

The Relationship of Suicide Attempts with Affective Temperament and Relevant Clinical Features in Patients with Mood Disorders



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SUMMARY

Objective: In this study, patients with affective disorders with or without suicide attempts were examined according to whether their disorder was unipolar or bipolar. An analysis was made of their socio-demographic variables, comorbid psychiatric symptoms, and affective temperament dimensions in order to understand the effects of these variables on suicide risk.

Method: The study populations consisted of 246 inpatients with affective disorders who had been admitted to the Erenköy Research and Training Hospital for Mental and Neurological Disorders (93 patients with unipolar disorders, 153 with bipolar disorders). The TEMPS-A (Temperament Evaluation of Memphis, Pisa, Paris and San Diego Auto-questionnaire), the Beck Hopelessness Scale (BHS) and the Symptom Checklist-90-Revised (SCL-90-R) psychological symptom screening tests were applied to all patients. In order to determine the affective disorder diagnosis and to identify suicide attempts, a Mini International Neuropsychiatric Interview (MINI) was performed during the first 48 hours of hospitalization.

Conclusion: The cyclothymic and anxious temperament dimensions measured using TEMPS-A, somatic symptoms obtained from a symptom checklist, and psychiatric disorders in the family were found to be good indicators of suicide attempts in patients with unipolar disorders in this study. An investigation of predictors of suicide attempts in bipolar patients showed that cyclothymic temperament pattern, paranoid symptoms, evaluated through symptom screening test and having a psychiatric disorder in the family are good predictors of a suicide attempt. The inclusion in this study of patients with different index episodes of illness, including manic, depressive and mixed periods, can be accepted as a significant limitation of this study.

Key Words: Affective disorder, suicide, temperament.

INTRODUCTION

Suicide is a significant public health problem, ranking among the ten leading causes of death in all age groups and different geographic populations. A psychiatric disease is known to lie behind 90% of completed suicide attempts (Wasserman et al., 2011). It was shown that this rate was even higher in the presence of affective disorder compared to other medical and psychiatric disorders (Simpson and Jamison, 1999). A recent study confirmed the finding of a higher rate of suicide attempts in patients with affective disorder and reported a higher rate of suicide attempts in patients with bipolar disorder

compared to patients with unipolar disorder or other major psychiatric disorders (Sani et al., 2011).

For many years, the life-long suicide risk in patients with affective disorder was considered to be 15%. A meta-analysis of 3700 patients with bipolar disorder followed for eighty years in fourteen studies from seven countries reported a risk of suicide attempt fifteen-fold higher than expected (Harris and Barracklough, 1997). Subsequent studies of patients with affective disorder reported a suicide attempt in 30 to 40% of the patients once in their lives (Hawton et al., 2005; Marangell et al., 2006). An epidemiological field study showed at least one suicide attempt in 29% of patients with affective

Received: 28.01.2014 - Accepted: 19.05.2014

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disorder in the general population (Chen and Dilsaver, 1996). Additionally, clinical studies reported at least one suicide attempt during their lifetime in 25-56% of patients, and 10-19% died due to suicide (Harris and Barracklough, 1997; Goodwin and Jamison, 2007).

The close relationship between temperament and affective disorders has been acknowledged by many researchers and clinicians. The temperament dimension was shown to be related to the type of affective disorder and to have influenced the clinical course, such as through disease exacerbation (Kesebir et al., 2005, Aslıhan and Aslan, 2005). The relationship between the dimensions of temperament and suicide has been an attractive study topic in recent years. A study of patients diagnosed with affective disorders reported attempted suicide in 42% of the patients with hyperthymic temperament and in 81% of the patients with cyclothymic-anxious-depressive temperament (Pompili et al., 2011). Another study followed 4441 inpatients for 35 years and evaluated clinical and sociodemographic features and dimensions of temperament. This study reported at least one suicide attempt in 69% of the patients followed (Sheehan et al., 1998). Furthermore, this study found that cyclothymic temperament was less related to suicide compared to other dimensions of temperament. The relationship between suicide attempts and dimensions of temperament was investigated in another study that evaluated patients with psychiatric illnesses including affective disorder (Calati et al., 2008). Unlike other studies, no difference was observed between patients with affective disorder in terms of the dimensions of temperament when the patients were grouped according to suicide attempt.

There are a relatively small number of studies that evaluated temperament features in patients with affective disorder and attempted suicide. Additionally, the available findings have not been reproduced and there have been controversial results. The aim of the present study was to evaluate the relationship between affective temperament and various clinical features in patients with affective disorder (unipolar depressive disorder, bipolar disorder) who had attempted suicide. In addition, the present study also explored which of these temperament dimensions predicted the existence of a suicide attempt.

METHOD

Participants and Progress

The present study included 246 consecutive patients who were admitted to the psychiatry wards of Erenkoy Mental Health and Neurology Training & Research Hospital and diagnosed with affective disorder. The study inclusion criteria were having been diagnosed with a major affective disorder and being 18 years or older. The patients with major depressive disorder were classified as unipolar disorder, bipolar disorder, and bipolar disorder independent from the presenting phase (manic, depressive, mixed). Patients with any medical

or psychiatric condition that would interfere with the conduction of the study interviews and patients with a major disorder of the central nervous system were excluded from the study. Of the 246 patients included in the study, 35.8% (n=8) were found to have a history of suicide attempt. Of the study participants, 93 had unipolar disorder and 153 had bipolar disorder. The suicide attempts in these patients and other possibly related variables were evaluated for the entire study group and then separately for these two patient groups. The assessment of all participants was conducted after clinical improvement has been achieved. Informed consent was similarly obtained during clinical recovery phase. The study was approved by the ethics committee of Erenkoy Mental Health and Neurology Training & Research Hospital.

Assessment Tools

In the present study, Temperament Evaluation of Memphis, Pisa, Paris and San Diego Autoquestionnaire (TEMPS-A), Beck Hopelessness Scale (BHS), and the symptom checklist (SCL-90R) were administered to all patients. Mini International Neuropsychiatric Interview (MINI) was conducted with the patients within 48 hours after admission in order to determine the diagnosis and suicide attempt.

MINI is a structured interview form based on DSM-III-R classification, and this form is commonly used in studies due to the presence of a section that evaluates suicide in detail (Sheehan et al., 1998). The relevant section of the interview form contains questions that allow the assessment of suicide risk and current and previous suicidal ideation.

TEMPS-A (Temperament Evaluation of Memphis, Pisa, Paris, San Diego-Autoquestionnaire) was originally developed by Akiskal et al. in 2005 to evaluate dominant affective temperament. The questionnaire evaluates dominant temperaments including depressive, hyperthymic, irritable, cyclothymic, and anxious temperaments. The Turkish-language version of the questionnaire contains 99 items that evaluate depressive, hyperthymic, irritable, and anxious temperaments. The total score of the subscales is determined by the sum of item scores. The cut-off score is 13 for depressive, 18 for cyclothymic, 20 for hyperthymic, 13 for irritable, and 18 for anxious subscales (Vahip et al., 2005). An individual responds to questions with yes and no answers considering his/her whole life. In the present study, the Turkish-language version of TEMPS-A was primarily used to evaluate and compare the dimensions of temperament between selected groups of patients.

The Beck Hopelessness Scale (BHS), developed by Beck and Wiersman in 1974, is a self-reported scale containing 20 items about emotions and thoughts of an individual about the future, and the scale was validated for use in Turkey (Seber et al. 1993). Studies revealed a positive correlation between BHS scores and depression level and current suicidal ideation.

The revised version of the 90-item Symptom Checklist (SCL-90R) was developed by Derogatis et al. (1977) to measure the

level of distress. The SCL-90R consists of 90 items on psychiatric symptoms and contains 9 symptom dimensions. The symptom dimensions include somatization, obsessive compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism. The checklist yields nine scores for symptom dimensions and scores for three indices including “General Severity Index” (GSI), “Positive Symptom Total” (PST), and “Positive Symptom Distress Index” (PSDI). Both subscales and GSI scores were used in the present study. The Turkish-language version of the scale was evaluated for its validity and reliability (Dag, 1991).

Statistical Analysis

SPSS 16.0 software package was used in the statistical analysis. The frequency tables were constructed for categorical variables, and descriptive statistics are presented for numeric variables. The Chi-square test was used to compare categorical variables between the groups using contingency tables, and Fisher’s exact chi-square test was used if any of the expected values in the tables were less than five. The Student’s t-test was used to compare numeric variables with a normal distribution, and the Mann-Whitney U test was used for variables that did not show normal distribution.

Regression models were constructed for both the whole group and also for patients diagnosed with unipolar and

bipolar disorder separately in order to evaluate the predictors of suicide attempts. This allowed evaluation of both a general model for major affective disorder and separate models for each condition. In the model in which a suicide attempt was taken as the dependent variable, a previous history of suicide attempt, family history of psychiatric illness, dimensions of temperament determined by TEMPS-A, and subscales determined in SCL-90R were evaluated in logistic regression analysis as independent variables. The level of statistical significance was set at $p < 0.05$.

RESULTS

Of the 246 patients included in the study, 93 were diagnosed with unipolar disorder and 153 were diagnosed with bipolar disorder. Of the patients diagnosed with bipolar disorder, 47.1% were suffering from manic episode and 30.1% were suffering from depressive episode before the recovery period. None of the patients diagnosed with unipolar disorder exhibited psychotic symptoms, while 22.9% of the patients diagnosed with bipolar disorder exhibited psychotic symptoms. Of these patients, 35.8% attempted suicide during hospitalization period. The mean age of the participants was 38.65 ± 9.75 years. Females comprised 69.9% of the patients. Socio-demographic features of the study participants are presented in Table 1.

Table 1. Sociodemographic and clinical features of the study patients.

	Whole group (n = 246)		Unipolar (n = 93)		Bipolar (n = 153)	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Age (years)	38.65	9.75	37.74	10.77	39.20	9.08
	n	%	n	%	n	%
Gender						
Female	172	69.9	65	69.9	107	69.9
Male	74	30.1	28	30.1	46	30.1
Level of Education						
None	10	4.1	3	3.2	7	4.6
Primary school	114	46.3	50	53.8	64	41.8
High school	98	39.8	37	39.8	61	39.9
Higher education	24	9.8	3	3.2	21	13.7
Employment						
Unemployed	26	10.6	10	10.8	16	10.5
Unable to work/Disability retirement	61	24.8	21	22.6	40	26.1
Employed/Student/Retired	85	34.6	32	34.4	53	34.6
House wife/Unable to work	74	30.1	30	32.3	44	28.8
Marital Status						
Single/widowed/divorced	107	43.5	34	36.6	73	47.7
Married	139	56.5	59	63.4	80	52.3
Family history of Suicide Attempt	20	8.1	7	7.5	13	8.5

Table 2. Comparison of sociodemographic and clinical features of patients with or without a history of suicide attempt.

	Unipolar						Bipolar					
	Suicide + (n = 60)		Suicide - (n = 33)		z	p	Suicide + (n = 28)		Suicide - (n = 125)		z	p
Age (years) Mean ± SD	36.83 ± 10.92		39.39 ± 10.47		-1.10	0.28	36.83 ± 10.92		39.39 ± 10.47		-1.10	0.28
	N	%	n	%	χ ²	p	n	%	n	%	χ ²	p
Gender					3.69	0.06					0.04	0.85
Female	46	76.6	19	57.5			20	71.4	87	69.6		
Level of Education					3.37	0.07					1.59	0.21
None/Primary school	30	50	23	69.6	12		16	57.1	55	44.0		
High School / Higher Education	30	50	30.4		42.9		70	56.0				
Employment					0.00	1.00					1.43	0.23
Unable to work	20	33.3	11	33.3				46.4	43	34.4		
Marital Status					0.23	0.63					2.32	0.13
Married	37	61.7	22	66.7			11	39.3	69	55.2		
Family History of Psychiatric Illness	55	91.6	69.6	7.60	0.01*	18	64.2	75	60.0	0.18	0.68	
Family History of Suicide Attempt	7	100.0	0.00		0.048\$	5	38.5	8	61.5		0.064\$	

Suicide +: patients committed suicide, suicide -: patients never committed suicide

*p<0.05 statistically significant values, χ^2 : Pearson Chi-square test, z: Mann-Whitney U Test, \$: Fisher's exact chi-square test**Table 3.** Comparison of the scores of clinical parameters between the groups.

	Unipolar				Bipolar			
	Suicide + (n = 60)	Suicide – (n = 33)	z	p	Suicide + (n = 28)	Suicide – (n = 125)	z	p
BHS Mean ± SD	12.85 ± 3.19	11.33 ± 2.23	2.75	0.01	11.93 ± 2.65	6.78 ± 4.15	5.48	<0.01
TEMPS-A								
Depressive	11.72 ± 4.35	9.82 ± 3.75	1.73	0.08	10.29 ± 4.09	6.89 ± 4.05	3.99	<0.01
Anxious	9.30 ± 4.42	12.82 ± 5.80	3.08	0.01	9.14 ± 5.07	7.52 ± 4.93	1.60	0.11
Cyclothymic	6.07 ± 4.34	7.06 ± 4.56	1.15	0.25	10.18 ± 3.58	13.00 ± 4.04	3.40	<0.01
Hyperthymic	2.85 ± 2.19	3.27 ± 2.57	0.48	0.63	6.86 ± 4.92	9.90 ± 6.05	2.58	0.01
Irritable	1.60 ± 1.81	2.36 ± 1.85	2.11	0.04	3.68 ± 2.18	5.68 ± 4.07	2.45	0.01

Suicide +: patients committed suicide, suicide -: patients never committed suicide BHS: Beck Hopelessness Scale, TEMPS-A: Temperament Evaluation of Memphis, Pisa, Paris, San

Diego Autoquestionnaire

z: Mann-Whitney U Test

Among patients diagnosed with unipolar disorder, there were no significant differences between patients with and without a history of suicide attempt in terms of gender, educational level, employment, and marital status; however, family history of psychiatric disorder was significantly higher in patients who attempted suicide ($\chi^2 = 7.596$; $p = 0.06$). None of the patients without a history of suicide attempt had a family history of suicide attempt. Of the patients that had attempted suicide, seven had a family history of suicide attempt. This association was analyzed with Fisher's exact test, and the result was statistically significant ($p=0.048$). Among patients diagnosed with bipolar disorder, there were no significant differences between patients with and without suicide attempts in terms of gender, education level, employment, family history of psychiatric disorder, and previous history of suicide

attempt. Socio-demographic and clinical features of the patients with unipolar or bipolar disorder are presented in Table 2 according to the history of suicide attempt.

The evaluation of patients with unipolar or bipolar disorder with or without suicide attempt revealed that patients with a history of a suicide attempt had higher scores in BHS. The evaluation of mean TEMPS-A scores of patients with unipolar disorder with or without suicide attempt revealed no significant differences in terms of depressive, cyclothymic, and hyperthymic subscales; however, the scores of patients without a suicide attempt were found to be higher in the anxious and irritable subscales.

Among those with bipolar disorder, patients with a history of a suicide attempt achieved higher scores in the depressive

subscale, while patients without a history of a suicide attempt had significantly higher scores in cyclothymic, hyperthymic, and irritable subscales. The comparison of clinical variables according to the history of suicide attempt is presented in Table 3. Both groups are presented together for convenience.

The patients with unipolar disorder that had attempted suicide had significantly higher depressive symptom scores in

SCL-90R compared to patients without a history of a suicide attempt, and the scores in psychotic, paranoid, rage, and phobia scales were significantly lower. The patients with bipolar disorder that had attempted suicide had significantly higher scores in somatization, anxiety, and depressive symptom subscales and significantly lower scores in psychotic, paranoid, rage, and phobic symptoms subscales compared to patients

Table 4. Comparison of subscores determined with SCL-90 symptom screening list

	Unipolar				Bipolar			
	Suicide + (n = 60)	Suicide – (n = 33)	z	p	Suicide + (n = 28)	Suicide – (n = 125)	z	p
Somatic symptoms	0.75 ± 0.58	0.64 ± 0.53	0.99	0.32	0.88 ± 0.44	0.39 ± 0.36	5.12	<0.01
Anxiety	0.86 ± 0.52	0.80 ± 0.53	0.64	0.52	0.57 ± 0.46	0.41 ± 0.42	2.09	0.04
Obsessive Symptoms	0.48 ± 0.52	0.54 ± 0.46	1.48	0.14	0.87 ± 0.54	0.79 ± 0.64	0.97	0.33
Depressive Symptoms	1.51 ± 0.65	0.88 ± 0.73	3.82	<0.01	1.31 ± 0.71	0.62 ± 0.53	4.46	<0.01
Sensitivity in Inter-personal Relations	1.02 ± 1.55	0.67 ± 0.37	0.51	0.61	0.63 ± 0.32	0.61 ± 0.32	0.42	0.67
Psychotic Symptoms	0.58 ± 0.61	1.02 ± 0.68	2.73	<0.01	0.56 ± 0.48	1.21 ± 0.53	5.25	<0.01
Paranoid Symptoms	0.66 ± 0.60	0.99 ± 0.58	2.59	<0.01	0.62 ± 0.49	1.10 ± 0.58	3.75	<0.01
Rage	0.50 ± 0.57	0.89 ± 0.74	2.67	<0.01	0.50 ± 0.53	1.13 ± 0.60	4.56	<0.01
Phobia	0.28 ± 0.25	0.43 ± 0.31	2.94	<0.01	0.33 ± 0.25	0.53 ± 0.37	2.60	0.01
GSI	0.74 ± 0.28	0.76 ± 0.23	1.57	0.12	0.70 ± 0.16	0.75 ± 0.24	1.61	0.11

Suicide+; patients committed suicide, suicide-; patients never committed suicide,
Z:Mann-Whitney U Test, GSI: General Symptom Index

Table 5. Variables predicting suicide attempts

Independent variables	Whole group						Unipolar					Bipolar				
	B	S.E.	Wald	df	p	OR	B	S.E.	Wald	p	OR	B	S.E.	Wald	p	OR
History of Suicide (1)	1.545	.433	12.750	1	.000	4.689	2.577	1.116	5.335	.021	13.155	3.251	1.002	10.532	.001	25.810
Family History of Psychiatric Illness (1)	.893	.651	1.883	1	.170	2.443	27.516	11631.155	.000	.998	AD	.490	1.011	.235	.628	1.633
Depressive*	.044	.056	.608	1	.436	1.044	.116	.120	.932	.334	1.123	.016	.146	.012	.914	1.016
Anxious*	-.040	.042	.908	1	.341	.961	-.222	.105	4.437	.035	.801	.069	.087	.630	.427	1.072
Cyclothymic*	-.157	.049	10.263	1	.001	.855	-.373	.145	6.598	0.01	.689	-.308	.135	5.204	.023	.735
Hyperthymic*	.037	.059	.394	1	.530	1.038	.391	.263	2.220	.136	1.48	.200	.109	3.400	.065	1.222
Irritable*	-.109	.095	1.328	1	.249	.897	-.455	.247	3.399	.065	.634	-.022	.178	.015	.902	.978
Somatic**	-.704	.658	1.147	1	.284	.494	-3.907	1.491	6.866	.009	.020	2.692	1.790	2.262	.133	14.768
Anxiety**	.273	.440	.385	1	.535	1.314	1.241	1.019	1.482	.223	3.460	1.227	.960	1.634	.201	3.412
Obsessive**	-.410	.501	.670	1	.413	.664	-.948	.931	1.038	.308	.387	-2.421	1.399	2.995	.083	.089
Depressive**	1.282	.442	8.424	1	.004	3.605	1.763	1.073	2.698	.100	5.828	1.030	.832	1.534	.216	2.801
Interpersonal sensitivity**	.498	.398	1.566	1	.211	1.645	-.040	.600	.004	.947	.961	.656	1.736	.143	.706	1.927
Psychotic**	-1.083	.839	1.667	1	.197	.339	-1.243	2.034	.374	.541	.289	-4.281	2.346	3.331	.068	.014
Paranoid**	1.420	.782	3.295	1	.069	4.139	2.016	1.882	1.148	.284	7.512	5.252	2.300	5.211	.022	190.859
Rage**	-1.013	.723	1.966	1	.161	.363	-1.052	1.726	.372	.542	.349	-2.182	2.201	.983	.321	.113
Phobia**	-.371	.887	.175	1	.676	.690	-2.385	2.449	.949	.330	.092	2.563	1.903	1.813	.178	12.970
Constant	.854	1.129	.572	1	.450	2.348	18.272	5815.578	.000	.997	AD	-18.071	5234.4	.000	.997	.000

without a history of a suicide attempt. The groups are presented together in Table 4 for convenience.

The scores in TEMPS-A, family history of psychiatric disorder, previous history of suicide attempt, and the scores in SCL-90 were evaluated using logistic regression analysis in order to determine the predictors of suicide attempt. The factors predicting a suicide attempt are presented in Table 5. For convenience, both groups and the analysis of all groups are presented together.

DISCUSSION

Despite the unquestionable importance of a history of psychiatric disorder in suicidal behavior, many individuals with psychiatric disorders do not attempt suicide. For example, the lifelong rate of suicide attempts is 50% among patients with unipolar or bipolar affective disorder. Individuals who have been diagnosed with these conditions but who never attempt suicide are parted from the individuals who have been diagnosed with the same condition but who were lost due to suicide. In the present study, patients with unipolar and bipolar disorders were examined separately to investigate the effects of sociodemographic variables, affective temperaments, and concurrent psychiatric symptoms on suicide attempts in patients who did and who did not attempt suicide.

The studies indicate high rates of suicide in patients with affective disorder, and suicide attempts are more commonly seen in patients with bipolar disorder (Sani et al., 2011, Mann, 2012). The present study found a 60% rate of suicide attempts in patients with unipolar disorder and 28% of patients with bipolar disorder. Controversial results regarding the association between affective temperament disorder and suicide indicate the importance of different sociodemographic and clinical features of the patients that need to be taken into consideration to better understand the relationship between temperament and suicide. From this perspective, the current study evaluated sociodemographic features of the participants in addition to clinical features obtained with short psychiatric assessments. The present study indicated that 70.5% of the patients diagnosed with unipolar disorder had a family history of suicide attempts (in the first and second degree cognates). As reported in previous studies (Fergusson and Lynskey, 1995; Beatures, 2000), a family history of psychiatric disorders and family history of suicide attempts were associated with suicide attempts only in patients with unipolar disorder. However, the knowledge of psychiatric disorders in the family may also be important to better understand the difference. The lack of clear identification of psychiatric disorders in the family may be a limitation of the current study. This suggests that sociodemographic features, including a detailed family history, need to be taken separately.

When anxious temperament is explored from the perspective of the evolution of human nature, it can be suggested that it can be associated with self-sacrificing behavior such as loyalty and continuity of marriage (Johnsson Fridell et al., 1996). The individuals with irritable temperament are those with an intensely critical and jeering attitude “who are expected to blame others and not themselves” when hopelessness and helplessness are felt in relation to suicide. One study did not find significant differences between patients with unipolar disorder with or without a history of suicide attempts in terms of the dimensions of temperament (Calati et al., 2008), and another study (İbilioğlu and Çayköylü, 2011) found that patients with unipolar disorder that attempted suicide had higher scores in the anxious and depressive subscales. Unlike other studies that were conducted in relation to suicide attempts in patients with unipolar disorder, the present study found significantly lower scores in the anxious and irritable subscales in patients with unipolar disorder that had attempted suicide. From this point of view, irritable individuals may have managed to use coping methods other than attempting suicide.

In the present study, logistic regression analysis was performed in order to determine the predictors of suicide attempts, including family history of psychiatric disorder, psychiatric symptoms determined with symptom checklist, and temperaments. Separate logistic regression models were constructed for patients with unipolar disorder and for those with bipolar disorder.

The predictors in unipolar disorder

Many studies have pointed to previous history of suicide as an important predictor of suicidal ideation or behavior. The present study supported these findings. In patients with unipolar disorder, somatization appeared as another variable that predicted suicide attempts. Functionally, somatization is described as functional and physical impairment occurring as a result of unresolved restriction and conflicts. Our findings suggest that somatization may not be adequate that can be regarded as another copying method. Although previous studies pointed to the importance of somatization (Johnsson Fridell et al., 1996), based on our literature review, the present study is the first indicate that these symptoms predicted suicide attempt in patients with unipolar disorder.

In patients with unipolar disorder, the cyclothymic and anxious subscales of TEMPS-A were found to predict suicide attempts. Some studies did not report significant differences in terms of affective temperament in patients with unipolar disorder (Calati et al., 2008), whereas other studies reported significantly higher scores of anxious and depressive temperament in these patients (İbilioğlu and Çayköylü, 2011). Although cyclothymic temperament is not rare in patients with unipolar disorder, the studies that evaluated the association of

cyclothymic temperament with suicide attempts were mostly conducted in patients with bipolar disorder (Goodwin and Jamison, 2007; Calati et al., 2008). The studies that evaluated suicide attempts and temperaments both in patients with unipolar disorder and in those with bipolar disorder under the main heading of major affective disorders reported an association between cyclothymic temperament and suicidal behavior (Goodwin and Jamison, 2007; Pompili et al., 2011).

The predictors in bipolar disorder

Similar to patients with unipolar disorder, a previous history of attempted suicide was found to be a predictive factor in patients with bipolar disorder. The cyclothymic temperament appeared as another predictive variable. Among studies that evaluated the relationship between temperament and suicide attempts in patients with bipolar disorder, one study reported a relationship between cyclothymic temperament and suicide attempts similar to our findings (Pompili et al., 2011), whereas another study reported a lesser relationship between this temperament and suicide attempts (Goodwin and Jamison, 2007). The paranoid symptoms evaluated in the symptom checklist appeared as another variable that predicted suicide attempts in patients with bipolar disorder. Considering the fact that a certain proportion of the current study participants exhibited psychotic symptoms, this finding is in line with the findings of a previous study (Mann et al., 2006) that suggested a higher risk of suicide attempts in patients exhibiting psychotic symptoms.

The predictors in all affective disorders:

The present study attempted to determine the predictors of suicide attempts in the whole group comprised of patients with unipolar and bipolar disorders. In the entire study sample, a previous history of attempted suicide was found to be a predictor of a current suicide attempt, and, similar to previous studies, cyclothymic temperament appeared as a predictor of a suicide attempt. The repressive subscale in symptom checklist was another feature that predicted suicide attempts in the entire study group. This subscale reflects pessimism, hopelessness, and lack of motivation (Derogatis et al., 1977). In parallel to this finding, there are many studies that reported the feelings of pessimism and hopelessness as both independent risk factors for and the predictors of suicide attempts (Bradley et al., 2004; Mann et al., 2006).

One of the important limitations of the study was that the patients in the bipolar disorder group were suffering from different phases of the condition and had been admitted to the hospital due to manic episodes, depressive episodes, or mixed episodes. The high proportion of female gender is a striking finding in the present study. However, a similar female-to-male ratio is observed in disease groups. Furthermore, this

was an anticipated limitation due to the nature of the study. In addition, TEMPS-A was administered to all patients within the hospitalization period as per the principles of hospital administration provided that a clinical improvement was noted. The recovery period of 4-8 weeks was not awaited, and the use of clinical recovery measures (based on HAMD and YMRS scales in routine ward practice) may have reduced the reliability of the study findings. On the other hand, although the patients were in a remission period and psychiatric findings had remitted, it is not possible to completely rule out the influence of residual symptoms on the temperament. In addition, personality characteristics of the patients before the illness were not taken into consideration. However, all these circumstances arise in the usual clinical practice. The exclusion criteria of the study were not designed to exclude parasuicidal behavior.

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