>[16]</sup>

All of the participants also completed a sociodemographic data form (age, gender, marital status, education status) and provided informed consent. Ethical approval of the study was received from the ethics committee of Recep Tayyip Erdogan University on April 17, 2015.

The research data were analyzed using the IBM SPSS Statistics for Windows, Version 22.0 (IBM Corp., Armonk, NY, USA) program. Descriptive statistics were presented as mean and percentage. The Pearson chi-square test was applied to categorical variables, while the Mann-Whitney U test was used to evaluate statistical significance between independent groups. Spearman's rank correlation coefficient was used to measure the statistical dependence between the ranking of variables. The level of statistical significance was accepted as  $p < 0.05$ .

## RESULTS

No statistical difference was found between the patients and the control group in terms of socio-demographic data (Table 1).

Statistically significant differences were found in terms of the OBQ, HAM-D, and BRIAN scores ( $p < 0.001$ ) (Table 2).

There was a weak positive relationship between HAM-D scores and BRIAN activity, social rhythm, and eating habit sub-dimension scores of the patients ( $r = 0.212$ ,  $r = 0.263$ , and  $r = 0.206$ , respectively), while there was a strong positive correlation between HAM-D scores and suicide behavior of the patients ( $r = 0.775$ ). There was a weak positive relationship between OBQ responsibility sub-dimension scores and BRIAN dominant rhythm pattern ( $r = 0.295$ ) of the patients, as well as between suicide behavior and BRIAN sleep, social rhythm, and eating habits sub-dimension scores ( $r = 0.222$ ,  $r = 0.295$ ,  $r = 0.222$ ,  $r = 0.222$ , respectively) of the patients ( $p < 0.05$ ) (Table 3).

**Table 1.** Distribution of sociodemographic data of study groups

	Patient (n=100)			Control (n=100)			p
	n	%	Mean±SD	n	%	Mean±SD	
Age (years)			36.77±12.70			38.12±12.42	0.399
Gender							
Male	37	45.7		44	54.3		0.313
Female	63	52.9		56	47.1		
Marital status							
Married	70	48.6		74	51.4		0.529
Other (single/divorced/widow/widower)	30	53.6		26	46.4		
Level of education							
Primary education	40	49.4		41	50.6		0.947
High school	35	49.3		36	50.7		
University	25	52.1		23	47.9		
Place of residence							
City	79	48.5		84	51.5		0.466
Town/village	21	56.8		16	43.2		
Monthly total household income							
≤1000 TL	20	47.6		22	52.4		0.509
1001–2000 TL	45	54.9		37	45.1		
>2000 TL	35	46.1		41	53.9		

SD: Standard deviation.

**Table 2.** Distribution of scale scores among study groups

	Patient (n=100)	Control (n=100)	p
	Mean±SD	Mean±SD	
Obsessive Beliefs Questionnaire-Responsibility	65.79±25.06	47.88±22.84	<0.001
Obsessive Beliefs Questionnaire-Perfectionism	74.08±24.56	51.19±21.49	<0.001
Obsessive Beliefs Questionnaire-Thoughts	45.57±19.54	34.86±16.67	<0.001
Obsessive Beliefs Questionnaire-Total	182.69±56.94	133.51±53.57	<0.001
Hamilton Depression Rating Scale-D	26.19±6.58	5.20±1.72	<0.001
Biological Rhythms Interview of Assessment in Neuropsychiatry-Sleep	15.03±2.89	7.93±2.57	<0.001
Biological Rhythms Interview of Assessment in Neuropsychiatry-Activities	14.59±4.50	7.13±1.86	<0.001
Biological Rhythms Interview of Assessment in Neuropsychiatry-Social rhythm	10.77±3.51	5.70±1.71	<0.001
Biological Rhythms Interview of Assessment in Neuropsychiatry-Eating habits	8.82±3.76	5.53±1.59	<0.001
Biological Rhythms Interview of Assessment in Neuropsychiatry-Dominant rhythm pattern	6.36±1.76	3.38±0.69	<0.001

SD: Standard deviation.

## DISCUSSION

The significance of obsessive beliefs, especially in OCD and anxiety disorders, has been emphasized in many studies. Obsessive beliefs include perfectionism, giving

excessive importance to one's thoughts, and an increased sense of responsibility. These types of obsessive beliefs are considered part of the cognitive structure underlying OCD; studies have determined that individuals with

**Table 3.** Correlation of scale scores and suicide behavior of the patients

	HAM-D	BRIAN-Sleep	BRIAN-Activities	BRIAN-Social Rhythm	BRIAN-Eating	BRIAN-Dominant Rhythm	Suicide Behavior
Patient Group (n=100)							
HAM-D	1.000	0.192	0.212*	0.263**	0.206*	-0.195	0.775**
OBQ-R	0.058	-0.102	-0.056	0.005	0.057	0.295**	0.163
OBQ-P	0.080	-0.082	0.006	-0.080	-0.048	0.091	0.133
OBQ-T	-0.015	-0.081	-0.109	-0.124	0.117	0.026	-0.073
OBQ-Total	0.033	-0.167	-0.052	-0.048	0.065	0.158	0.118
Suicide Behavior	0.775**	0.222*	0.169	0.265**	0.201*	0.014	1.000

\*p<0.05; \*\*p<0.01. Spearman correlation coefficient. BRIAN: Biological Rhythms Interview of Assessment in Neuropsychiatry; HAM-D: Hamilton Depression Rating Scale; OBQ: Obsessive Beliefs Questionnaire; P: Perfectionism; R: Responsibility; T: Thoughts.

OCD have more obsessive beliefs. Tümkaya et al. reported that obsessive beliefs were more prevalent in OCD patients compared with a healthy control group.<sup>[17]</sup> Shams et al. also found that OBQ scores of individuals with OCD were significantly higher than those of a healthy control group.<sup>[18]</sup> The cognitive and neuroanatomical basis of OCD shares many common points with depressive disorder. There are data indicating that areas of the brain, such as the limbic system, the thalamus, and the caudate nucleus, which have role in development of OCD, also have a role in development of depressive disorder.<sup>[19]</sup> Similarly, serotonergic abnormalities known to exist in OCD also exist in depressive disorder.<sup>[20]</sup> The selective serotonin reuptake inhibitors utilized in treatment is one of the points the 2 diseases have in common. Furthermore, it is also known that some personality traits particularly create the tendency for the development of OCD and depressive disorder.<sup>[21]</sup> In a study conducted by Konkan et al., it was observed that obsessive beliefs were found to be significantly more present in individuals with panic disorder compared with a healthy control group.<sup>[22]</sup> Therefore, in light of all this information, it could be suggested that obsessive beliefs may be important in depression, as in OCD and other anxiety disorders. There are few studies examining the relationship between depressive disorder and obsessive beliefs in the literature. In a study conducted by Bahceci et al. in our country, it was observed that patients with depressive disorder had more obsessive beliefs than a control group.<sup>[23]</sup> Purdon and Clark revealed that obsessive thoughts had a correlation to depressed mood.<sup>[24]</sup> Suicide attempts and suicidal thoughts are observed more frequently in depressive disorder, and depressed patients also have more disorders related to biological function, such as sleep, appetite, and circadian rhythm. Obsessive beliefs may play a role in the development of depressive disorder, and these symptoms, which are common with depressive disorder, may be related to obsessive beliefs.

Examination of the patient and control groups in our study revealed a statistically significant difference in OBQ total score and OBQ sub-dimension scores of responsibility (exaggerated perception of responsibility/ threat perception), perfectionism, (unrealistic standards/uncertainty intolerance), and thoughts (importance given to thoughts/controlling thoughts) in patients with depressive disorder compared with healthy volunteers ( $p<0.001$ ). The data obtained in the study suggest that obsessive beliefs may be important in depressive disorder.

When the 2 groups in our study were compared, BRIAN sleep, activities, social rhythm, eating habits, and dominant rhythm pattern scores among the patients were significantly higher than in the control group ( $p<0.001$ ). Our results were similar to those seen in the literature.<sup>[25]</sup> When this study is evaluated in terms of biological rhythm and suicide behavior, it is notable that there was a weak but statistically significant positive relationship between suicide behavior and the sleep, social rhythm, and eating subscale scores ( $p<0.05$ ). The data support a relationship between biological rhythm and suicide, particularly in terms of suicidal ideation and severity of suicidal ideation.

No correlation was seen between suicidal ideation and obsessive beliefs in patients with depression. Further studies are needed to support this finding, as none were found in the literature.

There are no studies directly examining the relationship between obsessive belief and suicidal behavior and biological rhythm in the literature. In this study, it was thought that obsessive beliefs may be important in depressive disorder, and accordingly, these beliefs may affect suicidal behavior and biological processes. Depressive disorder, suicidal thoughts, and biological disorders are frequently seen together in the clinic.

Depressive disorder is still one of the most common reasons for a decline in capacity. Suicide behavior, which is high in individuals with depressive disorder, is a global

concern. Diagnosing depressive disorder and starting effective treatment as early as possible is very important. In particular, the risk factors for this disorder should be well known for appropriate management of treatment. The cognitive disorders underlying the symptoms of these patients can be evaluated and studied. Obsessive beliefs may be observed in healthy individuals, as well as accompanying disease. Therefore, these issues may be important in the treatment process. This study was an examination of the effect of obsessive beliefs on suicidal ideation and biological adjustment in depressive disorder patients. There are currently a limited number of studies on this subject; the present study is important in terms of bringing a new perspective to the cognitive aspect of depression.

Suicide is a subject that has very broad biological, social, and psychological facets. It can accompany numerous pathologies, including depression. It can also be a response to a stressful situation in normal individuals. Suicide is an important cause of preventable death. Suicidal ideation must be questioned, and conditions that may lead to suicide should be evaluated carefully. It is very important for clinicians to know and determine what may lead to suicide, and to work on this issue.

The limitations of this study include the small size of the sample and the fact that all of the participants lived in the same region.

A positive relationship was determined between depressive disorder and obsessive beliefs in the present study, as well as between biological rhythm and obsessive beliefs in patients with depressive disorder. No relationship was found between suicidal ideation and obsessive beliefs.

#### Ethics Committee Approval

Approval has been obtained from the Recep Tayyip Erdogan University Ethics Committee.

#### Informed Consent

Approval was obtained from the patients.

#### Peer-review

Internally peer-reviewed.

#### Authorship Contributions

Concept: M.P, B.B.; Design: M.P, B.B.; Data collection &/or processing: M.P, F.H.Ç., K.S.K.; Analysis and/or interpretation: M.P, Ç.H.; Literature search: M.P, F.H.Ç., Ç.H.; Writing: M.P, B.B.; Critical review: M.P, B.B., F.H.Ç., K.S.K., Ç.H.

#### Conflict of Interest

None declared.

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## Depresyon Hastalarında Obsesif İnanışların, İntihar Düşüncesi ve Biyolojik Ritimle İlişkisi

**Amaç:** Çalışmamızda depresif bozukluklu hastalarda obsesif inanışların, intihar düşüncesi ve biyolojik ritim ile ilişkilerinin incelenmesi amaçlanmıştır.

**Gereç ve Yöntem:** Çalışmaya 100 hasta ve 100 kontrol grubu alındı. Bu kişilere Hamilton Depresyon Ölçeği, İntihar Davranışı Ölçeği, Obsesif İnanışlar Ölçeği, Biyolojik Ritim Ölçeği uygulandı. Veriler SPSS 22.0 programında incelendi.

**Bulgular:** Çalışmada depresif bozukluklu hastalarda daha yüksek obsesif inanışlar düzeyi bulundu. Aynı şekilde obsesif inanışlar ve intihar ile biyolojik ritim arasında da pozitif bir ilişki saptandı. Ancak çalışmada obsesif inanışlar ve intihar düşüncesi arasında ilişki saptanmadı.

**Sonuç:** Çalışmamız depresif hastaların obsesif inanışları ve biyolojik ritimleri arasında bir ilişki olduğunu göstermektedir.

**Anahtar Sözcükler:** Biyolojik ritim; depresif bozukluk; intihar; obsesif inanışlar.