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Suicide in Bipolar Disorder: The Role of Emotional Dysregulation, Childhood Trauma and Resilience

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ABSTRACT

Introduction: Childhood trauma (CT), low psychologic resilience (PR) and emotion regulation difficulties (DER) have been associated with suicidal behavior (SB); however limited research has explored this association in patients diagnosed with bipolar disorder type 1 (BPDI). This study aimed to investigate the differences in terms of CT, PR, DER among euthymic BPDI patients with and without suicide attempts and healthy individuals and the relationship of SB with these factors.

Methods: Seventy euthymic BPDI patients with suicide attempt [(BPDI (+)] and 81 euthymic BPD1 patients without suicide attempt [BPDI (-)] and 90 healthy controls were included. The SCID-5, Beck Depression Inventory, Young Mania Rating Scale (YMRS), Sociodemographic form, Columbia-Suicide Severity Ranking Scale, and Childhood Trauma Questionnaire (CTQ), Resilience Scale for Adults (RSA) and Difficulties in Emotion Regulation Scale (DERS) were administered to participants.

Results: BPDI (+) group had significantly higher CTQ scores than both BPD1(-) and control groups. The BPDI (+) group had significantly higher DERS clarity, non-acceptance, strategies, impulsivity, goals and total scores than both the BPDI (-) and control groups. Both patient groups had significantly lower RSA perceptions of self, planned future, social resources and total scores than the control group. Emotional abuse scores of CTQ and strategies scores of DERS had a significant and independent effect in distinguishing the BPDI (+) patients from the BPDI (-).

Conclusions: Our findings indicate that BPDI patients with a history of CT and DER are at a higher risk for SB. In light of these results, it is concluded that suicide risk assessments in clinical practice should include CT history and emotion regulation skills, that interventions aimed at enhancing PR should be developed, and that further prospective studies are needed to investigate the effects of these factors on the clinical course of BPDI.

Keywords: Bipolar disorder, childhood trauma, emotion regulation difficulties, resilience, suicidal behavior

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INTRODUCTION

Bipolar disorder type 1 (BPDI) carries the highest risk of suicide among psychiatric disorders, with up to 50% of patients attempting suicide and 15–20% die as a result of suicide (1). Determining key psychological factors influencing this risk is crucial for targeted interventions.

Suicidal behavior (SB) results from a complex interaction of biological, psychological, and environmental factors. Three prominent psychological risk factors –childhood trauma (CT), difficulties in emotion regulation (DER), and low psychological resilience (PR)– have each been linked to SB in BPDI. However, these factors have rarely been evaluated together within the same study, particularly in patients who are in an euthymic state.

Highlights

- **Bipolar disorder type 1 patients with suicide attempt had higher Childhood Trauma.**
- **Bipolar disorder type 1 patients with suicide attempt had significantly higher DER.**
- **Emotional abuse and DER had a significant and independent effect for SB in BPDI.**

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Psychologic resilience entails the capacity and dynamic process of overcoming stress and adversities while maintaining physical and psychological well-being (2). While lower PR is consistently observed in individuals with (BPDI) compared to healthy controls, its relationship with suicidality remains inconclusive (3). Some research suggests PR might buffer suicide risk, whereas others report no clear association (4,5).

Emotion regulation difficulties refers to impairments in the process of monitoring, evaluating and modifying emotional reactions in order to accomplish one's goals (6). Bipolar disorder type 1 patients often struggle with DER even during euthymic periods, making them susceptible to impulsive and maladaptive reactions (7). Studies have shown stronger associations between DER and suicidality in BPDI compared to unipolar depression or anxiety disorders (8,9).

Childhood trauma, including emotional, physical, and sexual abuse or neglect, can severely impact neurodevelopment and emotional processing, increasing vulnerability to mood disorders and suicidal tendencies (10,11). Individuals with BPDI and a history of CT are more likely to exhibit severe symptoms, functional impairment, and higher suicide risk (12).

Although CT, DER, and PR have been independently associated with suicide risk with BPDI, studies rarely examine their interactive or cumulative effects. Furthermore, most studies focus on acutely symptomatic patients, leaving a gap in our understanding of risk factors during euthymic periods, when patients are often considered stable.

The present study addresses this gap by evaluating the joint and independent contributions of CT, DER, and PR to SB in euthymic with BPDI patients. It also compares these psychological factors across euthymic with BPDI patients with and without a history of suicide attempts and healthy controls, offering novel insight into suicide risk beyond acute mood episodes. This study aims to investigate whether CT and DER increase suicide risk in euthymic BPDI patients and whether resilience serves as a protective factor. In this study, our hypothesis is that during the euthymic period in patients with BPDI, those with a history of suicide attempts will exhibit higher levels of DER, CT and lower levels of PR compared to those without such a history and healthy controls.

METHODS

Based on estimated values derived from similar studies in the literature, the effect size (f) was set at 0.25 (medium level according to Cohen's criteria), with a significance level (α) of 0.05 and a power level (1–β) of 0.80. Under these parameters, the required total sample size was calculated to be 158, with an estimated minimum of approximately 53 participants per group. Of the 181 patients who agreed to participate in the study, 6 were excluded due to the presence of additional psychiatric disorders, 11 due to incomplete questionnaire data, 9 for not meeting the remission criteria, and 4 due to insufficient information regarding their medical history. In the healthy control group, 4 out of 102 individuals were excluded due to psychiatric disorders and 8 due to incomplete questionnaire data. The study sample consisted of 70 BPDI patients with previous suicide attempt BPDI (+) and 81 patients without a suicide attempt BPDI (-) who presented to the outpatient treatment unit of Bakırköy Prof. Dr. Mazhar Osman Mental Health and Diseases Training and Research Hospital between January 2021 and July 2021. A psychiatrist interviewed the patients diagnosed with BPDI based on DSM-5 criteria at euthymic states. Medical history and past hospital records were examined for diagnoses and suicide attempt (s). All patients were aged 18–65 years, had at least primary school education and were in an euthymic state (i.e., Young Mania Rating Scale score <8 and Beck Depression Scale Score <10). Ninety healthy subjects matched for age and gender were selected from volunteer hospital workers and acquaintances of the authors as controls. None of the controls had a past or current personal history of any psychiatric disorder according to DSM-5.

Individuals with cooperation problems or cognitive impairment as a result of mental retardation, neurological disease, or alcohol/drug use, underwent electroconvulsive therapy in the previous six months, with a history of psychosurgery or other brain surgery, head trauma, alcohol/drug addiction, and psychotic symptoms were excluded from the study. Oral and written informed consent were obtained from all participants prior to their inclusion. The study received ethical approval from Bakırköy Dr. Sadi Konuk Training and Research Hospital Clinical Research Center Ethics Committee (Decision No: 2021/26, Date: January 18th, 2021).

Instruments

Sociodemographic data form

This form assessed sociodemographic and clinical characteristics and was completed by the researchers during interviews.

Young mania rating scale (YMRS)

The YMRS encompasses the core symptoms of manic episodes and consists of 11 items, each measuring the severity of a symptom on a scale of 0–4 (13). Assessment is interview-based and queries the patient's state over the previous 48-hour period and during the interview. Validity and reliability studies for the Turkish version of the scale were conducted by Karadag et al. (14).

Beck depression inventory (BDI)

Beck depression inventory is a self-report inventory that measures the physical, emotional, and cognitive indicators of depression. The maximum score is 63, with higher scores indicating more severe depression. The validity and reliability studies for the Turkish form were conducted by Hisli (15,16).

Difficulties in emotion regulation scale (DERS)

Difficulties in emotion regulation scale is a self-report scale consisting of 36 items that evaluates current and clinically relevant DER (17,18). The Turkish validity and reliability studies of the scale were performed by Ruganci and Gençöz (19). The Turkish version revealed a comparable factor structure to the original version, good values for temporal stability, internal consistency (Cronbach α=0.93) and good levels of external validity. In the current study, the total DERS score obtained from all items and subscales were used, with higher scores indicating worse ER.

Columbia-suicide severity rating scale (C-SSRS)

Columbia-suicide severity rating scale is a questionnaire to evaluate suicide risk in a semi-structured interview format that consists of four subscales questioning suicidal ideation, the intensity of ideation, SB, suicide attempts, and severity of suicide attempts. Its validity and consistency in assessing suicidal ideation, SB and risk were proven in different samples (20). Validity and reliability study of the Turkish version of the questionnaire was conducted by Güneş and Kılınçaslan (21).

Structured clinical interview for DSM-5 (SCID-5)

This clinical diagnostic tool, applied by a professional interviewer, is a structured clinical interview scale that investigates the disorders in DSM-5 using diagnostic criteria (22). This tool was adapted to Turkish, and validity and reliability studies were performed (23). The scale was used to confirm the diagnoses prior to participation in the current study and to investigate the presence of additional psychiatric diagnoses.

Resilience scale for adults (RSA)

The original version of the RSA consisted of 45 items covering five dimensions: "personal competence", "social competence", "family coherence", "social support", and "personal structure" (24). A six-dimensional version of the scale was found to explain PR better (25). The updated version of the scale consists of 33 items and six dimensions, which are "perception of self", "perception of future", "social competence", "family cohesion", "social resources" and "structured style". The validity and reliability study of the Turkish version of the scale indicated internal consistency co-efficient of the subdimensions in the range of 0.66 to 0.81 (26).

Childhood trauma questionnaire (CTQ)

Childhood trauma questionnaire was developed to assess neglective and abusive experiences during childhood (27). The childhood trauma questionnaire consists of 5 subscales: emotional neglect, physical neglect, emotional abuse, physical abuse and sexual abuse; and 28 Likert type items each scored from 1 to 5 points. The validity and reliability study for the Turkish version of the questionnaire has been reported (28).

Statistical Evaluation

Mean, standard deviation, median, minimum and maximum frequency and ratio values were used in descriptive statistics of data. The distribution of the variables was calculated by the Kolmogorov-Simirnov test. Kruskal-Wallis and Mann-Whitney U tests were used for quantitative independent data; Chi-square test was used for qualitative independent data; Fischer test was used when the Chi-square test conditions were not met. The effect level was investigated with univariate and multivariate logistic regression. IBM Statistical Package for Social Sciences (SPSS) program version 27.0 was used in the analysis, and $p<0.05$ was considered statistically significant.

RESULTS

There were no significant differences in age, marital status, or education level among the BPDI (+), BPDI (-), and control groups ($p>0.05$). However, employment rates were significantly lower among BPDI patients compared to healthy controls ($p<0.05$), with no significant difference between BPDI (+) and BPDI (-) groups (Table 1).

Bipolar disorder type 1 (+) patients reported significantly higher intensity of suicidal ideation—both lifetime and during the past month—compared to BPDI (-) and control groups ($p<0.05$). Additionally, BPDI (-) patients showed higher scores than controls ($p<0.05$). Both patient groups had significantly elevated BDI and YMRS scores compared to controls, with BPDI (+) patients scoring higher than BPDI (-) ($p<0.05$).

All CTQ subscale and total scores were significantly higher in BPDI (+) patients compared to both BPDI (-) and control groups ($p<0.05$). Bipolar disorder type 1 (-) patients also scored higher on emotional abuse, emotional neglect, and total CTQ scores compared to controls ($p<0.05$) (Table 2).

Bipolar disorder type 1 (+) patients had significantly higher total and subscale DERS scores—excluding "awareness"—compared to both other

Table 1. Sociodemographic characteristics of BPDI patients with and without suicide attempts and healthy controls

	BPDI (+)	BPDI (-)	Healthy subjects	p	
Age (mean ± sd)	38.6±10.5	38.3±9.0	36.7±12.2	0.439	K
Gender					
Men (n - %)	19 - 27.1%	34 - 42.0%	37 - 41.1%	0.111	X^2
Women (n - %)	51 - 72.9%	47 - 58.0%	53 - 58.9%		
Total years of education (mean ± sd)	10.6±4.3	11.9±4.2	12.6±3.8	0.056	K
Educational level					
Literate (n - %)	1 - 1.4%	0 - 0.0%	0 - 0.0%	0.060	X^2
Primary school (n - %)	18 - 25.7%	15 - 18.5%	6 - 6.7%		
Secondary school (n - %)	11 - 15.7%	8 - 9.9%	10 - 11.1%		
High school (n - %)	20 - 28.6%	22 - 27.2%	33 - 36.7%		
University (n - %)	18 - 25.7%	34 - 42.0%	35 - 38.9%		
Postgraduate (n - %)	2 - 2.9%	2 - 2.5%	6 - 6.7%		
Employment status					
Employed/Student (n - %)	32 - 45.7%	45 - 55.6%	78 - 86.7%	**0.000**	X^2
Unemployed (n - %)	38 - 54.3%	36 - 44.4%	12 - 13.3%		
Social security					
Yes (n - %)	64 - 91.4%	77 - 95.1%	90 - 100%	**0.024**	X^2
No (n - %)	6 - 8.6%	4 - 4.9%	0 - 0.0%		
Marital status					
Married (n - %)	29 - 41.4%	37 - 45.7%	40 - 44.4%	0.476	X^2
Single (n - %)	29 - 41.4%	34 - 42.0%	43 - 47.8%		
Widow/Divorced (n - %)	12 - 17.1%	10 - 12.3%	7 - 7.8%		

K: Kruskal-Wallis (Mann-Whitney U test); X^2: Chi-square test (Fischer test); BPDI (+): BPDI patients with suicide attempt; BPDI (-): BPDI patients without suicide attempt; sd: standard deviation; n: number of participants.
Bold values display statistical significance.

groups (p<0.05). Bipolar disorder type 1 (-) patients also scored higher than controls on the “non-acceptance,” “strategies,” and total scores (p <0.05). There were no significant group differences in RSA subdimensions of “family cohesion,” “social competence,” or “structured style” (p>0.05). However, both BPDI groups had significantly lower scores than controls in “perception of self,” “perception of future,” “social resources,” and total RSA scores (p<0.05) (Table 3).

The age of onset of disease, mania at the first episode, and complete recovery in functionality were significantly lower in BPDI (+) than BPDI (-) patients (p<0.05). The presence of mixed features at the first episode, total number of episodes, rapid-cycling and number of depressive episodes were significantly higher in BPD (+) compared to BPDI (-) (p<0.05) (Table 4).

The characteristics of suicide attempt of BPDI (+) are shown in Table 5.

Table 2. Comparison of depression, mania, and suicidal ideation scores among groups

	BPDI (+)	BPDI (-)	Healthy subjects	p	
Beck depression inventory (mean ± sd)	4.07±2.72	2.00±2.42	0.70±1.41	**0.000**	K
Young mania rating scale (mean ± sd)	1.41±2.07	0.80±1.65	0.00±0.00	**0.000**	K
Suicide ideation					
Lifetime (mean ± sd)	4.56±0.81	0.64±0.90	0.26±0.55	**0.000**	K
Last month (mean ± sd)	0.17±0.45	0.00±0.00	0.00±0.00	**0.000**	K
Intensity of suicide ideation					
Lifetime (mean ± sd)	17.03±4.16	11.34±2.51	8.89±1.49	**0.000**	K
Last month (mean ± sd)	6.80±1.81	0.00±0.00	0.00±0.00	**0.000**	K
Childhood trauma questionnaire					
Emotional abuse (mean ± sd)	10.3±5.7	7.3±3.2	6.6±2.7	**0.000**	K
Physical abuse (mean ± sd)	7.4±4.5	5.8±1.6	5.6±1.7	**0.008**	K
Emotional neglect (mean ± sd)	12.9±5.3	11.1±4.6	9.3±3.6	**0.000**	K
Physical neglect (mean ± sd)	8.5±3.4	7.0±2.3	6.5±2.3	**0.000**	K
Sexual abuse (mean ± sd)	7.5±5.1	6.0±2.9	5.5±2.1	**0.002**	K
Total (mean ± sd)	46.6±18.7	37.1±11.4	33.6±9.3	**0.000**	K

K: Kruskal-Wallis (Mann-Whitney U test); BPDI (+): BPDI patients with suicide attempt BPDI (-): BPDI patients without suicide attempt; sd: standard deviation; n: number of participants.
Bold values display statistical significance.

Table 3. Emotion regulation difficulties and resilience scores in patients with and without suicide attempts and healthy individuals

	BPDI (+)	BPDI (-)	Healthy subjects	p	
Difficulties in emotion regulation scale					
Awareness (mean ± sd)	15.8±3.5	15.6±3.0	16.4±2.8	0.137	K
Clarity (mean ± sd)	11.8±4.7	11.0±5.9	9.4±3.0	**0.005**	K
Non-acceptance (mean ± sd)	13.9±6.1	12.1±6.1	10.0±3.2	**0.000**	K
Strategies (mean ± sd)	20.2±7.8	16.2±6.0	13.3±4.3	**0.000**	K
Impulse (mean ± sd)	14.0±5.0	11.9±4.2	10.9±3.7	**0.000**	K
Goals (mean ± sd)	16.1±2.6	15.0±5.8	15.0±2.1	**0.001**	K
Total (mean ± sd)	91.8±23.2	81.7±20.0	74.6±11.2	**0.000**	K
PR scale for adults					
Perception of self (mean ± sd)	21.1±5.7	22.6±4.8	30.6±54.0	**0.000**	K
Perception of future (mean ± sd)	13.4±4.7	14.6±4.2	16.6±3.8	**0.000**	K
Structured style (mean ± sd)	13.5±4.2	14.8±3.2	15.4±3.4	0.052	K
Social competence (mean ± sd)	21.4±5.8	21.7±5.4	23.1±4.7	0.137	K
Family cohesion (mean ± sd)	20.8±6.1	22.6±4.7	23.1±4.7	0.052	K
Social resources (mean ± sd)	25.9±6.4	28.2±6.8	29.8±4.5	**0.000**	K
Total (mean ± sd)	115.3±23.3	124.6±18.5	132.8±15.6	**0.000**	K

K: Kruskal-Wallis (Mann-Whitney U test); BPDI (+): BPDI patients with suicide attempt BPDI (-): BPDI patients without suicide attempt; sd: standard deviation; n: number of participants.
Bold values display statistical significance.

Table 4. Clinical course variables in BPDI patients with and without a history of suicide attempt

		BPDI (+)	BPDI (-)	p	
Duration of illness (mean ± sd)		16.2±10.5	13.1±9.0	0.084	K
Age of onset (mean ± sd)		22.5±6.5	25.3±7.9	**0.033**	K
First episode type	Mania (n - %)	30 - 42.9%	51 - 63.0%	**0.013**	X²
	Depression (n - %)	30 - 42.9%	27 - 33.3%	0.229	X²
	Mixed (n - %)	9 - 12.9%	2 - 2.5%	**0.014**	X²
	Hypomania (n - %)	1 - 1.3%	1 - 1.2%	1.000	X²
Triggering event	Yes (n - %)	37 - 52.9%	33 - 40.7%	0.137	X²
	No (n - %)	33 - 47.1%	48 - 59.3%		
Total number of episodes (mean ± sd)		11.4±10.4	7.7±6.0	**0.031**	K
Manic episodes (mean ± sd)		3.2±3.4	2.9±2.4	0.868	K
Depressive episodes (mean ± sd)		6.4±6.7	4.0±5.0	**0.017**	K
Mixed episodes (mean ± sd)		0.6±1.7	0.1±0.4	**0.001**	K
Hypomanic episodes (mean ± sd)		1.5±3.7	0.8±2.1	0.347	K
Seasonality	Yes (n - %)	41 - 58.6%	40 - 49.4%	0.259	X²
	No (n - %)	29 - 41.4%	41 - 50.6%		
Rapid-cycling	Yes (n - %)	6 - 8.6%	1 - 1.2%	**0.032**	X²
	No (n - %)	64 - 91.4%	80 - 98.8%		
Hospitalization	Yes (n - %)	63 - 90.0%	64 - 79.0%	0.066	X²
	No (n - %)	7 - 10.0%	17 - 21.0%		
Number of hospitalizations (mean ± sd)		2.5±2.0	2.5±2.2	0.522	K
Functionality	Full recovery (n - %)	51 - 72.9%	70 - 86.4%	**0.023**	X²
	Partial recovery (n - %)	14 - 20.0%	11 - 13.6%		
	Bad functionality (n - %)	5 - 7.1%	0 - 0.0%		
Psychotic features	Yes (n - %)	62 - 88.6%	72 - 88.9%	0.951	X²
	No (n - %)	8 - 11.4%	9 - 11.1%		

K: Kruskal-Wallis (Mann-Whitney U test); X²: Chi-square test (Fischer test); BPDI (+): BPDI patients with suicide attempt; BPDI (-): BPDI patients without suicide attempt; sd: standard deviation.
Bold values display statistical significance.

Table 5. Characteristics and circumstances of suicide attempts among BPDI (+) patients

		Mean ± sd / n - %
Number of suicide attempts		2.17±2.70
Lifetime actual attempts		1.30±1.28
Lifetime interrupted attempts		0.46±0.77
Lifetime aborted attempts		0.40±1.33
Episode type in which suicide was attempted	Depression	41 - 58.6%
	Mania	18 - 25.7%
	Mixed	8 - 11.4%
	Euthymia	2 - 2.9%
	Hypomania	1 - 1.4%
In which episode suicide was attempted	1st episode	34 - 48.6%
	2nd episode	5 - 7.1%
	3rd episode	3 - 4.3%
	Other	28 - 40.0%
Psychotic features at the time of the attempt	Yes	34 - 48.6%
	No	36 - 51.4%
Method of suicide attempt	Drug overdose	39 - 55.7%
	Jumping from heights	20 - 28.6%
	Cutting	12 - 17.1%
	Hanging	4 - 5.7%
	Firearms	1 - 1.4%
	Other	10 - 14.3%

sd: standard deviation

Table 6. Univariate and multivariate predictors of suicide attempt in BPDI patients: logistic regression results

	Univariate model			Multivariate model		
	OR	%95 confidence interval	p	OR	%95 confidence interval	p
Educational level	0.760	0.581–0.994	**0.045**			
Age of onset	0.946	0.903–0.992	**0.021**			
First episode type	1.278	1.018–1.605	**0.034**			
Total number of episodes	1.059	1.013–1.106	**0.011**			
Number of depressive episodes	1.074	1.013–1.139	**0.016**			
Number of mixed episodes	2.355	1.204–4.608	**0.012**			
Functionality	2.470	1.199–5.087	**0.014**			
Lifetime suicide ideation	26.75	5.17–138.39	**0.000**			
Lifetime intensity of suicide ideation	1.523	1.283–1.809	**0.000**			
Childhood trauma questionnaire						
Emotional abuse	1.175	1.075–1.284	**0.000**	1.156	1.052–1.270	**0.003**
Physical abuse	1.205	1.045–1.390	**0.010**			
Physical neglect	1.211	1.068–1.373	**0.003**			
Emotional neglect	1.078	1.008–1.153	**0.029**			
Sexual abuse	1.106	1.011–1.211	**0.029**			
Total	1.046	1.019–1.073	**0.001**			
Difficulties in emotion regulation scale						
Strategies	1.090	1.036–1.146	**0.001**	1.081	1.025–1.141	**0.004**
Impulse	1.105	1.027–1.189	**0.008**			
Total	1.022	1.006–1.039	**0.006**			
PR scale for adults						
Structured style	0.907	0.829–0.992	**0.032**			
Family cohesion	0.940	0.885–0.999	**0.046**			
Social resources	0.944	0.897–0.995	**0.031**			
Total	0.979	0.963–0.995	**0.009**			

Logistic regression (Forward LR); OR: odds ratio; PR: psychological resilience.
Bold values display statistical significance.

Education level, age of onset of disease, first episode type, the total number of episodes, number of depressive episodes, number of mixed episodes, functionality, all CTQ subscales and total scores, DERS strategies, impulse control and total scores were observed to be significantly effective to distinguish between BPDI (+) and BPDI (-) in a univariate model (p<0.05). In the multivariate reduced model, CTQ emotional abuse score and DERS strategies score could successfully separate BPDI (+) and BPDI (-) (p<0.05) (Table 6).

DISCUSSION

This study explored the relationship between SB and psychological constructs such as CT, DER, and PR among euthymic BPDI patients. Findings revealed that BPDI (+) patients exhibited significantly higher DER –excluding awareness– and increased levels of CT across all subscales compared to both BPDI (-) and control groups. Total and all subscale scores of CTQ were significantly higher in BPDI (+) than BPDI (-) and controls. "Perception of self", "perception of future", "social resources" subscale and total scores for RSA were significantly lower in BPDI patients than controls. "Strategies" subscale scores of DERS and emotional abuse were determinative for suicide attempts in patients with BPDI.

Previous studies suggest a lack of significant relationship between mood disorders and most CT subtypes except physical neglect (9), with of 50% patients reporting it (29) while 56% of patients reported emotional neglect (30). In a comparative study carried out on depression, schizophrenia and bipolar disorder patients and healthy controls, 61% of bipolar disorder patients reported at least one CT subtype. A significant relationship between all subtypes of CT and the intensity of suicidal ideation has been reported (31) supporting data from the current study. A comparison of patients with bipolar disorder, subthreshold bipolar disorder and healthy controls indicated that all CT subtypes except sexual abuse were associated with bipolar disorder (32). Similarly, no difference in sexual abuse subscale scores between BPDI (-) and controls was identified in the current study.

Significantly higher CTQ total scores were observed in a cohort of 206 bipolar disorder patients in the euthymic period and 94 healthy controls; while the emotional abuse subscale score was consistently higher in bipolar disorder compared to controls. A relationship between CTQ total score and the early onset of bipolar disorder has been established, particularly in the context of sexual and emotional abuse (33). Moreover, higher CTQ scores were associated with SB, and patients with a history of suicide attempt reported higher rates of emotional and sexual abuse (33). The CTQ total score and the presence of emotional abuse were found to be higher in BPDI and type II patients than the controls. Multivariate regression analysis showed that among CT subtypes, only emotional abuse could predict lifetime suicide attempts (33). All of these studies support the findings of the current study. We observed that emotional abuse was a determinant for suicide attempts in BPDI patients, corroborating the data of Janiri et al. (34). Emotional abuse was found to be significantly positively correlated with lifetime suicidal ideation severity and suicide attempt. Our findings as well as the literature show that CT plays an important role in the risk of suicide in BPD patients.

A significant correlation between total and all subscale scores of DERS except "awareness" and suicidal ideation was reported in a cohort of 428 adolescent participants, (35) supporting our findings. In addition, euthymic bipolar disorder patients were shown to have significantly higher DERS total scores and lower "awareness" subscale scores than controls (36). Patients with bipolar disorder had more difficulty in all DERS dimensions except "awareness" compared to patients with unipolar depression and anxiety disorder (8). Thus, bipolar disorder patients may not have difficulties with examining and recognizing their own emotions since they frequently experience positive and negative emotions during mood episodes, increasing their emotional awareness (37). In addition, DERS subscale scores other than "awareness" showed high internal consistency (37). The same finding was reported in an independent study of 427 patients with different psychiatric diagnoses such as bipolar disorder, unipolar depression, anxiety disorder and obsessive-compulsive disorder (38). The findings of the current study therefore need to be repeated with different scales with a higher internal consistency than DER for the "awareness" dimension.

The association between impulsivity and an increased risk of suicide in bipolar disorder patients is well established (39,40). A positive and significant relationship between suicidal ideation scores in the last 1 year and "strategies" and "impulse" subscales of DERS in 547 adolescent inpatients has been reported (41). It was also reported that individuals who had attempted suicide had more difficulties in "clarity" and "impulse", data from the current study are consistent with these findings (42). Thus, the risk of suicide may increase in bipolar disorder patients who have difficulties controlling impulsive reactions and clearly distinguishing their emotions.

Bipolar disorder patients are thought to use adaptive ER strategies such as cognitive reassessment less, while they use maladaptive strategies such as suppression more (7). Bipolar disorder patients were reported to have emotional problems in many areas, with the greatest difficulty in coping with negative emotions, while the use of adaptive strategies such as cognitive reassessment was associated with fewer depressive episodes (43). Individuals with a history of multiple suicide attempts were reported to have higher scores in the "nonacceptance" subscale than controls, and higher scores in the "strategies" subscale compared to patients with a history of single suicide attempt and controls (44). In the current study, a significant difference was found in the "strategies" and "nonacceptance" subscales between all 3 groups. In addition, the "strategies" subscale scores of DERS were found to be a determinant for suicide attempts. Thus, BPDI patients may have difficulties in accepting their negative emotions and applying adaptive ER strategies, which may exacerbate the risk of suicide.

In a comparison of patients with schizophrenia and BPDI and healthy controls, both patient groups showed significantly lower resilience scores than healthy controls (45). In the current study patients had lower PR in perception of self/future and social resources than healthy controls, however there was no difference between BPDI (+) and BPDI (-) groups. There are different opinions in the literature on whether a history of suicide attempts in bipolar disorder patients is related to PR. A 4-year observational study in the general population suggested that PR did not have a direct protective effect in suicide (4). However, another study by Yao et al. suggested that resilience might be a protective factor in mitigating the risk of SB associated with CT (46). Nonetheless, PR is a dynamic concept and can change and develop over time. Psychologic resilience may also change during mood episodes in bipolar disorder compared to the euthymic period. The fact that bipolar disorder patients who attempt suicide and survive receive the medical, familial and social support they need afterwards may also have an impact on their PR. Overall, the potential protective role of PR in suicide risk is not clearly established. While BPDI patients were found to have lower PR levels compared to healthy controls, it remains unclear whether lower resilience directly influences SB. Additional analyses would be necessary to determine whether PR mitigates suicide risk and functions as a protective factor. Further analysis could also explore whether the effect of CT on SB depends on resilience levels. A moderation analysis could clarify how PR influences the CT-suicide relationship, offering deeper insights into risk and protective mechanisms.

The current study is the first to holistically evaluate the relationship between suicide and DERS, CT and PR in BPDI patients with clinical interviews using DSM-5 criteria and SCID-5 in addition to clinical scales for validity and reliability. The limitations of our study include its cross-sectional design, relatively small sample size, use of self-reporting scales, and use of retrospective information that was partially sourced from the patients. Moreover, one of the limitations of our study is the lack of evaluation of potential confounding factors such as medication history, psychiatric comorbidities (e.g., personality disorders), and socioeconomic status. In addition, the sampling of hospital outpatients makes it difficult to generalize the results to all BPD patients.

Bipolar disorder type 1, is a disorder with a high risk of suicide. The presence of emotional abuse and difficulties in applying adaptive strategies increase this risk. We suggest that therapeutic interventions to develop adaptive ER strategies and measures to reduce CT in this patient group are of great importance for community mental health. Follow-up studies should be designed with larger samples with equal gender distribution and patients in manic, depressive and euthymic periods. Future studies should replicate these findings using scales with higher internal consistency, particularly for the 'awareness' . Moreover, future research should focus on detailing how PR interacts with suicide risk in BPDI patients, which could guide clinical interventions and inform personalized treatment strategies.

Ethics Committee Approval: The study received ethical approval from Bakırköy Dr. Sadi Konuk Training and Research Hospital Clinical Research Center Ethics Committee (Decision No: 2021/26, Date: January 18th, 2021).

Commentary: The ethics committee meeting at Bakırköy Mental and Nervous Diseases Hospital could not be held at that time, where the study was conducted, due to COVID-19. As with other studies conducted at our hospital, ethics committee approval was necessarily obtained from the Dr. Sadi Konuk Training and Research Hospital. Because the study was the thesis Dr. Emre Subaş, it was evaluated by our hospital's education committee, and approval was received for this study from the Bakırköy Prof. Dr. Mazhar Osman Mental and Nervous Diseases Health Application and Research Center on January 5, 2021, under protocol number 488.

Informed Consent: Oral and written informed consent were obtained from all participants prior to their inclusion.

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