



RESEARCH ARTICLE

Response styles and avoidance strategies in bipolar disorder and healthy controls: A comparative study

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ABSTRACT

Objective: This study aimed to investigate stress appraisals, rumination, worry, and experiential avoidance (EA) in patients with bipolar disorder-I (BD-I) in the euthymic phase of the illness. The effects of these processes on functionality in individuals with BD-I are also investigated.

Method: Using the Stress Appraisal Measure Dispositional Form (SAM-D), Ruminative Thinking Style Questionnaire (RTSQ), Penn State Worry Questionnaire (PSWQ), and Acceptance and Action Questionnaire-II (AAQ-II), we compared 67 BD-I patients with 70 healthy controls. Additionally, multiple linear regression analysis was used to determine the predictors of functionality levels measured by the Bipolar Disorder Functioning Questionnaire (BDFQ).

Results: BD-I group showed significantly higher SAM-D “threat,” “uncontrollable by anyone,” and “control by others” scores. The BD-I group also reported higher EA (AAQ-II) than the control group. Rumination (RTSQ) and worry (PSWQ) did not show any significant differences between groups. BDFQ was negatively predicted “uncontrollable by anyone” and positively predicted by “control by others” subdimensions of SAM-D.

Conclusion: Our findings suggested that patients with BD-I have differences in stress appraisals, even in the euthymic phase. Higher AAQ-II scores seemed to be a distinctive feature for patients with BD-I that may be related to perceiving stressful situations as threatening and uncontrollable. Our results present new perspectives for psychotherapeutic interventions both for the treatment and for the improvement of the functioning of these patients.

Keywords: Bipolar disorder, experiential avoidance, rumination, stress appraisal, worry

INTRODUCTION

Bipolar disorder (BD) is defined as a chronic psychiatric disorder with recurrent “manic,” and “depressive” episodes and in which the person can return to a completely euthymic mood between these episodes (1). Despite effective pharmacotherapy regimens, many patients with BD do not fully recover between episodes, and residual symptoms persist even if they do not meet

the diagnostic criteria (2). On the other hand, individuals who show clinical improvement continue to have problems in social relationships, and their functionality is impaired (3). To improve treatment responses and develop new treatment modalities, the need for a clearer understanding of the psychological mechanisms that can contribute to the onset, maintenance, and recovery of periods of mania and depression which define BD is apparent.

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Approaches explaining bipolar spectrum disorders through the unipolar depression model suggested that strategies used to avoid depression may be responsible for the onset of manic episodes (4,5). One of the theories that can be addressed in this context is the “response style theory” developed by Nolen-Hoeksema (6) based on the concept of depressive rumination. While rumination is defined as “a repetitive and dysfunctional way of thinking about the meaning, causes and consequences of depression symptoms,” Nolen-Hoeksema (7) suggested that the strategies used by individuals in response to negative moods, such as distraction, risk-taking, and problem-solving, may affect the duration and severity of depression. In recent years, there has been an increasing number of studies showing that the other forms of responses mentioned above can also lead to mania and hypomania (8,9). Thomas and Bentall (8) suggested that patients with BD use coping strategies with the risk of mania and hypomania while reducing depressive symptoms. In a study they conducted with a sample of students, they showed that there was a strong relationship between depression and rumination and that hypomanic tendencies were associated not only with rumination but also with distraction and risk-taking (8). In line with this view, Lam and Wong’s (10) study found that patients with BD were able to display behaviors consistent with distraction and risk-taking such as taking more tasks, going out, spending money to cope with the prodromal symptoms of depression. Similarly, in another study on patients with mania, depression, BD in remission, and healthy controls, Thomas et al. (9) found that coping scores including risk-taking, problem-solving, and distraction were higher in the mania group than all other groups.

A worry is a form of repetitive thinking that is sustained despite negative consequences. Sibrava and Borkovec (11) defined worry as “a chain of thoughts and images, negatively affect-laden and relatively uncontrollable” and conceptualized the term as a kind of cognitive avoidance strategy. They emphasized that worry has the function of reducing disturbing images, bodily sensations, and emotions by focusing attention on potential future threats (12). While there is strong evidence to suggest that worry plays a central role in generalized anxiety disorders (13) and occurs in depression (14,15), studies on BD are limited. In addition to evidence showing that worry is higher in euthymic BD patients than controls (16), as a more general definition, repetitive negative thinking, including worry, has been shown to predict lower mania symptoms (17).

As another process, Hayes suggested that experiential avoidance (EA), which is defined as an attempt to control or reduce unwanted internal experiences such as sad memories, emotions, thoughts, and memories, plays an important role in the onset and maintenance of psychopathology (18,19). Although previous literature has revealed the links between EA and numerous psychiatric disorders (20), research on the relationship between bipolar disorder and EA is quite limited. Wenze et al. (21) found a negative correlation between mood and EA in their study using ecological momentary assessment design, and they claimed that EA tended to increase when the mood was low.

Although mania is suggested to be associated with avoidance strategies used to regulate negative moods (4,5,9,22), these responses may be driven by how people appraise stressful situations, as people seek to avoid not only mood states but also stress that have been problematic for them (23). Indeed, stressful life events are accepted to be associated with both the onset of depressive and manic episodes and relapses. Ambelas (24) investigated life events in patients with a first manic episode, patients with relapses, and patients who underwent emergency surgery and found that 66% of first-episode mania had life events, and this rate was three times the relapses and ten times the controls. On the other hand, in their 2-year follow-up study, Hammen and Gitlin (25) found that individuals who had an episode in these 2 years were exposed to serious stress in the last 6 months before the episode and that there was an increase in the stress level in the last 3 months. Although it has been shown that stressful life events take place before the episode and stress levels increase again in the pre-episode period, studies on the mechanisms by which the experienced stress progresses into the episode are limited (26).

In the light of current scientific evidence, cognitive appraisal in the conceptualization of stress, repetitive thinking styles, and avoidance tendency can be considered risk factors for the onset and maintenance of depressive as well as hypomanic/manic episodes. Understanding the possible differences in these risk factors in patients with BD might point out how to intervene in the course of the illness to maximize the prophylactic effect and improve the quality of life. The primary aim of the current study was to investigate the presence of stress appraisals and levels of rumination, worry, and EA in patients with BD in the euthymic phase of the illness, compared with healthy controls. We hypothesized that patients with BD would show higher scores than healthy controls on rumination, worry, and EA.

METHOD

Participants

The clinical group consisted of 67 (36 female) patients, who were diagnosed with BD and were referred to the outpatient clinic of the Bakirkoy Prof. Mazhar Osman Training and Research Hospital for Psychiatry, Neurology, and Neurosurgery, Turkey. The mean age of patients with BD was 35.46 ± 8.39 years. Patients in remission at least for 2 months, who were receiving regular pharmacological treatment were included in the study. Inclusion criteria of the clinical group were: (i) age of 18–65 years (ii) being literate, (iii) primary diagnosis of bipolar disorder-I (BD-I) according to the Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text revision (DSM-IV-TR), and (iv) meeting the remission criteria at least 2 months defined by Hamilton Depression Rating Scale (27), total score up to 7, and the Young Mania Rating Scale (28), total score up to 5. The exclusion criteria were the presence of an intellectual disability or cognitive impairment, neurological or neurodevelopmental disorders, dementia, schizophrenia, and other psychotic disorders. Medical records of the participants and clinical interview were considered for exclusion criteria. The nonclinical sample, consisting of 70 healthy controls (36 females) who were similar to the case group in terms of age (mean age 35.81 ± 10.44 years), gender, and education, was recruited from the social network of the sanitary personnel of a local psychiatric service, on the basis of voluntary participation. Exclusion criteria for the nonclinical sample were the presence of a history of psychiatric admission, psychiatric disorder, and neurological or neurodevelopmental disorders.

Measurements

Ruminative Thinking Style Questionnaire (RTSQ)

RTSQ, developed to evaluate ruminative response styles by Brinker and Dozois (29), is a 7-point Likert-type scale consisting of 20 items. In contrast to previous rumination-oriented scales, RTSQ assesses a general ruminative response style, independently from the person's present mood, especially from depression. Reliability and validity study of the RTSQ Turkish version was conducted in 2013 by Karatepe et al. (30).

Penn State Worry Questionnaire (PSWQ)

The PSWQ is a 16-item trait-based questionnaire developed to measure pathological worry characterized by excessive, chronic, and uncontrollable features (31). Each item is scored on a 5-point scale, ranging from 1 (not at all typical of me) to 5 (very typical of me). High

scores indicate a high level of worry. Reliability and validity study of the PSWQ Turkish version was conducted by Boysan et al. (32).

Stress Appraisal Measure Dispositional Form (SAM-D)

SAM-D is a 24-item Likert-type scale developed to measure cognitive appraisal of general stress rather than situation-specific stress (33). Items are rated from 0 (does not describe me at all) to 4 (describes me extremely). It consists of subdimensions that evaluate both primary and secondary appraisals. The primary appraisal dimensions, relevant to anticipatory stress, are threat (i.e., the potential for harm/loss) and challenge (i.e., the anticipation of growth gained from the experience). The secondary appraisal dimensions that measure the individual's appraisal of available coping resources are control, control by others, and uncontrollable by anyone. Reliability and validity study of the SAM-D Turkish version was conducted by Durak and Senol-Durak (34).

Acceptance and Action Questionnaire-II (AAQ-II)

AAQ-II is developed to measure individual differences in psychological inflexibility by focusing on EA attitudes among individuals (35). Each item is scored on a 7-point scale, ranging from 1 (never true) to 7 (always true). High scores on the scale are associated with higher levels of EA and thus lower levels of psychological flexibility. Turkish validity and reliability study was conducted by Yavuz et al. (36).

Bipolar Disorder Functioning Questionnaire (BDFQ)

BDFQ was developed by Aydemir (37) to measure the inter-episode functioning in BD. The questionnaire contains 52 items, and consists of 11 subscales: emotional functioning; intellectual functioning; sexual functioning; feelings of stigmatization; social withdrawal; household relations; relations with friends; participation in social activities and daily activities; hobbies; taking initiative and self-sufficiency; and occupation. As the cutoff points of the scale are not calculated, it is recommended to be used in comparative studies.

Procedure

The study was conducted through the approval of the Ethics Committee with number 41340010/31002-300 (date: 04.06.2013). Written informed consent was obtained from each patient. Patients who applied to the clinic for treatment with the diagnosis of BD were interviewed by a researcher face-to-face to confirm the diagnosis and evaluate whether the patients fulfilled the inclusion criteria.

Table 1: Sociodemographic characteristics of bipolar disorder-I (BD-I) and control group

	BD- I		Control		Total		χ^2	p
	n	%	n	%	n	%		
Sex								
Female	36	53.7	36	51.4	72	52.6	0.0728	0.787
Male	31	46.3	34	48.6	65	47.4		
Education							1.22	0.749
Primary	4	6	7	10	11	8		
Secondary	7	10.4	9	12.9	16	11.7		
High	24	35.8	21	30	45	32.8		
University	32	47.8	33	47.1	65	47.4		
Occupation							11.6	0.040
Unemployed	16	23.9	10	14.3	26	19		
Freelance	6	9	12	17.1	18	13.1		
Government employee	10	14.9	24	34.3	34	24.8		
Worker	13	19.4	7	10	20	14.6		
Student	8	11.9	7	10	15	10.9		
Other	14	20.9	10	14.3	24	17.5		
Marital status							12.2	<0.001
Single/ divorced	43	64.2	24	34.3	67	48.9		
Married	24	35.8	46	65.7	70	51.1		
Seperation/migration							4.09	0.043
Yes	22	33.8	13	18.6	35	25.9		
No	43	66.2	57	81.4	100	74.1		
Childhood violence							9.83	0.002
Yes	15	22.4	3	4.3	18	13.1		
No	52	77.6	67	95.7	119	86.9		
Suicide							20.3	<0.001
Yes	17	25.4	0	0	17	12.4		
No	50	74.6	70	100	120	87.6		

Statistical Analysis

Analyses were conducted using the software SPSS v.26 (IBM). Descriptive statistics included frequencies of demographic variables in each group. Because the sample size was sufficient and the sample met the criteria of the normal distribution, Pearson’s correlation test was used to investigate the relationship between variables. Groups were compared using independent t-test for continuous variables and Chi-squared test for categorical variables such as the history of violence and suicide. Multiple linear regression analysis backward elimination method was applied to determine the predictors of functionality levels. BDFQ total scores were accepted as dependent variables and Pearson’s correlation analysis results were taken into account in determining the

independent variables. Accordingly, “threat,” “control by others,” and “uncontrollable by anyone” subdimensions of SAM-D, RTSQ, PSWQ, and AAQ-II total scores were included in the analysis as possible independent variables predicting BDFQ scores. The statistical significance level was accepted as $p < 0.05$.

RESULTS

The demographic and clinical characteristics of the participants are presented in Table 1. While the mean age of patients with BD was 35.46 ± 8.39 years, it was determined as 35.81 ± 10.44 years in the control group. Separation/migration history, history of violence as a child, and suicide history were found to be higher in the clinical group than in the control group (Table 1).

Table 2: Comparison of stress appraisals, rumination, worry and experiential avoidance between bipolar disorder-I and control group

	Group	n	Mean	SD	t	p	Effect size
SAM-D 'threat'	Control	70	20.36	5.738	-5.136	<0.001	-0.8778
	BD-I	67	25.82	6.694			
SAM-D 'challenge'	Control	70	6.59	2.262	-0.813	0.417	-0.1390
	BD-I	67	6.91	2.410			
SAM-D 'Uncontrollable by anyone'	Control	70	9.64	2.983	-2.877	0.005	-0.4917
	BD-I	67	11.18	3.266			
SAM-D 'control'	Control	70	16.77	3.916	1.640	0.103	0.2804
	BD-I	67	15.64	4.144			
SAM-D 'control by others'	Control	70	11.13	4.232	-3.171	0.002	-0.5420
	BD-I	67	13.30	3.750			
RTSQ	Control	70	80.84	22.169	1.441	0.152	0.2503
	BD-I	63	75.11	23.680			
PSWQ	Control	70	39.87	9.014	-1.673	0.097	-0.2859
	BD-I	67	42.46	9.114			
AAQ-II	Control	70	16.60	7.113	-4.254	<0.001	-0.7328
	BD-I	65	22.38	8.658			

t: Independent t-test; BD-I: Bipolar disorder-I; SAM-D: Stress Appraisal Measure-Dispositional Form; RTSQ: Ruminative Thinking Style Questionnaire; PSWQ: Penn State Worry Questionnaire; AAQ-II: Acceptance and Action Questionnaire-II; SD: Standard deviation.

To determine the possible relationship of BD with primary and secondary appraisals of stress, mean scores of SAM-D subdimensions in the clinical group and the control group were examined with independent t-test. The clinical group scored significantly higher than the control group on SAM-D "threat," "uncontrollable by anyone," and "control by others" ($p < 0.05$). Although the mean scores of SAM-D "challenge" and "control" were higher in the control group than in the clinical group, the difference was not statistically significant (Table 2).

The mean scores of RTSQ, PSWQ, and AAQ-II in the clinical group and control group were compared to investigate the relationship between rumination, worry, and psychological flexibility with the presence of BD-I. The clinical group scored significantly higher than the control group on AAQ-II ($p < 0.01$). Also, the clinical group scored higher on PSWQ and lower on RTSQ than the control group, but this difference was not statistically significant ($p > 0.05$) (Table 2).

Table 3 shows Pearson's correlations among BDFQ and other variables in the clinical group. As shown in Table 3, functionality (BDFQ) was moderately and negatively correlated with SAM-D "threat," "uncontrollable by anyone," RTSQ, PSWQ, and AAQ-II. Also, a weak positive correlation was found with SAM-D "control by others" and BDFQ.

In the regression analysis model in which functionality total scores were included as the predicted variable, the model that consists of PSWQ, SAM-D "uncontrollable by anyone," and "control by others" subdimensions as independent variables explained 23.8% of the total variance ($p = 0.002$). While SAM-D "uncontrollable by anyone" subdimension had a negative and "control by others" subdimension had a positive predictive effect on the total score of BDFQ ($p < 0.05$), PSWQ did not have a significant contribution to predict BDFQ (Table 4).

DISCUSSION

Although there are studies on stressful life events and coping styles to predict psychopathology in BD, studies on stress often focus on the presence and content of a stressful life event just before the episodes (24,25,38,39). Theoretical approaches such as cognitive theory (40,41) and functional contextualism (18,42-44) focus on evaluations of stressful life events and associated behavioral responses individually. Although an event or situation (for example, the death of a loved one) is indisputably a source of stress, the environment and context, the way of perception, and the current behavior repertoire of the person will also determine the interpretation and coping methods of this event (45). In light of this, our study investigated the

Table 3: Correlations among BDFQ and other variables in BD-I group

	SAM-D threat	SAM-D challenge	SAM Uncontrollable by anyone	SAM-D control	SAM-D control by others	RTSQ	PSWQ	AAQ-II
	r	r	r	r	r	r	r	r
SAM-D 'threat'								
SAM-D 'challenge'	-0.000							
SAM-D 'Uncontrollable by anyone'	0.475**	-0.036						
SAM-D 'control'	-0.258*	0.223	-0.397**					
SAM-D 'control by others'	-0.153	0.117	0.155	0.298*				
RTSQ	0.603**	0.150	0.300*	-0.134	-0.143			
PSWQ	0.386**	0.084	0.230	-0.037	-0.201	0.648**		
AAQ-II	0.549**	0.013	0.281*	-0.048	-0.119	0.566**	0.544**	
BDFQ	-0.361**	0.187	-0.334**	0.237	0.249*	-0.315*	-0.344**	-0.350**

BD-I: Bipolar disorder-I; SAM-D: Stress Appraisal Measure-Dispositional Form; RTSQ: Ruminative Thinking Style Questionnaire; PSWQ: Penn State Worry Questionnaire; AAQ-II: Acceptance and Action Questionnaire-II; BDFQ: Bipolar Disorder Functioning Questionnaire; r: Pearson's test coefficient; *: p<0.05; **: p<0.01.

Table 4: Predictors of functioning in bipolar disorder-I

Dependent variables	Independent variables	B	Standard error	β	t	p
BDFQ*	PSWQ	-0.267	0.160	-0.204	-1.666	0.101
	SAM-D 'Uncontrollable by anyone'	-1.274	0.469	-0.329	-2.717	0.009
	SAM-D 'control by others'	0.807	0.365	0.271	2.209	0.031

*BDFQ: Multiple linear regression analysis, model 4; R²= 0.238, p=0.002; excluded variables: SAM-D 'threat'; ARTSQ: Ruminative Thinking Style Questionnaire; AAQ-II: Acceptance and Action Questionnaire-II; BDFQ: Bipolar Disorder Functioning Questionnaire; PSWQ: Penn State Worry Questionnaire; SAM-D: Stress Appraisal Measure-Dispositional Form; β: Standardized coefficients.

differences of dispositional stress appraisals and possible related processes such as rumination, worry, and EA between euthymic patients with BD and healthy controls. To our knowledge, this study is the first to investigate the aforementioned processes in a holistic way through stress appraisals.

When both groups were evaluated in terms of sociodemographic data, the rates of childhood violence history and suicide attempts were found to be higher in the BD group. Considering the relationship between the onset of depressive and manic episodes and stressful life events (24,25), a history of violence in childhood could be a stressor that plays a triggering role for BD. The possible relationship between childhood trauma history and impulsivity and comorbid personality disorder, both risk factors for suicide, may explain the higher rates of suicide attempts in the BD group in our study.

Results showed that compared with the healthy controls, patients with BD reported higher scores for three out of five SAM-D subdimensions ("threat," "uncontrollable by anyone," and "control by others"). In other words, individuals with BD are more likely to

associate life events with harm toward their beliefs and values as represented on the "threat" subdimension. They also rate their own resources and skills as inadequate to cope with this situation. Evaluations that a harmful stressor cannot be changed or controlled may lead individuals with BD to use avoidance strategies more intensely and rigidly in a maladaptive way. This may appear as a deficiency in using workable coping strategies appropriate to the situation or as a narrow behavioral repertoire. Considering the relationship of having a broad repertoire in the face of stress with adaptive outcomes (46), stress appraisals can be one of the potential therapeutic targets in the treatment of BD.

There is some evidence that "threat" and "uncontrollable by anyone" subdimensions are associated with coping strategies focused on regulating negative emotional reactions to stress such as anxiety, fear, sadness, and anger (47). In our study, "uncontrollable by anyone" subdimension was found to be correlated with worry, and "threat" subdimension was found to be correlated with both worry and EA. Both worry and EA are used to get rid of the disturbing stimulus or to reduce

the discomfort caused by the stimulus, and both include not only emotions but also internal experiences in a wide perspective as the antecedents of these behaviors. Although several researchers investigating coping strategies in patients with BD highlight the tendency to use maladaptive strategies for regulating negative affect (8,48) or sustaining/enhancing positive affect (49), the results of our study indicate that these maladaptive strategies may be related not only to emotional but also to cognitive aspects of stress. It will be useful to keep the stress appraisal processes in mind while determining the antecedents of these maladaptive behaviors, as they flag a potential specific target for psychotherapy, especially in relapse prevention.

The results of our study on the difference in stress appraisals in patients with BD also drew attention to covert behaviors that may lead to effective and behavioral changes. Rumination is one of the covert behaviors that is widely researched in the psychopathology of BD. Studies conducted on the basis of response style theory, in which rumination is associated with depression, have addressed rumination as a response to negative affect. Favaretto et al. (50) compared 105 euthymic BD patients (57 with BD-I and 48 with BD-II) with 78 healthy controls and found higher rumination scores in both patient samples. Gruber et al. (51) conducted a study with 39 inter-episode BD-I patients and 34 healthy controls and found higher negative rumination in the BD-I group. Johnson et al. (49) investigated ruminative responses to positive and negative affect in 107 undergraduate students and compared individuals with BD ($n=28$), major depressive disorder ($n=35$), and no mood disorder ($n=44$). BD group included participants with BD-I, BD-II, and BD not otherwise specified. Individuals with BD and MDD reported higher negative rumination compared with control participants. "Ruminative Responses Scale" was used in these studies to measure rumination in response to negative affect (52). Also, there is some evidence that patients with BD reported greater rumination about positive affect (49,51), which intensifies the experience of positive affect and may lead to mania. Contrary to these findings, no significant difference was found in rumination levels between healthy controls and patients with BD-I in our study. This difference with the literature may be due to the fact that the "RTSQ" that we used in our research evaluates rumination independent of content and temporal orientation rather than a response to negative affect (29). And this result may show that individuals with BD mainly present depressive rumination rather than a general rumination pattern.

There are few studies in the literature on worry, which may be a response to stressful situations in BD. Gruber et al. (16) found that worry was higher in euthymic patients with BD than in the control group, but they stated that this difference no longer remained significant when anxiety and depression symptoms were controlled for. Kertz et al. (15) found higher levels of worry in the depressive and bipolar depressive groups compared with the bipolar manic and psychosis groups, even after controlling for the GAD diagnosis. In our study, we found higher worry scores in patients with BD than in the control group, but this difference was not statistically significant. Studies in a larger sample using a stimulus-focused worry assessment instead of a general worry questionnaire such as the PSWQ and considering depression and anxiety levels may provide more precise information about worry in BD.

As a result of our study, the AAQ-II scores, measuring EA, were found to be significantly higher in patients with BD compared with the control group. EA, which is considered critical in the development and maintenance of psychopathology, has been addressed in a broader context of psychological flexibility in recent years (35,53). Higher EA scores in our research indicate that BD, similar to other psychopathological conditions, is associated with a decrease in psychological flexibility, which is defined as the ability to observe unwanted internal experiences as they are, without any afford to change or control them (54). Although the effect of interventions for psychological flexibility on quality of life has been shown in many areas (55–58), studies in BD are limited (59,60). In the light of these results, we suggest that interventions on psychological flexibility, including coping with unwanted internal experiences, may prevent manic or depressive episodes and contribute to increased well-being. Another point we would like to draw attention to in our study is the higher levels of EA in the remission phase although it is expected during the episodes. This result supports our suggestion that interventions for psychological flexibility may improve symptom severity of BD episodes. Long-term prospective follow-up studies are needed to test these suggestions.

Studies have demonstrated that patients with BD continue to have impairment in functionality even if they recover clinically (3,61,62). Besides the negative impact of EA on functionality, adaptive coping strategies were found to be determinant in functioning (63,64). Consistent with the literature, rumination, worry, and EA were associated with lower functionality scores in our study. Also, stress appraisals about threat and uncontrollability were associated with lower functionality. In a study on stressful

life events and functionality focusing on the life event itself and the time of its occurrence, stressful life events were assessed as a predictor of delayed recovery of functioning (62). One step further from this study, our research focused on stress appraisals and concluded that “uncontrollable by anyone” subdimension negatively predicted functioning, while “control by others” subdimension predicted positively. This may be because the perception of uncontrollability is related to more maladaptive attitudes, and the perception of controllability by others is related to relatively adaptive attitudes such as seeking social support (34). However, no predictive effect of EA on functionality was observed in this study. The results should be replicated with further studies in which mediation analyzes are performed including possible adaptive and maladaptive processes.

This study has some limitations. The cross-sectional design of this study does not allow for definitive conclusions on the potential etiologic role of repetitive thinking styles and EA in the onset of manic and depressive episodes indicated by our findings. The results should be replicated in further studies evaluating patients with BD who are experiencing a mood episode. Comorbidities such as anxiety disorder were not evaluated with any measurement in our study. This may have affected the results if controlled for. Self-reported measures are another limitation. Also, our sample size was quite modest, which may partly explain why the difference in worry and rumination was not statistically significant.

Taken together, our results show that patients with BD, even in the euthymic phase, have differences in stress appraisals. And this can lead to impairment in functionality and dysfunctional behaviors, particularly EA. When the definition of rumination is expanded as a process rather than a response to the affective state, it does not appear to play an important role in BD. Our research proposes to expand the response style theory, in which manic and hypomanic states are associated only with coping behaviors that occur in response to affective symptoms, and to create a holistic model that includes both stress appraisals, any internal experiences related to stress and processes used to cope with stress. If a model is created in this direction, it could open up new prospects in the psychotherapy of BD patients.

Contribution Categories		Author Initials
Category 1	Concept/Design	S.U., K.F.Y., M.E.
	Data acquisition	S.U.
	Data analysis/Interpretation	S.U., K.F.Y.
Category 2	Drafting manuscript	S.U., K.F.Y.
	Critical revision of manuscript	S.U., K.F.Y., M.E.
Category 3	Final approval and accountability	S.U., K.F.Y., M.E.

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