

Relationship of Intolerance of Uncertainty and Attachment Styles with the Clinical Features of Bipolar Disorder in Remission



Özge ŞEN¹ , Eren YILDIZHAN² 

SUMMARY

Objective: The intolerance of uncertainty and attachment styles may predict the severity and clinical characteristics of bipolar disorder. In this study, we aimed to investigate these features in remitted bipolar patients.

Method: This cross-sectional descriptive study included 150 BPD patients who were followed up at the outpatient clinics of Bakırköy Prof. Dr. Mazhar Osman Research and Training Hospital for Psychiatric and Neurological Diseases. After the evaluation for the inclusion/exclusion criteria, scores on the Young Mania Rating Scale and the Hamilton Depression Rating Scale were determined to confirm the state of remission. A sociodemographic data form, the Intolerance of Uncertainty Scale (IUS-12), the Relationship Scales Questionnaire (RSQ), the Inventory of Close Relationship Experiences 2 (ICRE-2), the Suicidal Behavior Questionnaire (SBQ) and the World Health Organization Disability Assessment Schedule 2.0 (WHODAS-2) were used to acquire data.

Results: Patients with a history of two or more suicidal attempts had significantly increased scores on the ICRE-2 avoidant subscale ($p=0.001$). Their scores on the ICRE-2 anxious subscale positively correlated with those on the IUS-12 prospective anxiety ($p=0.000$), and inhibitory anxiety ($p=0.000$) subscales. The linear regression model including the scores on the ICRE-2 avoidant and anxious subscales, the IUS-12 prospective anxiety and inhibitory anxiety subscales and the WHODAS-2 was predictive of the number of suicide attempts.

Conclusion: The number of suicide attempts might be higher in BPD patients with avoidant or anxious attachment styles, high intolerance of uncertainty and high levels of disability.

Keywords: Bipolar disorder, uncertainty, attachment, disability, suicide

INTRODUCTION

Intolerance of uncertainty is described as the propensity to interpreting negatively the uncertainty of events and situations and responding to these with negative emotions, cognitions or behaviors (Dugas et al. 2004). Individuals with increased intolerance of uncertainty have negative foresight of future events, tending to see adversity in uncertainty and responding with higher avoidance than seen in general (Buhr and Dugas 2002).

Intolerance of uncertainty is a recently developing construct that has been associated with several disorders as a transdiagnostic concept that has not yet been studied in BPD.

Intolerance of uncertainty is one of the key concepts of mindfulness based cognitive behavioral therapies.

Subthreshold improvement of depressive symptoms in remitting unipolar (BPD-II) and bipolar (BPD-I) disorders, and faster and significant improvement in anxiety symptoms in BPD-I patients were reported in response to mindfulness based cognitive behavioral therapy (Williams et al. 2008). Severity of intolerance of uncertainty has the potential to be used for evaluating the effectiveness of mindfulness based and other cognitive behavioral therapies provided as an adjunct to pharmacotherapy, especially in remitted BPD. But, there has not been any reported study until now on intolerance of uncertainty in BPD.

Forming interpersonal relationships by BPD patients has positive effects on treatment compliance (Ciechanowski et al. 2001) and relapse prevention (Miklowitz et al. 2005). Having proposed that evaluating adult attachment styles is one of the

Received: 31.07.2019, Accepted: 30.12.2019, Available Online Date: 05.05.2020

¹MD., Hakkari Yüksekova State Hospital, Department of Psychiatry, ²MD., Bakırköy Research and Training Hospital for Psychiatric and Neurological Diseases Department of Psychiatry, İstanbul, Turkey.

e-mail: erenyildizhan@hotmail.com

ways of investigating adult interpersonal relationships and internal representations of these relationships, Bartholomew and Horowitz (1991) described four attachment styles, as the secure, preoccupied, dismissing avoidant, and fearful avoidant attachments, resulting from the combination of two types of attachment styles as the working models for the individual and for others and the attachment theory by Bowlby (Çalışır 2009). Individuals with secure attachment style have positive points of view of themselves and others. The preoccupied attachment style involves negative expectations about one's self but positive expectations about others and a persistent need for assistance that causes anxiety (Erözkan 2004). The avoidant attachment style is a combination of overvalued self-idealization and negative expectations from others (Jones 2005). In the fearful attachment style; personal feelings of low self-esteem and being unlovable combine with the perception of negativity, unreliability and denial in the expectations from others (Yıldızhan 2016). Insecure attachment style was seen more frequently in BPD patients as compared to healthy individuals (Morriss et al. 2009). Weakness of bonds with parents was a factor adversely affecting relapse and treatment compliance in BPD patients (Joyce 1984). As compared to healthy controls, the instability of self-esteem and affect in BPD patients, even in remission, might indicate the vulnerability to the disorder (Knowles et al. 2007). Attachment style and depressive symptoms were found to be correlated on the basis of the scores on dysfunctional attitude patterns and self-esteem (Fuhr et al. 2017). In patients with schizophrenia and BP spectrum disorders, anxiety symptoms correlated with the present mood and the personality features irrespective of the primary diagnosis (Karpov et al. 2016). Morriss et al. (2009) reported higher scores of anxious attachment in BPD patients in comparison to healthy controls. Kökçü and Kesebir (2010) also reported a higher prevalence of insecure attachment in BPD patients especially with high avoidant attachment scores in comparison to healthy controls. Whereas the BPD patients with secure attachment style had the best adjustment ability and the lowest incidence of risky behaviors, the patients with preoccupied attachment style had lower levels of adjustment and very high incidence of risky behaviors (Cooper et al. 1998).

Individuals with BPD are known to have at least 15 fold increased rate of suicidal death in comparison to the general population (Gonda et al. 2012). The most significant predictors for suicidal death were affective episodes, suicidal ideation (Isometsä 2014) and a history of suicidal attempts (Gonda et al. 2012). Hopelessness, personality features such as impulsivity (O'Connor and Nock, 2014) and adverse experiences of childhood and adulthood were also among the factors affecting the tendency to suicidal behavior (Norman et

al. 2012, Van Orden et al. 2010). Although affective disorders are predictive for suicidal ideation, anxiety and impaired impulse control come to the fore in the passage from ideation to action (Isometsä and Lönqvist 1998). Systematic reviews about suicidal attempts and completed suicide implicate the clinical severity of depressive symptoms and comorbid anxiety disorders, cluster B personality features and substance use disorders as the main risk factors (Hawton et al. 2013, Chesney et al. 2014). Kohler-Forsberg et al. (2017) reported that suicidal ideation persisted in 14% of the 482 BPD patients given regular pharmacotherapy.

Our study tested the hypotheses that BPD patients with high scores on intolerance of uncertainty could have higher prevalence of insecure attachment styles and that the severity of intolerance for uncertainty and attachment styles could be clinical features.

METHOD

Participants and Design

Participants of the study consisted of male and female BPD patients consulting the outpatient clinics of Bakırköy Prof. Dr. Mazhar Osman Research and Training Hospital for Psychiatry, Neurology and Neurosurgery between December 2018 and February 2019, who met the recruitment criteria including the diagnosis of BPD according to DSM-5; and gave written informed consent to join the study. The minimum sample size was calculated for the medium effect size ($f^2=0.15$) in multiple regression analysis. The α error probability was determined as 0.05 and the $1-\beta$ error probability as 0.95. On the basis of the multiple regression analysis with 6 variables and power of 0.9506 (critical $F=2.283$), the minimum sample size was calculated as 138 and, hence, the sample size of the study was determined as 150 patients. Accordingly, 150 consecutive patients with former diagnosis of BPD and fulfilling the inclusion criteria were recruited for the study by the second author of this report, who also excluded the unsuitable patients. The first author verified the BPD diagnosis of the patients according to DSM-5 and checked present and past diagnoses and comorbidities on the basis of their outpatient and inpatient hospital records. Information on lifetime substance use was also detected by evaluating the former medical records and laboratory results. The Young Mania Rating Scale (YMRS) and Hamilton Depression Scale (HAM-D) were used once to assess the state of remission. The first author who had attended a formal course given by the Psychiatric Association of Turkey in 21.03.2015 on the implementation of these scales, conducted the these scales. Other clinically administrable scales were also applied by the first author to the recruited patients. Verbal and written informed

consents of the patients were obtained. Ethical approval was given for this study by Bakırköy Prof. Dr. Mazhar Osman Research and Training Hospital for Psychiatry, Neurology and Neurosurgery, Medical Practice and Research Center in 06.11.2018 (IRB report number 230).

The recruitment criteria of the study included being between 18 and 65 years of age, having BPD diagnosis, scoring ≤ 5 on the YMRS, scoring ≤ 7 on the HAM-D, being literate and giving written informed consent. In accordance with the proposal by the BPD study group of Hirschfeld and colleagues (2007), at least one week duration of remission was ascertained by checking the outpatient medical records or by interviewing a family member of the patient.

The exclusion criteria included diagnosis of mental disorder due to the general medical condition, mental retardation or organic mental disorder, schizophrenia or other psychotic disorder and substance use disorder.

All the patients included in our study had medical records for previous diagnosis of BPD and scored within the remission threshold on the YMRS and the HAM-D, and none were detected afterwards to be out of remission. Nevertheless, 2 patients were excluded with the final diagnosis of schizophrenia; 8 patients were excluded with the diagnosis of substance use disorder; 10 patients withdrew from participating as they could not allocate the required time and 5 patients could not complete the psychometric scales due to problems of concentration and cognitive difficulties.

Data Collection Instruments

The Clinical and Sociodemographic Data Form: Designed by the researchers for the purposes of this research, this detailed review form comprises the sociodemographic details and the clinical data of the patients. The data on suicidal attempts and ideation were recorded in 4 steps as "no lifetime suicidal behavior, lifetime suicide ideation without attempts, single suicide attempt, twice or more repeated suicide attempts", in accordance with the report by Aaltonen et al. (2016).

The Young Mania Rating Scale (YMRS): The YMRS, developed to assess the severity of mania and its variation, is completed by the interviewer (Young et al. 1978). The validity and reliability of the version adapted to the Turkish language was shown by Karadağ et al. (2001). The scale was used in our study in order to determine the remission state from manic symptoms.

The Hamilton Depression Rating Scale (HAM-D): The HAM-D is completed by the clinician to assess the severity of depression in patients diagnosed with depressive disorder (Hamilton 1960). The reliability and validity of the Turkish

language version was conducted by Akdemir et al. (1996). The scale was used in our study in order to assess the remission state from depressive symptoms.

The Intolerance of Uncertainty Scale 12 (IUS-12): Carleton et al. (2007) created This 5-point Likert type, self-report scale consists of 12 items and 2 subscales. The first 7 items comprise the 'prospective anxiety' subscale with questions about uncertain events in the future. The Last 5 items about anxiety are related to uncertainty in the 'inhibitory anxiety' subscale. The total score of the scale ranges between 12 and 60 points, without a predefined cut-off level. High scores signify increased intolerance of uncertainty. Reliability and validity study of the version translated to the Turkish language was conducted by Sariçam et al. (2014).

The Relationship Scales Questionnaire (RSQ): This self-report questionnaire developed by Griffin and Bartholomew (1994) comprises 30 items on the 4 types of attachment styles, each rated on a 5-point scale on how well the items describe one's own attachment in close relationships. The secure and avoidant attachment styles are questioned with 5 items each, while the preoccupied and fearful attachment styles are each questioned with 4 items each. The points scored on each item querying one of the attachment styles are totaled and divided by the number of the respective items. Thus, the scores on each attachment style range between 1 and 7 and the individual is assigned to one type of attachment style according to the highest score. The reliability and validity study of the RSQ adapted to the Turkish language was conducted by Sümer and Güngör (1999).

The Inventory of Close Relationship Experiences 2 (ICRE-2): The ICRE was developed by Fraley et al. (2000) to rate the attachment between adults. The reliability and validity of the form adapted to the Turkish language was shown by Selçuk et al. (2005). The ICRE-2 is a 7-point Likert type scale including 36 items with 18 assessing anxiety and 18 on avoidance behavior representing the 2-factor structure demonstrated by descriptive and corrective factor analyses.

The Suicidal Behavior Questionnaire (SBQ): The SBQ was developed by Linehan and Nielsen (1981) as a 4-item Likert type scale. Item-1 is about the history on "suicidal plans and attempts" with a score range between 0 and 5. Item-2 is on "suicidal ideation", with a score total of 0-4. Item-3 is on "suicidal threat" and consists of two options with 0 or 1 score. Item-4 is about the "repetitiveness of suicide" and has a score range between 0 and 4. The total score on the SBQ varies between 0 and 14. High scores signify serious suicidal behavior. The reliability and validity study of the version in the Turkish language was conducted by Bayam et al. (1995).

The World Health Organization Disability Assessment Schedule 2.0 (WHODAS-2): This is a tool developed by the World Health Organization for the measurement of disability in clinical groups or the general population. The reliability and validity of the clinician rated version in the Turkish language was demonstrated on schizophrenia patients by Uluğ et al. (2001). The latest version of the scale has three forms consisting of the clinician rated form, the self-report form, and a form that can be filled in by a family member. Reliability and validity of these forms were investigated by Kunt and Dereboy (2018). We used the clinician rated form of WHODAS-2 in our study.

Statistical Analysis

The results of the study were statistically analyzed on the IBM SPSS, Mac Version 20.0.0 Multiple linear regression was used for the analysis of the main hypotheses of the study. We defined 6 main variables consisting of secure attachment, preoccupied attachment, avoidant attachment, fearful attachment, prospective anxiety and inhibitory anxiety that were hypothesized to have clinically predictive significance for the BPD patients. Stepwise logistic linear regression was carried out by using the scores on the WHODAS-2, the subscales of the ICRE-2 and the IUS-12 as well as by adding or not adding the factors including age, disease duration, number of mood episodes and psychiatric comorbidity for determining the model to predict the number of suicidal attempts. Also, the G*Power 3.0.10 was used for calculation of the sample size.

RESULTS

Sociodemographic and Clinical Features

The participants of the study included 94 (62.7%) female and 56 (32.3%) male patients among whom 35.3% (n=53) were students; 35.3% (n=16) were employed; 54.0% (n=81) were unemployed; 46.7% (n=70) were single; 43.3% (n=65) were married; 0.7% (n=1) were widowed; 8.7% (n=13) were divorced; 0.7% (n=1) were separated; 95.3% (n=143) were living with their families and 4.7% (n=7) were living alone. The mean age of the patients was 37.33 (\pm 11.43) and the mean duration of education was 10.38 (\pm 5.62 years) years. Regarding the clinical course of the disorder, 78.8% (n=115) of the patients had full recovery; 17.1% (n=25) had partial recovery with moderate functioning and 4.1% (n=6) had poor functioning between episodes. While a family member attended the interviews with 64 (43.5%) patients 83 patients (56.5%) attended on their own. (Table 1).

The mean age of disease onset was 25.69 (\pm 8.9) years; the mean disease duration was 11.43 (\pm 8.51) years; the mean

Table 1. Sociodemographic and Clinical Characteristics

		Number	Percentage (%)	
Gender	Female	94	62.7	
	Male	56	37.3	
Occupation	Employed	53	35.3	
	Student	16	10.7	
	Unemployed	81	54.0	
Marital Status	Single	70	46.7	
	Married	65	43.3	
	Widow	1	0.7	
	Divorced	13	8.7	
	Separated	1	0.7	
Living with	Family	143	95.3	
	Alone	7	4.7	
Tobacco Use	None	73	48.7	
	Yes	77	51.3	
Alcohol Use	None	145	96.7	
	Yes	5	3.3	
Cannabis Use	None	148	98.7	
	Yes	2	1.3	
Clinical Course (N=146)	Full remission between episodes	115	78.8	
	Partial recovery with moderate functioning	25	17.1	
	Poor functioning between episodes	6	4.1	
Companion for outpatient referral (N=147)	Alone	83	56.5	
	Family	64	43.5	
Regular outpatient referrals (N=148)	Yes	146	98.6	
	No	2	1.4	
	Min.	Max.	Mean	Standard Deviation
Age	19	70	37.33	11.43
Education (years)	0	51	10.38	5.62
Age of onset of disorder	11	53	25.69	8.91
Disorder of duration (years)	1	47	11.43	8.51
Number of hospitalizations	0	20	2.18	2.86
Number of episodes per year	0.1	10	1.07	1.12
Total number of episodes	1	60	8.16	9.8
Period of using the same medication(month)	1	480	37.97	60.01
Duration of remission(months) (median:12)	0	480	24.33	44.90

Table 2. Relationship of Attachment and Intolerance of Uncertainty Scores with Suicide

	Suicide	Mean	Standard Deviation	F (p)	Difference (LSD)	
ICRE-2	Avoidant	1- No lifetime suicidal behavior	3.01	1.06	6.232* (.001)	4>1 4>2 4>3
		2- Lifetime suicide ideation without attempts	3.01	1.04		
		3- Single suicide attempt	3.17	.85		
		4- Repeated suicide attempts	4.32	.79		
	Anxious	No lifetime suicidal behavior	3.52	1.25	2.120 (.100)	-
		Lifetime suicide ideation without attempts	3.72	1.24		
		Single suicide attempt	3.47	1.19		
		Repeated suicide attempts	4.44	1.23		
IUS-12	Prospective Anxiety	No lifetime suicidal behavior	21.02	7.12	.583 (.627)	-
		Lifetime suicide ideation without attempts	23.13	5.94		
		Single suicide attempt	21.23	6.25		
		Repeated suicide attempts	21.00	7.27		
	Inhibitory Anxiety	No lifetime suicidal behavior	13.40	5.67	.823 (.483)	-
		Lifetime suicide ideation without attempts	14.50	5.04		
		Single suicide attempt	13.03	5.27		
		Repeated suicide attempts	15.66	7.59		

ICRE-2: Inventory of Close Relationship Experiences 2, IUS-12: Intolerance of Uncertainty Scale12, df (146, 3)

treatment duration on the same medication was 37.97 (\pm 60.01) months, the duration of remission was 24.33 (\pm 44.90) months (median:12, interquartile range:18). The number of previous manic, depressive and hypomanic episodes were, respectively 3.93 \pm 4.28, 3.32 \pm 4.00 and 4.08 \pm 7.39. The minimum and the maximum number of episodes were respectively, 1 and 60 and the mean total number of episodes was 8.03 (\pm 9.84). There were 16 patients with only 1 episode; 10 patients with 2 episodes, 21 patients with 3 episodes and 34 patients with a history of 10 or more episodes. The number of past psychiatric hospitalizations was 2.18 \pm 2.86. Psychiatric comorbidity diagnoses in 14 patients included anxiety disorders (n=7), obsessive-compulsive disorder (n=6) and, attention deficiency and hyperactivity disorder (n=1).

Comparisons of the Scores on the Intolerance of Uncertainty, Attachment Styles and Suicidal History

Differences between the ICRE-2 and the IUS-12 subscale scores with regard to the presence of suicidal ideation were compared with One Way Analysis of Variance (ANOVA). There were 90 patients with no lifetime suicidal behavior or ideation, 22 patients with lifetime suicidal ideation without attempts, 26 patients with a single suicidal attempt and 12 patients with repeated suicidal attempts. The ICRE-2 avoidant attachment scores significantly differed between these groups [F(146, 3)=6.232, p=0.001]. It was shown by Post Hoc (LSD) analyses that the ICRE-2 avoidance subscale scores of patients with 2 or more previous suicidal attempts (X=4.32) were higher from the scores of the patients without any lifetime suicidal behavior or ideation (X=3.01), from

Table 3. Correlation of Clinical Features, Suicidal Behavior Questionnaire, ICRE-2 and IUS-12

		1	2	3	4	5	6	7	8
1	Disease Duration	-							
2	Number of hospitalizations	.366**	-						
3	Number of episodes per year	.024	.008	-					
4	Suicidal Behavior Questionnaire	-.017	-.082	.102	-				
5	ICRE-2	Avoidant	-.004	.143	-.126	.148	-		
		Anxious	.092	.117	.054	.264**	.381**	-	
7	Prospective Anxiety	.180*	-.016	.173	.241**	-.061	.398**	-	
8	Inhibitory Anxiety	.167*	-.049	.253**	.173*	.084	.371**	.605**	-

ICRE-2: Inventory of Close Relationship Experiences 2, IUS-12: Intolerance of Uncertainty Scale12
N: 149. *: p<0.05. **: p<0.01

Table 4. Stepwise Logistic Regression Analysis for the Prediction of Suicidal Thought with the Scores of Close Relationship Experiences, Intolerance of Uncertainty, General Functioning and Clinical Features

		B	S.H	Wald	p	Exp (B)
I. Step: Omnibus Test: X ² : 10.992. p: .027. -2 Log Probability: 156.985. Nagelkerke R ² : .114	Constant	-.222	.680	.106	.744	.801
	Gender	.370	.411	.812	.368	1.448
	Psychiatric Comorbidity	-.347	.591	.345	.557	.707
	Duration of Disorder	-.064	.032	4.129	.042	.938
	Number of Episodes	.079	.029	7.266	.007	1.082
II. Step: Omnibus Test: X ² : 6.300. p: .287	Constant	-1.303	1.134	1.320	.251	.272
	Gender	.282	.428	.435	.509	1.326
	Psychiatric Comorbidity	-.600	.630	.908	.341	.549
	Duration of Disorder	-.075	.033	4.980	.026	.928
	Number of Episodes	.091	.032	7.878	.005	1.095
	ICRE- Avoidant	.402	.218	3.384	.066	1.494
	ICRE- Anxious	.119	.189	.393	.531	1.126
	IUS- Prospective Anxiety	.018	.041	.188	.664	1.018
	IUS- Inhibitory Anxiety	-.018	.049	.130	.719	.982
WHODAS-2	-.044	.030	2.186	.139	.957	

Model Sum: Omnibus Test: X²: 17.292, p: .044, -2 Log Probability: 150.684, Nagelkerke's R²: .175, Hosmer & Lemeshow Test: X²: 4.587, p: .801, Dependent Variable: Suicidal Thought: Yes/None

patients with lifetime suicide ideation without attempts (X=3.01) and from patients with single suicide attempt (X=3.17) (Table 3).

There were 24 patients with secure attachment, 39 with fearful attachment, 24 with preoccupied attachment and 61 with avoidant attachment styles. When the IUS-12 subscale and WHODAS-2 scores of these patients displaying the 4 different types of attachment styles were compared with ANOVA, significant intergroup differences with respect to intolerance of uncertainty and disability were not found (p>0.05).

Correlation analysis was used to determine the relationships between the scores on the SBQ, ICRE-2 and the IUS-12 and the clinical variables. The results showed that there were significant positive correlations between disease duration and the number of hospitalizations (r=0.366, p=0.000), the IUS-12 prospective anxiety subscale (r=0.180, p=0.031) and the inhibitory anxiety subscale (r=0.167, p=0.045). The number of mood episodes per year was significantly positively correlated with the scores on the IUS-12 inhibitory anxiety subscale (r=0.253, p=0.009). The ICRE-2 anxious attachment scores were positively correlated with the scores on the IUS-12 prospective anxiety (r=0.398, p=0.000) and the IUS-12 inhibitory anxiety (r=0.371, p=0.000). Also, the SBQ scores were positively correlated with the scores on the ICRE-2 anxious attachment subscale (r=0.264, p=0.001), the IUS-12 prospective anxiety subscale (r=.241, p=0.003) and the IUS-12 (r=.173, p=0.035) inhibitory anxiety subscale (Table 4).

Regression Analysis to test the Prediction of Suicidal Ideation with the scores on the Close Relationship Experiences, Intolerance of Uncertainty, Disability and Clinical Features

Stepwise linear regression was carried out by using the scores on the WHODAS-2, the subscales of the ICRE-2 and the IUS-12, as well as by adding or not adding the factors including age, disease duration, number of episodes and psychiatric comorbidity for determining the model to predict the number of suicidal attempts (Table 4). The presence or absence of suicidal ideation in this model was defined as a dependant categorical variable.

In the first step; the independent variables included were gender, disease duration, number of previous episodes and psychiatric comorbidity, and in the second step, the other independent variables consisted of the ICRE-2 (avoidant and anxious subscales), IUS-2 (inhibitory and prospective subscales) and WHODAS-2 scores..

In the first step of the logistic model, with all independent variables included in the equality; the (-2 Log) probability and the Nagelkerke's R² values were 156.985 and 0.114, respectively. The model at this step was determined to predict significantly the variables related to whether or not ever having suicidal ideation (X²:10.992, p<0.05). Regression coefficients pointed to the significant positive predictive contributions of disease duration (Wald:4.129) and of the number of the previous mood episodes (Wald:7.266).

In the second step, after adding to the model the scores on the ICRE-2 avoidant and anxious subscales, the IUS-2

Table 5. Stepwise Linear Regression Analysis for the Prediction of Number of Suicide Attempts with the Scores of Close Relationship Experiences, Intolerance of Uncertainty, General Functioning and Clinical Features

		B	β	t	p	Paired r	Partial r
I. Step: R= .309 R ² = .095 R ² adj= .065 F(4.119)=3.140 p:0.017	Constant	1.741		2.693	.008		
	Age	-.014	-.078	-.717	.475	-.066	-.063
	Psychiatric Comorbidity	-.006	-.001	-.010	.992	-.001	-.001
	Disease Duration	-.035	-.142	-1.152	.252	-.105	-.100
	Number of Episodes	.075	.365	3.463	.001	.303	.302
II. Step: R ² change= .079. F(5.114)=2.192 p:0.060	Constant	.189		.192	.848		
	Age	-.022	-.120	-1.052	.295	-.098	-.089
	Psychiatric Comorbidity	-.044	-.007	-.077	.939	-.007	-.007
	Duration of Disorder	-.031	-.126	-1.027	.306	-.096	-.087
	Number of Episodes	.070	.344	3.187	.002	.286	.271
	ICRE- Avoidant	.086	.044	.446	.656	.042	.038
	ICRE- Anxious	.273	.172	1.596	.113	.148	.136
	IUS- Prospective Anxiety	.058	.195	1.548	.124	.144	.132
	IUS- Inhibitory Anxiety	-.063	-.169	-1.431	.155	-.133	-.122
	WHODAS-2	.018	.069	.705	.482	.066	.060

Model Sum: R= .418, R²= .175, R²adj= .110, F (9. 114)= 2.684, p:0.007
Dependent Variable: Number of Suicide Attempts

inhibitory and prospective subscales and the WHODAS-2, the new model was still significant in predicting suicidal ideation (-2 Log probability:150.684; Nagelkerke's R²:0.175; X²:17.292, p<0.05), although a significant contribution to the model by the scores added in the second step was not observed (X²:6.300, p>0.05). The regression coefficients of the total model showed that disease duration (Wald:4.980) and number of the previous mood episodes (Wald:7.878) were again the significant positive predictors.

Regression Analysis for Predicting the Number of Suicide Attempts with the Scores on Close Relationship Experiences, Intolerance of Uncertainty, Disability and Clinical Features

Stepwise logistic linear regression analysis was performed with the aim to determine the predictability of the number of suicide attempts using the scores on the ICRE-2, the IUS-12 and the WHODAS-2 and also to see the contribution of age, disease duration, number of past episodes and psychiatric comorbidity to the regression model (Table 5). Number of previous suicide attempts was determined as a dependent variable in this model. The independent variables of age, disease duration, number of previous episodes and psychiatric comorbidity were tested in the first step and the other independent variables consisting of the scores on the ICRE-2 avoidant and anxious subscales, the IUS-2 inhibitory and prospective subscales and the WHODAS-2 scores were added to the model in the second step.

In the first step of the linear regression; 10% of the variance (R²=0.095) in the number of suicides could be explained with significance [F(4,119)=3.140, p<0.05]. The number of previous mood episodes was the significant positive predictor for the number of suicide attempts (β =0.365, p<0.05).

In the second step, after adding the ICRE-2 avoidant and anxious subscale, the IUS-2 inhibitory and prospective subscale and the WHODAS-2 scores to the model; the new model did not show significant change (R²=0.079) in the variance of the number of suicides [F (5,114) =2.192, p>0.05]. The final model was able to explain 18% of the variance in the number of previous suicides (R²=0.175) which was statistically significant [F(9,114)=2.684, p<0.01]. In the final model, the number of previous mood episodes was the significant positive predictor for the number of the past suicidal attempts (β =0.344, p<0.05).

DISCUSSION

In this study it was shown that the ICRE-2 avoidant attachment subscale scores were significantly different between the BPD patient groups with suicidal symptoms and that the ICRE-2 scores of the group of patients with 2 or more past suicidal attempts were significantly higher (p=0.001). The ICRE-2 anxious attachment scores showed significant positive correlation with the IUS-12 prospective anxiety (r=0.398, p=0.000) and inhibitory anxiety scores (r=0.371, p=0.000). The regression models including intolerance of uncertainty, attachment and clinical variables indicated the previous

mood episodes as a predictor of both suicidal ideation and the number of previous suicidal attempts. Also, disease duration was found to be a predictor for suicidal ideation.

Insecure attachment style is frequently observed in BPD patients and it is found to be associated with adverse clinical outcomes. Greenberg (2014) demonstrated that depression and poor psychosocial functioning were more common in individuals with insecure attachment style. Attachment style of BPD patients may affect the patient-clinician relationship, treatment recommendations, the clinical course and the treatment compliance. It is seen in the literature that patients with secure attachment style have better protective health behavior and adherence to treatment (Cassis et al. 2018). However, it is thought that the prevalence of secure attachment in BPD cases varies between 11% and 22% (Greenberg 2014). In our research; 16.6 % of the patients had secure attachment style, while 26.9% had the fearful, 15.9% had the preoccupied and 40.7% had the avoidant attachment styles. Morris et al. (2009), using the Bartholomew & Horowitz Relation Questionnaire, reported that BPD patients had significantly higher scores on anxious and avoidant attachment styles than the healthy controls. K k c  and Kesebir (2010) reported higher incidences of insecure attachment styles, especially the avoidant attachment style in BPD. Kefeli et al. (2018) reported secure attachment to be more frequent in healthy individuals than in BPD patients, showing that 35% of the BPD patients had secure attachment, followed by 25% with anxious, 22.5% with fearful and 17.5% with avoidant attachment styles. Other studies in the literature state that insecure attachment styles are more frequent in BPD in comparison to healthy individuals, which agrees with our results.

In our study, the BPD patients with a history of two or more suicidal attempts had significantly higher scores on the ICRE-2 avoidant attachment subscale than the other three groups of patients. Avoidant attachment may not be the primary factor in suicidal attempts; but it may be effective in preventing access to treatment and leading, indirectly, to the increased number of suicidal attempts. Patients with avoidant type insecure attachment style might have less help seeking behavior and, therefore, might not be asking for or marginally seeking the available treatment opportunities. As a result of the decreased motivation to seek help, suicidal attempts preventable by treatment modifications or psychosocial interventions may occur. For this reason, considering the question of suicidal intentions as a routine approach of psychiatric investigation may be useful whether or not it is expressed by the patient.

Intolerance of uncertainty can be described by the two subdimensions of prospective anxiety and inhibitory anxiety. The former is about the conception of the dangers of an

unknown future and the latter is about behavioral outcomes of uncertainty (Carleton et al. 2007). According to our results, prospective anxiety is related with disease duration and the number of hospitalizations; and inhibitory anxiety is related with disease duration, the number of hospitalizations and the number of previous mood episodes. Patients with long disease duration, high number of hospitalizations and high number of previous episodes tend to have high scores of intolerance of uncertainty. In this analysis, it should be stated that the *r* values were less than 0.30, which means that the observed correlations were relatively weak.

Although intolerance of uncertainty was initially used as a predictor of generalized anxiety disorder (Dugas et al. 2004), it was later found to be related to other anxiety disorders and diverse types of psychopathologies including depression (Carleton 2012, Carleton et al. 2012, Mahoney et al. 2012), obsessive-compulsive disorder (Toffolo et al. 2014), psychotic disorders (Broome et al. 2007) and opioid addiction (Garami et al. 2017). It is considered to be a transdiagnostic risk factor for depression and anxiety disorders (Einstein 2014). According to the results of our study, intolerance of uncertainty is related to the features of chronicity such as the number of previous mood episodes and disease duration in BPD.

Hirschfeld and colleagues (2007) described remission as the absence or minimal presence of manic or depressive symptoms for at least one week. They used the term “sustained remission” for remission longer than 8 weeks. In our study, the duration of the remission was three weeks, i.e., less than 1 month for 1 patient and less than 2 months for 10 patients. Hence, we have described the case of these 11 patients as “early remission”. Data on any difference in attachment style and intolerance of uncertainty at early and sustained remission have not been reported in the literature. These characteristics are not rapidly changing phenomena such as mood, but remain relatively resistant to change as with personality characteristics (Scott et al. 2009, Radell et al. 2016). In our study, the number of patients with early remission was not enough to enable comparisons between patients with early and sustained remission.

In our study, the scores on the ICRE-2 anxious attachment subscale significantly correlated with both of the 2 dimensions of intolerance of uncertainty. This finding is important as it is the first demonstration of a relationship between intolerance of uncertainty and attachment styles in BPD. There were reports of significant relationship between intolerance of uncertainty and anxiety in non-clinical samples (Dugas et al. 2001, Khawaja and Chapman 2007, Meeten et al. 2012). Also, insecure attachment style was found to be a predictor for increased intolerance of uncertainty in patients with eating disorders (Sternheim et al. 2017). Uzun and Karataş (2018)

determined that the positive or negative beliefs developed by individuals about the events they experienced exacerbated their intolerance of uncertainty. Buhr and Dugas (2006) concluded that intolerance of uncertainty was a powerful predictor for anxiety. Intolerance of uncertainty was reported to decrease in parallel with anxiety in response to treatment (Ladouceur et al. 2000). Our results on the relationship between intolerance of uncertainty and attachment styles in BPD are in agreement with the results of the above referred studies in the literature.

In our study, 60 % of the BPD patients never had suicidal ideation, while 14% had suicidal ideation in the past but had not made any attempt, but 17.3% had a history of 1 suicidal attempt and 8% had made two or more suicidal attempts. Üstündağ and Kesebir (2016) reported that 24% of their patients had a history of one or more suicidal attempts. Novick et al. (2010) argued that the prevalence of suicide in BPD patients was in the 30-40% range. However, some studies in the literature mention that, given the cases of suicidal attempts not referred to any healthcare center for treatment, the actual suicide prevalence should exceed 50% (Valtonen et al. 2005, Valtonen et al. 2006).

We determined that the SBQ scores of the patients correlated with the scores on the ICRE-2 anxiety subscale and also correlated with both of the dimensions of intolerance of uncertainty. In other words, as the ICRE-2 anxiety subscale scores and the IUS-12 scores increase; the SBQ scores are expected to increase. It was reported that when intolerance of uncertainty increased, suicidal ideation also increased in patients other than those with BPD (Gümüő and Sezgin 2016) and suicide was more incident among depression patients with fearful attachment style (Özer et al. 2015). Considering the chronic course of BPD with remitting and relapsing mood episodes, the uncertainty and unpredictability of this condition causes hopelessness and negative effects on the mood of the patients. BPD patients may find it difficult to cope with the severity of the disease, and the negative thoughts and anxiety about the future may trigger suicidal ideations.

According to the regression analysis results; disease duration and the number of previous mood episodes are predictors of suicidal ideation. Also, the number of previous mood episodes is a predictor of the number of suicidal attempts. Adding the scores on attachment styles and intolerance of uncertainty at the second step of the regression analysis did not make a strong contribution to the significance of the final regression model. Hence, it was concluded that attachment styles or intolerance of uncertainty are not strong causal determinants of psychopathology, but that they have the potential of contributing to complications of the disorder.

Despite reaching the polyclinic and hospital records and thereby determining the past diagnoses and the comorbidities of the patients, not having made these diagnoses by structured clinical interviews is one of the limitations of this study and this weakens the evaluations on the comorbidities. Majority of the patients included in the study consisted of patients in a chronic disease process who had experienced 2 or more mood episodes. Our results should be interpreted by considering these features of the study.

CONCLUSION

This study has demonstrated that disease duration is a predictor of suicidal ideation and that the number of the past mood episodes was a variable that predicted both suicidal ideation and the incidence suicidal attempts. The scores on the ICRE-2 avoidant subscale differed significantly between the patients on the basis of suicidal ideation and suicidal attempt. The scores of the patients with a history of 2 or more suicidal attempts were significantly higher than the scores of the patients with 1 past suicidal attempt, the patients with suicidal ideation which was never put to action and those who never had suicidal ideation. Therefore, we recommend the use of the ICRE-2, that has enabled the demonstration of the relationship between avoidant attachment and suicide, for following up the effects of psychotherapeutic interventions made on BPD patients in remission. The demonstration of the positive correlation between the anxious attachment style and intolerance of uncertainty is an important finding that should be given attention within the scope of future research.

REFERENCES

- Aaltonen K, Näätänen P, Heikkinen M et al (2016) Differences and similarities of risk factors for suicidal ideation and attempts among patients with depressive or bipolar disorders. *J Affect Disord* 193:318-30.
- Akdemir A, Örsel S, Dağ I et al (1996) Clinical use and the reliability and validity of the turkish version of the Hamilton depression rating scale (HDRS). *Psikiyatri Psikoloji Psikofarmakoloji (3P) Dergisi* 4:251-9.
- Aslan Kunt D, Dereboy F (2018) Validity and reliability of the world health organization disability assessment schedule 2.0 (WHODAS 2.0) in Turkish psychiatry patients and healthy controls. *Turk Psikiyatri Derg* 29:248-57.
- Bartholomew K, Horowitz LM (1991) Attachment styles among young adults: a test of a four-category model. *J Pers Soc Psychol* 61:226.
- Bayam G, Dilbaz N, Bitlis V et al (1995) İntihar davranışı ile depresyon, ümitsizlik, intihar düşüncesi ilişkisi: intihar davranış ölçeği geçerlilik, güvenilirlik çalışması. *Kriz Dergisi* 3:223-5.
- Broome MR, Johns LC, Valli I et al (2007) Delusion formation and reasoning biases in those at clinical high risk for psychosis. *Br J Psychiatry* 191:38-42.
- Buhr K, Dugas MJ (2002) The intolerance of uncertainty scale: Psychometric properties of the English version. *Behav Res Ther* 40:931-45.
- Buhr K, Dugas MJ (2006) Investigating the construct validity of intolerance

- of uncertainty and its unique relationship with worry. *J Anxiety Disord* 20:222-36.
- Carleton RN (2012) The intolerance of uncertainty construct in the context of anxiety disorders: Theoretical and practical perspectives. *Expert Rev Neurother* 12:937-47.
- Carleton RN, Mulvogue MK, Thibodeau MA et al (2012) Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression. *J Anxiety Disord* 26:468-79.
- Carleton RN, Norton MPJ, Asmundson GJ (2007) Fearing the unknown: a short version of the Intolerance of Uncertainty Scale. *J Anxiety Disord* 21:105-17.
- Cassis T, Do A, Cervantes P et al (2018) Relationship style in major depression and bipolar types I and II. *Biol Psychiatry* 83:303-4.
- Chesney E, Goodwin GM, Fazel S (2014) Risks of all-cause and suicide mortality in mental disorders: a meta-review. *World Psychiatry* 13:153-60.
- Ciechanowski PS, Katon WJ, Russo JE et al (2001) The patient-provider relationship: attachment theory and adherence to treatment in diabetes. *Am J Psychiatry* 158:29-35.
- Cooper ML, Shaver PR, Collins NL (1998) Attachment styles, emotion regulation, and adjustment in adolescence. *J Pers Soc Psychol* 74:1380.
- Çalisir M (2009) The relationship of adult attachment theory and affect regulation strategies to depression. *Current Approaches in Psychiatry* 1:240-55.
- Demir S (2004). Bir Grup Üniversite Öğrencisinde Bağlanma Stilleri Ve İntihar Davranışı Arasındaki İlişki (Unpublished Doctorate Thesis). Adnan Menderes University, Aydın.
- Dugas MJ, Gosselin P, Ladouceur R (2001) Intolerance of uncertainty and worry: investigating specificity in a nonclinical sample. *Cognit Ther Res* 25:551-8.
- Dugas MJ, Schwartz A, Francis K (2004) Brief report: intolerance of uncertainty, worry, and depression. *Cognit Ther Res* 28:835-42.
- Einstein DA (2014) Extension of the transdiagnostic model to focus on intolerance of uncertainty: a review of the literature and implications for treatment. *Clin Psychol-Sci Pr* 21:280-300.
- Erözkan A (2004) Lise öğrencilerinin bağlanma stilleri ve yalnızlık düzeylerinin bazı değişkenlere göre incelenmesi. Atatürk Üniversitesi Sosyal Bilimler Enstitüsü Dergisi 4.
- Fraley RC, Waller NG, Brennan KA (2000) An item response theory analysis of self-report measures of adult attachment. *J Pers Soc Psychol* 78:350.
- Fuhr K, Reitenbach I, Kraemer J et al (2017) Attachment, dysfunctional attitudes, self-esteem, and association to depressive symptoms in patients with mood disorders. *J Affect Disord* 212:110-6.
- Gümüş K, Sezgin S (2016) The effect of intolerance of uncertainty in multiple sclerosis patients on suicidal ideation. *Journal of International Social Research* 9:475-86.
- Garami J, Haber P, Myers CE et al (2017) Intolerance of uncertainty in opioid dependency-relationship with trait anxiety and impulsivity. *PLoS One* 12:e0181955.
- Gonda X, Pompili M, Serafini G et al (2012) Suicidal behavior in bipolar disorder: epidemiology, characteristics and major risk factors. *J Affect Disord* 143:16-26.
- Greenberg S (2014) Attachment Style, Perceived Life events, and Psychological Well-being in Adults Coping with Bipolar Disorder: A Longitudinal Study, Unpublished Thesis of Master of Arts, Ohio, Bowling Green State University. Hamilton M (1960) A rating scale for depression. *J Neurol Neurosurg Psychiatry* 23:56-62.
- Hawton K, Comabella CC, Haw C et al (2013) Risk factors for suicide in individuals with depression: a systematic review. *J Affect Disord* 147:17-28.
- Hirschfeld RM, Calabrese JR, Frye MA et al (2007) Defining the clinical course of bipolar disorder: response, remission, relapse, recurrence, and roughening. *Psychopharmacol Bull* 40:7-14.
- Isometsä E (2014) Suicidal behaviour in mood disorders—who, when, and why? *Can J Psychiat* 59:120-30.
- Isometsä ET, Lönnqvist JK (1998) Suicide attempts preceding completed suicide. *Brit J Psychiat* 173:531-5.
- Jones SM (2005) Attachment style differences and similarities in evaluations of affective communication skills and person-centered comforting messages. *West J Commun* 9:233-49.
- Joyce PR (1984) Parental bonding in bipolar affective disorder. *J Affect Disord* 7:319-24.
- Köhler-Forsberg O, Madsen T, Behrendt-Møller I et al (2017) Trajectories of suicidal ideation over 6 months among 482 outpatients with bipolar disorder. *J Affect Disord* 223:146-52.
- Kökçü F, Kesebir S (2010) The relationship between attachment style, and temperament, personality and bipolar symptoms: a controlled study on bipolar patients and their children. *Türk Psikiyatri Derg* 21:309-18.
- Karadağ F, Oral ET, Aran Yalçın F et al (2001) Reliability and validity of Turkish translation of young mania rating scale. *Türk Psikiyatri Derg* 13:107-14.
- Karpov B, Joffe G, Aaltonen K et al (2016) Anxiety symptoms in a major mood and schizophrenia spectrum disorders. *Eur Psychiatry* 37:1-7.
- Kefeli MC, Turow RG, Yıldırım A et al (2018). Childhood maltreatment is associated with attachment insecurities, dissociation and alexithymia in bipolar disorder. *Psychiatry Res* 260:391-9.
- Khawaja NG, Chapman D (2007) Cognitive predictors of worry in a non-clinical population. *Clinical Psychologist* 11:24-32.
- Knowles R, Tai S, Jones SH et al (2007) Stability of self-esteem in bipolar disorder: comparisons among remitted bipolar patients, remitted unipolar patients and healthy controls I. *Bipolar Disord* 9:490-5.
- Ladouceur R, Gosselin P, Dugas MJ (2000) Experimental manipulation of intolerance of uncertainty: A study of a theoretical model of worry. *Behav Res Ther* 38:933-41.
- Linehan MM, Nielsen SL (1981) Assessment of suicide ideation and parasuicide: Hopelessness and social desirability. *J Consul Clin Psych* 49:773-5.
- Mahoney AE, McEvoy PM (2012) A transdiagnostic examination of intolerance of uncertainty across anxiety and depressive disorders. *Cogn Behav Ther* 41:212-22.
- Meeten F, Dash SR, Scarlet ALS et al (2012) Investigating the effect of intolerance of uncertainty on catastrophic worrying and mood. *Behav Res Ther* 50:690-8.
- Miklowitz DJ, Wisniewski SR, Miyahara S et al (2005) Perceived criticism from family members as a predictor of the one-year course of bipolar disorder. *Psychiatry Res* 136:101-11.
- Morriss RK, van der Gucht E, Lancaster G et al (2009) Adult attachment in bipolar I disorder. *Psychol Psychother-T* 82:267-77.
- Norman RE, Byambaa M, De R et al (2012) The long-term health consequences of child physical abuse, emotional abuse, and neglect: a systematic review and meta-analysis. *PLoS Med* 9:e1001349.
- Novick DM, Swartz HA, Frank E (2010) Suicide attempts in bipolar I and bipolar II disorder: a review and meta-analysis of the evidence. *Bipolar Disord* 12:1-9.
- O'Connor RC, Nock MK (2014) The psychology of suicidal behaviour. *Lancet Psychiat* 1:73-85.
- Özer Ü, Yıldırım EA, Erkoç EA (2015) Relationship of suicidal ideation and behavior to attachment style in patients with major depression. *Arch Neuropsychiatr* 52:283-8.
- Radell ML, Myers CE, Beck KD et al (2016) The personality trait of intolerance of uncertainty affects behavior in a novel computer-based conditioned place preference task. *Front Psychol* 7:1115.
- Rosen NO, Knäuper B (2009) A little uncertainty goes a long way: State and trait differences in uncertainty interact to increase information seeking but also increase worry. *Health Commun* 24:228-38.
- Sümer N, Güngör D (1999) Yetişkin bağlanma stilleri ölçeklerinin Türk örnekleme üzerinde psikometrik değerlendirmesi ve kültürlerarası bir karşılaştırma. *Türk Psikol Derg* 14:71-106.
- Sarıçam H, Erguvan FM, Akın A et al (2014) The Turkish short version of the

- intolerance of uncertainty (IUS-12) scale: the study of validity and reliability. *Route Educ Soc Sci J* 1:148-57.
- Selçuk E, Günaydın G, Sümer N et al (2005) A new scale developed to measure adult attachment dimensions: experiences in close relationships-revised (ECR-R) – psychometric evaluation in a Turkish sample. *Türk Psikoloji Yazıları* 8:1-11.
- Scott LN, Levy KN, Pincus AL (2009) Adult attachment, personality traits, and borderline personality disorder features in young adults. *J Pers Disord* 23:258-80.
- Sternheim LC, Fisher M, Harrison A et al (2017) Predicting intolerance of uncertainty in individuals with eating disorder symptoms. *J Eating Disord* 5:26.
- Toffolo MB, van den Hout MA, Engelhard IM et al (2014) Uncertainty, checking, and intolerance of uncertainty in subclinical obsessive compulsive disorder: an extended replication. *J Obsessive Compuls Relat Disord* 3:338-44.
- Uluğ B, Ertuğrul A, Gögüş A et al (2001) Reliability and validity of the Turkish version of the world health organization disability assessment schedule-II (WHO-DAS-II) in schizophrenia. *Türk Psikiyatri Derg* 12:121-30.
- Uzun K, Karataş Z (2018) Positive and negative beliefs about worry as the predictors of intolerance caused by uncertainty. *Kastamonu Education Journal* 26:1267-76.
- Üstündağ MF, Kesebir S (2013) Internalized stigmatization in bipolar patients: relationship with clinical properties, quality of life and treatment compliance. *Türk Psikiyatri Derg* 24:1-9.
- Valtonen HM, Suominen K, Mantere O et al (2006) Prospective study of risk factors for attempted suicide among patients with bipolar disorder. *Bipolar Disord* 8:576-85.
- Valtonen H, Suominen K, Mantere O et al (2005) Suicidal ideation and attempts in bipolar I and II disorders. *J Clinical Psychiat* 66:1456-62.
- Van Orden KA, Witte TK, Cukrowicz KC et al (2010) The interpersonal theory of suicide. *Psychol Rev* 117:575.
- Williams JMG, Alatiq Y, Crane C et al (2008) Mindfulness-based cognitive therapy (MBCT) in bipolar disorder: preliminary evaluation of immediate effects on between-episode functioning. *J Affect Disord* 107:275-9.
- Yıldızhan E (2016) Attachment theory and a glance at attachment disorders. *Anatolian Clinic the Journal of Medical Sciences* 22:66-72.
- Young RC, Biggs JT, Ziegler VE et al (1978) A rating scale for mania: reliability, validity and sensitivity. *Brit J Psychiat* 133:429-35.