



# Comparison of Sociodemographic and Clinical Characteristics of Patients with Bipolar Disorder with and without Guardianship Decision

## Vesayet Kararı Alan ve Almayan Bipolar Bozukluk Tanılı Hastaların Sosyodemografik ve Klinik Özelliklerinin Karşılaştırılması

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### ABSTRACT

**Aim:** We aimed to compare the sociodemographic and clinical variables of the patients with bipolar disorder (BD), who were required guardianship by Mental Health Hospital's Health Board.

**Materials and Methods:** This retrospective study consisted of 201 patients with BD-1, aged between 18 and 65 years, who were sent to medical health board in order to prepare a report on whether guardianship was required by the courts. Sociodemographic and clinical variables data form including age, marital status, education, employment, the number of episodes, the history of electroconvulsive therapy (ECT), the type of medication, the number of hospitalization, and the history of suicide were used.

**Results:** One-hundred (49.75%) patients with BD were required guardianship decision (GD). The mean age of the group with GD (43.57±11.53 years) was significantly higher than the group without GD (39.54±10.73 years). There was a significant relationship between GD and marital status and employment. The group with GD had significantly higher number of total and manic episodes, duration of hospitalization, and duration of illness than the group without GD. A significant relationship was found between GD and medical comorbidity, history of ECT, the presence of psychotic delusion, and treatment with antipsychotic, lithium and valproic acid. Paranoid-persecution, reference, and bizarre types of delusion were found to be related to GD.

**Conclusion:** A significant relationship was found between GD and marital status, employment, duration of illness, number and duration of hospitalizations, number of total and manic episodes, medical comorbidity, and history of ECT, presence of psychotic delusions, and type of treatment. Clinicians should be aware of these variables during the decision of guardianship for patients with BD.

**Keywords:** Bipolar disorder, guardianship, restriction

### ÖZ

**Amaç:** Bu çalışmada Ruh Sağlığı Hastanesi Sağlık Kurulu tarafından vesayet altına alınan bipolar bozukluk (BB) hastalarının sosyodemografik ve klinik değişkenlerinin karşılaştırılması amaçlandı.

**Gereç ve Yöntem:** Bu retrospektif çalışma, mahkeme tarafından vesayetin gerekli olup olmadığı konusunda rapor hazırlanmak üzere sağlık kuruluna gönderilen 18-65 yaşları arasındaki BB-1 olan 201 hastadan oluştu. Hastaların dijital kayıtlarından hastaneye yatış dosyaları taranarak bilgi elde edildi. Yaş, medeni durum, eğitim, çalışma, hastalık öyküsü, atak sayısı, elektrokonvülsif (EKT) tedavi öyküsü, ilaç türü, hastaneye yatış sayısı, intihar öyküsü gibi sosyodemografik ve klinik değişkenler için veri formu kullanıldı.

**Bulgular:** Tüm katılımcılar arasından 100 (%49,75) BB tanılı hastaya vesayet kararı (VK) çıkarılmıştır. VK olan grubun yaş ortalaması (43,57±11,53), VK olmayan gruba (39,54±10,73) göre anlamlı olarak daha yüksekti. VK ile medeni durum ve iş durumu arasında anlamlı bir ilişki vardı. VK alan grupta toplam atak sayısı, manik atak sayısı, hastanede yatış süresi ve hastalık süresi, VK almayan gruba göre anlamlı olarak daha yüksekti. VK ile

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tıbbi komorbidite, EKT tedavi öyküsü, psikotik sanrı varlığı, antipsikotik, lityum ve valproik asit tedavisi arasında anlamlı bir ilişki bulundu. Ayrıca vesayet ile paranoid-persekütif, referans ve bizar sanrı türleri arasında anlamlı bir ilişki bulundu.

**Sonuç:** BB hastalarında VK ile medeni durum, çalışma durumu, hastalık süresi, yatış sayısı ve süresi, toplam ve manik atak sayısı, tıbbi komorbidite ve EKT öyküsü, psikotik sanrıların varlığı ve tedavi şekli arasında anlamlı bir ilişki bulundu. Klinisyenler BB olan hastalara VK verirken bu değişkenlerin farkında olmalıdırlar.

**Anahtar Kelimeler:** Bipolar bozukluk, vesayet, kısıtlama

## INTRODUCTION

The Civil Code (CC) defines the conditions for a person's entitlement to and exercise of the rights, as well as guarantees those rights in cases where those rights are obstructed or restricted. From the civil rights point of view, while the competence of the person is prioritized, the rights are kept at the highest level and the least restrictions are imposed on the person<sup>1</sup>. "Capacity to act" provides a legal consequence to human actions. According to the CC, the capacity to act is defined as the ability to act rationally and to comprehend the causes and consequences of their actions. Capacity to act is a mental function such as understanding, discerning, reasoning, making decisions, and reaching conclusions. Evaluation of capacity to act should be specific to the person, situation, and event<sup>1,2</sup>.

Courts restrict the civil rights of people and transfer their obligation to exercise their rights to their legal representative, thereby putting such a person under guardianship. Guardianship is defined as "an institution that protects adults who are incapable of self-management for some reason, in terms of personal and financial interests, and ensures their representation"<sup>3</sup>. CC art. 405 governs the total deprivation of a person's civil rights if they have a mental illness or weakness. Legal consultant is assigned to adults who do not have sufficient reasons to be restricted, but who benefit from the limitation of their capacity to act in some respects<sup>4</sup>. With the concept of guardianship, it is aimed to attach a legal consequence to the actions of the person and to protect herself and the society from the consequences of the actions of the person who has no capacity to act. Treatment and protection of civil rights of patients who are placed under guardianship in psychiatry clinics are provided through courts<sup>5</sup>. Guardianship may be essential for the patients with psychiatric disorders, such as schizophrenia, bipolar disorder, and developmental disorder, due to their lack of decision-making capacity. It is appropriate to recommend guardianship to those who have insufficient insight, frequent episodes, and those who do not respond to treatment or have a severe disease that will make their daily life difficult<sup>1,6</sup>. Melamed et al.<sup>7</sup> investigated guardianship of 60 people with a mental disorder in Israel. According to the results of this study, the majority of the patients with guardianship decisions (GD) were psychotic disorders and dementia while 1% of them included patients

with BD. According to a previous study that investigated guardianship reports given by mental health hospital's medical board in Turkey, 31% of those individuals had dementia, 28% of them had a psychotic disorder, 15.2% of them had mental retardation and 8.1% of them had BD<sup>8</sup>. Although a GD is rare for patients with BD than other chronic psychiatric disorders, BD is one of the important psychiatric illnesses that require a GD. It is considered to offer guardianship to patients with BD who have insufficient insight, become chronic, do not respond to treatment, and have a severe illness that will make their daily life difficult<sup>7</sup>. Recently, Akıncı et al.<sup>9</sup> investigated clinical and sociodemographic characteristics of patients with BD with the decision of a legal representative. According to this study, the total number of episodes, number of manic and mixed episodes, hospitalizations, presence of psychotic symptoms, and alcohol and substance use were found higher in the group with the GD than in the group without GD.

There are few studies on the need for guardianship in the literature, and they generally focus on patients with dementia. There are limited data for the GD of patients with BD. In this study, we aimed to compare the sociodemographic and clinical variables of the patients with BD according to their GD which was given by Mental Health Hospital's Health Board.

## MATERIALS AND METHODS

In this retrospective study, we evaluated the digital medical records of patients with BD, who were sent to medical health board of Erenköy Research and Training hospital for Psychiatry and Neurological disease between 01/01/2015 and 12/31/2021 in order to prepare a report on whether guardianship was required by the courts. Patients with a diagnosis of BD according to Diagnostic and Statistical Manual of Mental Disorder-5 and aged between 18 and 65 years were included. Patients with mental retardation and those with missing files were excluded from the study. Finally, 201 patients with BD were included in the study. Sociodemographic and clinical data form including history of disease, number of episodes, history of ECT, type of medication, number of hospitalization, history of suicide were used. Approval for the study was granted by the Erenköy Research and Training Hospital for Mental Health and Neurological Diseases Ethical Committee with approval number 34, dated October 04, 2021.

## Statistical Analysis

The data were analyzed using the Statistical Package for the Social Sciences 22 program. A frequency table was created for sociodemographic questions. In order to see the differences in the group means of the decision variable, independent sample t-test was applied for the measurement values with normal distribution, and the Mann-Whitney U analysis was applied for the measurement values that did not show normal distribution. Chi-square analysis was performed to see the relationship between the decision variable and the categorical variables. A p value less than 0.05 was considered as significant.

## RESULTS

A total of 201 participants were included in our study. Among all of the participants, 100 patients with BD required GD and 101 patients with BD did not require GD. A comparison of the sociodemographic characteristics of the participants with GD and without GD was shown in Table 1. The mean age of the group with GD was  $43.57 \pm 11.53$  years and the mean age of group without GD was  $39.54 \pm 10.73$  years. It was determined that the group with (GD) had a higher age ( $t = -2.562$ ,  $p = 0.011$ ) than the group without GD.

There was a significant relationship between GD and marital status ( $\chi^2 = 7.391$ ,  $p = 0.025$ ) and employment ( $\chi^2 = 17.889$ ,  $p = 0.000$ ). Of the patients with GD, 42% were single, 28% were married, and 30% were divorced. Of the patients without GD, 30.7% were single, 46.5% were married, and 22.8% were divorced. Of the group with GD, 76% were unemployed, 20% were workers, and 3% were retired. On the other hand, of the group without GD, 47.5% were unemployed, 41.6% were working, and 10.9% were retired. No relationship was found between GD and economic income ( $\chi^2 = 2.923$ ,  $p = 0.404$ ), gender ( $\chi^2 = 0.259$ ,  $p = 0.611$ ), education level ( $\chi^2 = 2.902$ ,  $p = 0.234$ ), and the presence of children ( $\chi^2 = 1.792$ ,  $p = 0.181$ ).

Comparison results of clinical variables for two groups were presented in Table 2. There was no significant difference between two groups in terms of age of onset ( $z = -0.058$ ,  $p = 0.954$ ) and number of depressive episodes ( $z = -0.969$ ,  $p = 0.332$ ). However, there were significant differences between two groups in terms of duration of illness ( $z = -2.433$ ,  $p = 0.016$ ), number of total episodes ( $z = -3.919$ ,  $p = 0.000$ ), number of manic episodes ( $z = -4.048$ ,  $p = 0.000$ ), and duration of hospitalization ( $z = -5.838$ ,  $p = 0.000$ ).

22.8% of those who did not require GD had no medical comorbidity and 39% of those who required GD had medical

**Table 1. Comparison of sociodemographic variables of the participants**

		Guardianship decision (+) group (n=100)	Guardianship decision (-) group (n=101)	p
		Mean ( $\pm$ SD) n (%)		
Age (years)		43.57 $\pm$ 11.53	39.54 $\pm$ 10.73	<b>0.011*</b>
Gender (female)		59 (59%)	56 (55.4%)	0.611
Marital status	Single	42 (42%)	31 (30.7%)	<b>0.025*</b>
	Married	28 (28%)	47 (46.5%)	
	Divorced	30 (30%)	23 (22.8%)	
Education	Primary	49 (49.0%)	43 (42.6%)	0.234
	Secondary	35 (35.0%)	32 (31.7%)	
	Bachelor	16 (16.0%)	26 (25.7%)	
Employment	Retired	3 (3.0%)	11 (10.9%)	<b>0.000</b>
	Civil servant-worker	21 (21.0%)	42 (41.6%)	
	Unemployed	76 (76.0%)	48 (47.5%)	
Economic income	<2,000 TL	46 (46.0%)	41 (40.6%)	0.404
	2,000-3,000 TL	32 (32.0%)	27 (26.7%)	
	3,000-5,000 TL	17 (17.0%)	26 (25.7%)	
	>5,000 TL	5 (5%)	7 (6.9%)	
Children	Absent	53 (53%)	44 (43.6%)	0.181
		47 (47%)	57 (56.4%)	

p<0.05.

SD: Standard deviation, TL: Turkish Liras

comorbidity. A significant relationship was found between GD and medical comorbidity ( $\chi^2=11.892$ ,  $p=0.018$ ). 12% of those with GD had psychiatric comorbidity and 7% of those without GD had psychiatric comorbidity. No significant relationship was found between GD and psychiatric comorbidity ( $\chi^2=1.509$ ,  $p=0.219$ ). A significant relationship was found between the history of ECT ( $\chi^2=7.691$ ,  $p=0.006$ ) and GD. While 52% of those with GD had a history of ECT, 32.7% of those that did not require GD had a history of ECT. No significant relationship was found between GD and alcohol use disorder ( $\chi^2=0.198$ ,  $p=0.656$ ), substance use disorder ( $\chi^2=0.213$ ,  $p=0.645$ ), and the history of suicide ( $\chi^2=0.336$ ,  $p=0.562$ ).

The comparison of the delusion types and drugs used by patients in the decision of guardianship was shown in Table 3. There was a significant relationship between psychotic delusion and decision of guardianship ( $\chi^2=23.565$ ,  $p=0.000$ ). While 39.6% of those who did not take GD did not have psychotic delusions, 60.4% of them had psychotic delusions. 10% of the patients with GD did not have psychotic delusions and 90% of them had psychotic delusions. A significant relationship was

found between the decision of guardianship and paranoid-persecution type of delusion ( $\chi^2=10.321$ ,  $p=0.001$ ), delusion of reference ( $\chi^2=6.065$ ,  $p=0.014$ ), and bizarre delusion ( $\chi^2=4.787$ ,  $p=0.029$ ). No significant relationship was found between the decision of guardianship and grandiose delusion ( $\chi^2=2.441$ ,  $p=0.118$ ) and mystical delusion ( $\chi^2=0.107$ ,  $p=0.744$ ).

When it comes to drug used by the patients, a significant relationship was found between valproic acid (VPA) and the decision of guardianship ( $\chi^2=12.943$ ,  $p=0.000$ ). 37.6% of those who did not take a GD used VPA whereas 63% of those who required GD used VPA. A significant relationship was found between lithium and the decision of guardianship ( $\chi^2=7.907$ ,  $p=0.005$ ). 69% of those who required GD did not use lithium whereas 49.5% of those who did not require GD did not use lithium. A significant relationship was detected between antipsychotic and the decision of guardianship ( $\chi^2=16.113$ ,  $p=0.000$ ). 71.3% of those who did not require GD used antipsychotic and 93% of those who required GD used antipsychotic medication.

**Table 2. Comparison of clinical variables of the participants**

		Guardianship decision (+) group (n=100)	Guardianship decision (-) group (n=101)	t, $\chi^2$ , z	p
		Mean±SD n (%)			
Age of onset (years)		26.78±10.61	25.37±6.48	-0.058	0.954
Duration of illness (years)		17.25±10.05	13.92±9.33	-2.433	<b>0.016*</b>
Number of total episodes		6.54±5.26	4.28±2.66	-3.919	<b>0.000*</b>
Number of manic episodes		5.04±4.51	3.09±2.53	-4.048	<b>0.000*</b>
Number of depressive episodes		0.45±0.83	0.52±0.85	-0.969	0.332
Duration of hospitalization (weeks)		19.56±17.51	9.26±9.95	-5.838	<b>0.000*</b>
Medical comorbidity	None	61 (61.0%)	78 (77.2%)	11.892	<b>0.018</b>
	Hypertension/coroner artery disease	16 (16.0%)	4 (4.0%)		
	Diabetes mellitus	8 (8.0%)	3 (3.0%)		
	Hypothyroidism	6 (6.0%)	8 (7.9%)		
	Other	9 (9.0%)	8 (7.9%)		
Psychiatric comorbidity	Present	12 (12%)	7 (6.9%)	1.509	0.219
	Absent	88 (88%)	94 (93.1%)		
History of ECT	Present	52 (52%)	33 (32.7%)	7.691	<b>0.006</b>
	Absent	48 (48%)	68 (67.3%)		
Alcohol use disorder	Present	24 (24%)	27 (26.7%)	0.198	0.656
	Absent	76 (76%)	74 (73.3%)		
Substance use disorder	Present	13 (13%)	11 (10.9%)	0.213	0.645
	Absent	87 (87%)	90 (89.1%)		
History of suicide	Present	20 (20%)	17 (16.8%)	0.336	0.562
	Absent	80 (80%)	84 (83.2%)		

ECT: Electroconvulsive therapy, SD: Standard deviation

**Table 3. Comparison of the delusion types and medication in the decision of guardianship**

		Guardianship decision (+) group (n=100)	Guardianship decision (-) group (n=101)	$\chi^2$	p
Delusion	Present	90 (90%)	61 (60.4%)	23.565	0.000*
	Absent	10 (10%)	40 (39.6%)		
Paranoid-persecution delusion	Present	68 (68%)	46 (45.5%)	10.321	0.001*
	Absent	32 (32%)	55 (54.5%)		
Grandiose delusion	Present	37 (37%)	27 (26.7%)	2.441	0.118
	Absent	63 (63%)	74 (73.3%)		
Reference delusion	Present	17 (17%)	6 (5.9%)	6.065	0.014*
	Absent	83 (83%)	95 (94.1%)		
Mystical delusion	Present	6 (6%)	5 (5%)	0.107	0.744
	Absent	94 (94%)	96 (95%)		
Bizarre delusion	Present	9 (9%)	2 (2%)	4.787	0.029*
	Absent	91 (91%)	99 (98%)		
Valproic aside	Present	63 (63%)	37 (37.6%)	12.943	0.000*
	Absent	37 (37%)	63 (62.4%)		
Lithium	Present	31 (31%)	51 (50.5%)	7.907	0.005*
	Absent	69 (69%)	50 (49.5%)		
Antipsychotic	Present	93 (93%)	72 (71.3%)	16.113	0.000*
	Absent	7 (7%)	29 (28.7%)		

\*p&lt;0.05

## DISCUSSION

In this retrospective study, we evaluated medical records of 201 patients with BD, who were sent to medical board by the courts in order to prepare a report on whether legal representative was required. According to our results 100 patients (49.75%) with BD had been required the decision of guardianship. In our study, the mean age of the group with GD was  $43.57 \pm 11.53$  years, the mean of the duration of the illness was  $17.25 \pm 10.05$  years, and both of them were significantly higher than in the group without GD. Our results supported the results of previous study. According to a study in Israel, the mean age of the patients with mental disorder who required guardianship was 48 years and the duration of their illness was 20 years. However, 80% of patients who required guardian were schizophrenia, 5% of them were dementia, and only 1% of them were BD<sup>7</sup>. In a recent study that investigated the legal representative reports in Türkiye, the mean duration of illness and the mean age of all patients were reported to be 11.8 years and 55 years, respectively. Moreover, it was determined that 39.2% of those patients were dementia, 27.7% of them were schizophrenia and other psychotic disorders, and 4% of them were BD<sup>8</sup>. Similar to our study, Akıncı et al.<sup>9</sup> found that the mean age of patients with BD who required legal representative was 45.8 years. These results can suggest that longer disease duration increases the decision of guardianship.

According to our results, marital status and employment were found to be related to GD. Of the patients with GD, 28% were married, 30% were divorced, and 42% were single. Similar to our results, it has been reported that divorcement is common among people with mental disorder, and divorce and separation are two to three times more probable in people with BD than in general population<sup>10</sup>. Our results support the idea that BD is associated with higher divorce rate and poor marital adjustment. However, poor marital adjustment can lead to relapses and worse prognosis in BD and this may be related to the higher rates of GD in our study. However, similar to our results, a recent study that investigated 61 adult patients with GD showed that 37% of the patient group were single whereas only 9% of this group were married. This result can be interpreted as GD can lead to poor social support<sup>11</sup>.

Of the group with GD, 76% were unemployed. According to a meta-analysis, BD damages employment outcome in the longer term, but up to 60% of people may be in employment<sup>12</sup>. According to our results, of the group without GD, 47.5% were unemployed, which was lower than in the group with GD. The magnitude of functional losses associated with bipolar disorder is large. In the light of our results, the lower functionality indicates unemployment and this may be also related to the need for guardianship in the patients with BD. One of our study's results was that there was no relationship between



GD and economic income, gender, education level, and the presence of children. Akıncı et al.<sup>9</sup> found no difference among sociodemographic variables such as gender, educational status, marital status, employment, and social income concerning the recommendations for the requirement of legal representative.

In our study, we found no significant difference between two groups in terms of age of onset, and depressive episodes. However, the number of manic episodes, duration of illness, and duration of hospitalization were higher in the group with GD. It has been reported that periods of relapse lead to progressive dysfunctions, and higher number of episodes was linked with poor prognosis in BD. Moreover, the number of episodes increases the number of hospitalizations as well. Previously, Akıncı et al.<sup>9</sup> found significantly greater number of manic and mixed episodes and higher duration of hospitalization in BD patients who were recommended for a guardian. Previous researches also reported a high number of episodes and their high recurrence rate to be important for the restriction decision<sup>1,5,13</sup>.

The present study found that the presence of medical comorbidity was related to GD. 39% of those that required GD had medical comorbidity in our study. Among those patients, 16% of them had hypertension/coroner artery disease, 8% of them had diabetes mellitus, 6% of them had hypothyroidism. According to a recent review, BD is associated with chronic low-grade inflammation and several medical comorbidities such as cardiovascular disease, diabetes mellitus, and obesity in patients with BD<sup>14</sup>. However, metabolic illness and obesity are related to greater symptom severity and poor treatment responses. Thus, a decreased life expectancy is seen in BD<sup>14</sup>. We can interpret these results in the way that medical comorbidity is related to poor prognosis in BD and poor prognosis is related to higher rates of requirement of guardianship in those patients.

It is critical to consider coexisting psychiatric disorders when deciding whether to appoint a guardian in patients with BD. According to our study, 12% of those with GD had psychiatric comorbidity and 7% of those without GD had psychiatric comorbidity. Moreover, no significant relationship was found between GD and psychiatric comorbidity, alcohol and substance use disorder. Vieta et al.<sup>15</sup> reported that the rate of psychiatric comorbidity in BD was 31% and psychiatric comorbidity affected the treatment response and prognosis in a negative way. Alcohol and substance use disorder is a common comorbidity for BD. Contrary to the results of our study, Akıncı et al.<sup>9</sup> found higher rates of alcohol and substance use disorder in the patients with BD who required guardian and the presence of psychiatric comorbidity increased the likelihood of assigning a guardian 11-fold. The difference in the results

of our study and Akıncı et al.'s<sup>9</sup> study may be explained by the retrospective design of our study. We could not make an interview with the patients and data of the patients may have been lost due to its retrospective design.

The psychotic features of the last episodes of the patients were listed in Table 3. According to our results, 90% of the patients with GD had psychotic delusion in the last episode of their hospitalization, and it was found to be related to the decision of guardianship. In BD, the presence of a psychotic symptoms indicates a poor prognosis and lower functionality<sup>16</sup>. According to our results, there was a relationship between the decision of guardianship and paranoid-persecution, reference, and bizarre types of delusion. No relationship was demonstrated between mystical and grandiose types of delusion. A recent study showed that a lifetime history of psychotic symptoms was present in 73.8% of patients with BD and delusions were seen in 68.9% of those patients. However, patients with psychotic symptoms showed younger age of disease onset and higher number of hospitalizations with manic episodes<sup>17</sup>. Thus, we can say that psychotic features in BD may affect the restriction decision, and our study also supports the literature in this respect.

We found a significant relationship between GD-lithium treatment and GD-VPA treatment. According to our results, 69% of the patients who required guardianship did not use lithium whereas 63% of them used VPA. Previous studies showed that treatment with lithium lowers the risk of relapse in BD. According to a meta-analysis, long-term lithium treatment has been suggested due to the chronic persistent impairment secondary to relapses. Thus, long-term lithium treatment should be started earlier rather than later<sup>18</sup>. In this present study, the majority of the patients with GD did not use lithium. We can interpret these results as the patients who required GD relapsed more frequently by using less lithium and adversely affected the prognosis in this way.

### Study Limitations

This study has certain strengths and limitations. One of the important strengths of our study is that there are very rare researches on the GD for psychiatric disorders, especially bipolar disorder. Our hospital is a mental health hospital and the medical board is specialized for forensic psychiatry. Thus, we think that the participants of our study guide in terms of bipolar population in Turkey. One of the limitations is the study's retrospective design. The assessment of the patients was done by scanning the hospital files. We could not evaluate the patients face to face. Second, our sample size was relatively small. Prospective studies are needed to examine many variables in the process of GD.

## CONCLUSION

In conclusion, we found a significant relationship between the requirement of guardianship and marital status, employment, duration of illness, number and duration of hospitalizations, number of total and manic episodes, medical comorbidity, and history of ECT, presence of psychotic delusions, and type of treatment. We believe that our study will guide further studies and help clinicians in the examination process regarding the restriction decision of patients with BD.

## Ethics

**Ethics Committee Approval:** Approval for the study was granted by the Erenköy Research and Training Hospital for Mental Health and Neurological Diseases Ethical Committee with approval number 34, dated October 4, 2021.

**Informed Consent:** Retrospective study.

**Peer-review:** Externally peer-reviewed.

## Authorship Contributions

Surgical and Medical Practices: F.K., F.İ., M.A., H.K., S.Ç., Y.S.F., Concept: F.K., F.İ., Design: F.K., F.İ., Data Collection or Processing: F.K., M.A., H.K., S.Ç., Y.S.F., Analysis or Interpretation: F.K., M.A., H.K., S.Ç., Y.S.F., Literature Search: F.K., F.İ., M.A., H.K., S.Ç., Y.S.F., Writing: F.K., F.İ., M.A., H.K., S.Ç., Y.S.F.

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