

Emotion Dysregulation Affects Functionality in Major Depressive Disorder

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ABSTRACT

Purpose: Mood disorders are recurrent chronic mental illnesses known to affect functionality. This study aimed to compare the coping strategies and emotion regulation difficulties in depression and bipolar disorder and observe the effects of coping strategies and emotion regulation on functionality.

Methods: Thirty-one patients with bipolar disorder (BD), 29 with major depressive disorder (MDD), and 27 healthy controls (HC) were included in the study. Participants completed the Coping Strategies Inventory (COPE) (adaptive coping strategies: COPE-A, maladaptive coping strategies COPE-M), the Bipolar Disorder Functioning Questionnaire (BDFQ), the Difficulties in Emotion Regulation Scale (DERS), the Hamilton Depression Scale (HAM-D), and the Young Mania Rating Scale (YMRS).

Results: In the BD group, a significant positive correlation was found between COPE-M and DERS scores ($p<0.005$, $r=0.361$), and a significant negative correlation was found between COPE-M and BDFQ ($p<0.005$, $r=-0.370$) scores. In the MDD group, a significant positive correlation was found between COPE-A and BDFQ scores ($p<0.001$, $r=0.711$), and a significant negative correlation was found between DERS and BDFQ ($p<0.001$, $r=-0.530$). The scores of BDFQ were statistically and significantly positively predicted by the COPE-A (B:0.415, $p=0.002$) and negatively by the DERS (B: -0.322, $p=0.016$) scores.

Conclusion: Emotion dysregulation may predispose to depressive symptomatology and negatively affect clinical course and functionality. Addressing emotion regulation difficulties and increasing the use of adaptive coping strategies in therapeutic interventions may contribute to the improvement of functionality as well as clinical improvement.

Keywords: emotion dysregulation, coping, bipolar disorder, depressive disorder, functionality

Duygu Düzenleme Güçlüğü Majör Depresif Bozuklukta İşlevselliği Etkiliyor

ÖZET

Amaç: Duygudurum bozuklukları, işlevselliği etkilediği bilinen tekrarlayan kronik ruhsal hastalıklardır. Bu çalışmada, depresyon ve bipolar bozuklukta başa çıkma stratejileri ile duygu düzenleme güçlüklerinin karşılaştırılması ve başa çıkma stratejileri ile duygu düzenlemenin işlevsellik üzerindeki etkisinin gözlemlenmesi amaçlanmıştır.

Yöntem: Çalışmaya 31 bipolar bozukluk (BB), 29 majör depresif bozukluk (MDB) tanımlı katılımcı ve 27 sağlıklı kontrol (SK) dahil edildi. Başa Çıkma Stratejileri Envanteri (COPE) (adaptif başa çıkma stratejileri: COPE-A, maladaptif başa çıkma stratejileri COPE-M), Bipolar Bozuklukta İşlevsellik Ölçeği (BDFQ), Duygu Düzenleme Güçlükleri Ölçeği (DERS), Hamilton Depresyon Ölçeği (HAM-D) ve Young Mani Derecelendirme Ölçeği (YMRS) katılımcılar tarafından dolduruldu.

Bulgular: BB grubunda COPE-M ile DERS puanları arasında pozitif yönde ($p<0.005$, $r=0.361$), COPE-M ile BDFQ arasında negatif yönde anlamlı bir ilişki bulundu ($p<0.005$, $r=-0.370$). MDB grubunda COPE-A ile BDFQ ($p<0.001$, $r=0.711$) puanları arasında pozitif yönde, DERS ile BDFQ ($p<0.001$, $r=-0.530$) arasında negatif yönde anlamlı bir korelasyon bulundu. BDFQ, COPE-A tarafından pozitif (B:0.415, $p=0.002$) ve DERS tarafından negatif (B: -0.322, $p=0.016$) olarak yordandı.

Sonuç: Duygu düzenleme güçlüğüne depresif semptomatolojiye zemin hazırlayabileceği, klinik gidişi ve işlevselliği olumsuz etkileyebileceği düşünüldü. Terapötik müdahalelerde duygu düzenleme güçlüklerinin ele alınması ve adaptif başa çıkma stratejilerinin kullanımının artırılması klinik iyileşmenin yanı sıra işlevselliğin iyileştirilmesine de katkıda bulunur.

Anahtar Sözcükler: duygu düzenleme güçlüğü, başa çıkma, bipolar bozukluk, depresif bozukluk, işlevsellik

Mood disorders are recurrent chronic mental illnesses known to affect functionality. Despite adequate treatment, many individuals with mood disorders experience recurrent episodes and thus impairment in functionality that adversely affect the treatment response. In order to improve treatment response, it is necessary to better understand the psychological mechanisms that may contribute to the disease symptoms and to control the factors that predict relapse (1).

Negative life events and stress can cause recurrent episodes of mood disorders (2). Stressful events lead to significant emotional responses (3). Emotion regulation is the ability of a person to regulate emotional responses (4) Accordingly, it has been suggested that emotion regulation skills and coping strategies help in adapting to stress (5). It is known that coping strategies and emotion regulation skills are different concepts, but they are highly related to each other in terms of involving the efforts to regulate emotions in response to stressful events and situations (6). It has been reported that both coping strategies and emotion regulation skills contribute to the functionality in mood disorders (7, 8).

The style of coping with stress plays a substantial role in individual well-being and can be important in treatment. Coping is defined as “regulating actions under stress” (9). Coping strategies can be conceptualized as maladaptive or adaptive. Adaptive strategies, such as active behavioral strategies, lead to improved psychosocial functioning, while maladaptive coping strategies, such as denial of adverse situations, are associated with increase in severity of depression (10,11). It has been observed that individuals with bipolar disorder (BD) use maladaptive coping strategies in the face of negative affect more than healthy controls (7,12). Even between BD subtypes (Bipolar I and II), differences were found in coping strategies (11).

In this study, it was aimed to compare the coping attitudes and emotion regulation difficulties in depression and bipolar disorder. Also, it was intended to observe the effects of coping strategies and emotion regulation on functionality.

MATERIAL and METHODS

Participants: This is a cross-sectional descriptive study with data collected between September 2017 and March 2018.

Patients with major depressive disorder (MDD) and BD in remission, who consecutively admitted to the psychiatry outpatient clinics in Trabzon Kanuni Training and Research Hospital were included in the study. Diagnoses were confirmed with the Structured Clinical Interview According to DSM-IV- TR- Axis I Disorders (SCID 1) (13,14). The control group was randomly selected among the individuals who applied to the other outpatient clinics in the same hospital. The inclusion criteria for the patient group were being between 18-65 years of age, being in remission for at least 6 months, being literate, and not having any psychiatric comorbidities. The inclusion criteria for the control group were not having received previous psychiatric treatment and not having a history of psychiatric illness in first-degree relatives. Exclusion criteria were illiteracy, hospitalization in the last 6 months, being outside the age range of 18-65 years, having another psychiatric comorbidity, presence of dementia, delirium, mental retardation, head trauma, or chronic neurological diseases. Written informed consent was obtained from those who agreed to participate in the study. The study was planned in accordance with the Declaration of Helsinki, and ethical approval dated 7.7.2017 and numbered 2017/27 was obtained from the ethics committee of Trabzon Kanuni Training and Research Hospital. Between the scheduled dates, 105 participants agreed to participate in the study. 9 participants with psychiatric comorbidities (3 participants with substance use disorder, 2 participants with generalized anxiety disorder, 1 participant with social anxiety disorder, 1 participant with obsessive-compulsive disorder, and 2 participants with mental retardation), 2 participants with neurological comorbidities (1 participant with epilepsy, and 1 participant with multiple sclerosis) and 7 participants who could not complete the tests were not included in the study. 31 patients with BD, 29 patients with MDD, and 27 healthy controls were included in the study.

Tools: Participants completed the Sociodemographic Data Form and the other scales.

Coping Strategies Inventory (COPE): It is a self-report scale consisting of 60 questions and was developed by Carver et al. (15). Turkish validity and reliability study was performed by Ağargün et al. (16). The Cronbach alpha values of the original form were between 0.45 and 0.92 and 0.79 for the Turkish form. Positive reinterpretation and development [1], mental disengagement [2], problem-focused

and emotionally focused coping [3], beneficial social support use [4], active coping [5], denial [6], religious coping [7], humor [8], behavioral disengagement [9], restraint coping [10], emotional social support use [11], substance use [12], acceptance [13], suppression of competing activities [14], planning [15], are the subscales of the inventory. [2],[3],[6],[9],[12] were determined as maladaptive coping strategies, the others were determined as adaptive coping strategies (15,16).

Bipolar Disorder Functioning Questionnaire (BDFQ): It consists of 52 items. It was developed by Aydemir et al. (17) and its validity and reliability study was conducted. The Cronbach alpha value of the scale was 0.91. It consists of 11 subscales. The sum of these subscales gives the total scale score. The scale does not have a cut-off score, and higher scores indicate increased functionality (17).

Difficulties in Emotion Regulation Scale (DERS): The DERS was developed by Gratz and Roemer (2004) and has 36-items (18). Awareness, clarity, nonacceptance, strategies, impulse, and goals are the subscales of the scale. The validity and reliability study of the Turkish version was performed by Rugancı and Gençöz (2010). The Cronbach alpha value of the scale was 0.94. The scale does not have a cut-off score, higher scores indicate more difficulty in emotion regulation (19).

Hamilton Depression Scale (HAM-D): The scale is used to measure the clinical severity of depression in the last week and consists of 17 questions. It was developed by Max Hamilton (20) and Turkish validity and reliability study of the scale was performed by Akdemir et al. (21). It is scored between '0' and '53' points. The Cronbach alpha value of the scale was 0.75.

Young Mania Rating Scale (YMRS): It was developed by Young et al. (22) and Turkish validity and reliability study was performed by Karadağ et al. (23). The Cronbach alpha value of the scale was 0.79. It is used to measure the clinical severity of mania. The scale consists of 11 items.

Statistics: Statistical analyses were performed with SPSS 29.0 (IBM, Armonk, New York, USA) program. Categorical variables were compared with the Chi-Square test. Sociodemographic and clinical variables were summarized with mean, standard deviation, and median, 25-75

percentile values. The data were compared to the normal distribution with the Shapiro-Wilk test and histogram graphics. Kruskal Wallis and Mann-Whitney U tests were used to compare continuous data that did not follow the normal distribution. Posthoc analyses for the variables that showed a significant difference in the Kruskal-Wallis analysis were performed with the Bonferroni corrected Mann-Whitney U test. Correlation and linear regression analyses were performed to examine the relationship between scale scores. Backward modeling was used in linear regression analysis. The statistical significance level was accepted as 0.05 in all analyses.

RESULTS

There was no statistical difference between the groups in terms of age, gender, marital status, educational status, income, number of suicide attempts, duration of education, and disease. Age at disease onset was significantly younger in the BD group than in the MDD group ($p=0.007$). Employed participants in the HC group were significantly higher than in the MDD and BD groups ($p<0.001$). The rate of living in the city was significantly lower in the MDD group than in the BD and HC groups ($p<0.001$). The number of depressive episodes is significantly higher in the MDD group ($p<0.001$). (Table 1).

The scores of BDFQ were significantly higher ($p<0.001$) and the scores of DERS were significantly lower in the HC group than BD and MDD ($p=0.007$) (Table 2).

In the BD group, a significant positive correlation was found between COPE-M and DERS scores ($p<0.005$, $r=0.361$), and a significant negative correlation was found between COPE-M and BDFQ ($p<0.005$, $r=-0.370$). In the MDD group, a significant positive correlation was found between COPE-A and BDFQ scores ($p<0.001$, $r=0.711$), and a significant negative correlation was found between DERS and BDFQ ($p<0.001$, $r=-0.530$) (Table 3).

The backward model was used in the linear regression analysis. In the MDD group, it was determined that the BDFQ was statistically significantly positively predicted by the COPE-A ($B:0.415$, $p=0.002$) and negatively by DERS ($B: -0.322$, $p=0.016$) (Table 4). The regression model was not significant for the predictors of functioning in the BD group.

Table 1: Sociodemographic and clinical characteristics of the groups

	HC n: 27	BD n: 31	MDD n: 29	P
Gender n(%)				
Female	17 (63.00)	21 (67.70)	23 (79.30)	0.384
Male	10 (37.00)	10 (32.30)	6 (20.70)	
Marital status n(%)				
Married	18 (66.70)	11 (35.50)	16 (55.20)	0.054
Single	9 (33.30)	20 (64.50)	13 (44.80)	
Occupation n(%)				
Not employed	2 (7.40) ^a	20 (64.50) ^b	22 (75.90) ^b	<0.001
Employed	25 (92.60) ^a	11 (35.50) ^b	7 (24.10) ^b	
Place of residence n(%)				
District	0 (0.0) ^a	4 (12.90) ^a	18 (62.10) ^b	<0.001
City	27 (100.00) ^a	27 (87.10) ^a	11 (37.90) ^b	
Income n(%)				
Minimum wage	8 (29.60)	8 (25.80)	11 (37.90)	0.587
Higher than min wage	19 (70.40)	23 (74.20)	18 (62.10)	
Age (year)				
mean±SD	36.41 ± 8.68	33.74 ± 11.17	33.79 ± 9.65	0.395*
Median (%25-%75)	31 (29-44)	34 (25-40)	32 (26.5-40.5)	
Education (year)				
mean±SD	10.07 ± 4.61	11.29 ± 3.01	10.90 ± 3.16	0.616*
Median (%25-%75)	37 (29-44)	11 (11-13)	11 (8-13.5)	
Disease duration (month)				
mean±SD		92.81 ± 77.32	63.24 ± 67.25	0.056**
Median (%25-%75)		72 (36-120)	29 (18-108)	
Age of onset (year)				
mean±SD		22.74 ± 7.12	27.3 ± 9.02	0.007**
Median (%25-%75)		21 (18-24)	25 (22-31)	
Number of depressive episodes				
mean±SD		0.42 ± 0.77	1.62 ± 0.20	<0.001**
Median (%25-%75)		0 (0-1)	2 (1-2)	
Number of suicide attempts				
mean±SD		0.23±0.43	0.24 ± 0.44	0.888**
Median (%25-%75)		0 (0-0)	0 (0-0.5)	

* Kruskal- Wallis, ** Mann Whitney-U
 HC: healthy control, BD: bipolar disorder, MDD: major depressive disorder

Table 2: Comparison of the groups in terms of clinical measures

	HC (n: 27)	BD (n: 31)	MDD (n:29)	P
	mean±SD median (25%-75%)	mean±SD median (25%-75%)	mean±SD median (25%-75%)	
HAM-D	0.52±0.94 ^a 0 (0-1)	3.90 ± 2.52 ^b 4(2-5)	5.62 ± 2.62 ^b 6 (3.5-7)	<0.001
YMRS	0.26 ± 0.59 ^a 0 (0-0)	2.13 ± 2.75 ^b 1 (0-4)	0.59 ± 1.68 ^a 0 (0-0)	0.001
COPE-A	107.22±9.44 107 (98-112)	105.00 ± 14.74 93 (88-101)	103.48 ± 15.06 108 (94-114)	0.970
COPE-M	46.30 ± 5.88 48 (42-49)	50.36 ± 8.87 51 (46-57)	47.24 ± 9.18 46 (42-54)	0.081
BDFQ	129.19 ± 11.22 ^a 133 (118-136)	93.58 ± 12.26 ^b 93 (88-101)	86.76 ± 12.67 ^b 88 (80.5-95.5)	<0.001
DERS	91.52 ± 10.92 ^a 89 (84-97)	99.98 ± 16.88 ^b 101 (88-111)	102.76 ± 14.83 ^b 103 (97.5-111)	0.007

* similar subscript letters represent similar groups.
 HC: healthy control, BD: bipolar disorder, MDD: major depressive disorder
 HAM-D: Hamilton Depression Scale, YMRS: Young Mania Rating Scale,
 COPE-A: Adaptive Coping Strategies, COPE-M: Maladaptive Coping Strategies, BDFQ: Bipolar Disorder Functioning Questionnaire: DERS: Difficulties in Emotion Regulation Scale

Table 3: Correlation analysis between scale scores

		HAM-D	YMRS	DERS	BDFQ	COPE-A
BD	HAM-D	1				
	YMRS	0.236	1			
	DERS	0.289	0.007	1		
	BDFQ	-0.018	0.052	-0.282	1	
	COPE-A	-0.198	-0.250	0.224	0.081	1
	COPE-M	-0.286	-0.325	0.361*	-0.370*	0.465**
MDD	HAM-D	1				
	YMRS	-0.214	1			
	DERS	0.305	0.137	1		
	BDFQ	-0.235	-0.092	-0.530**	1	
	COPE-A	-0.209	-0.140	-0.355	0.711**	1
	COPE-M	-0.089	-0.034	0.069	0.214	0.498**

*: p<0.05; **: p<0.01;
 * similar subscript letters represent similar groups.
 BD: bipolar disorder, MDD: major depressive disorder
 HAM-D: Hamilton Depression Scale, YMRS: Young Mania Rating Scale,
 COPE-A: Adaptive Coping Strategies, COPE-M: Maladaptive Coping Strategies, BDFQ: Bipolar Disorder Functioning Questionnaire: DERS: Difficulties in Emotion Regulation Scale

Table 4: Predictors of functionality in the patients with MDD					
Variable predicted: BDFQ	Unstandardized Coefficients		Standardized Coefficients		
	B	SE	Beta	t	p
Constant	76.967	20.601	-	3.730	<0.001
DERS	-0.322	0.125	-0.377	-2.587	0.016
COPE-A	0.415	0.123	0.493	3.381	0.002
adj.R²=0.497; (F=12.869 p<0.001)					
<i>DERS: Difficulties in Emotion Regulation Scale, COPE-A: Adaptive Coping Strategies</i>					

DISCUSSION

In this study, it was aimed to observe the coping attitudes and emotion regulation difficulties and their relationship with functionality in depression and bipolar disorder. As the most important finding of this study, it was determined that using adaptive strategies in coping with stress and emotion regulation difficulties were significant predictors of functionality in the MDD group. Also, there was a positive correlation between emotion regulation and adaptive coping strategies in our study.

In our study, it was observed that individuals both in the BD and MDD groups had significantly more difficulties in emotion regulation than the healthy controls. These results are consistent with previous findings (24,25). Studies are reporting that depression is a differentiation in emotion processing due to dysregulation of negative affect (26). It is stated that difficulty in emotion regulation may also cause the persistence of depressive mood (10), and emotion regulation facilitates reducing the intensity or shortening the duration of dysphoric states that contribute to the recurrence of depressive episodes (26). Likewise, adaptive coping strategies predicted increased remission and decreased risk of relapse in depression (27). Recurrence of the mood episodes and progression of the episode are associated with poorer functioning (28). This may explain the outcome of our study that emotion regulation and adaptive coping strategies predict functionality in MDD.

In this study, the number of depressive episodes was significantly higher in the MDD group. It can be concluded that the MDD group was exposed to more negative affect and difficulties to regulate it. Emotional dysregulation has

been reported to be associated with current depressive symptoms as well as previous depressive episodes (29). The reason for the absence of a similar prediction of functionality in the BD group may be due to the fact that they had fewer depressive episodes compared to the MDD group.

It was determined that there was no difference between the groups in terms of adaptive and maladaptive coping strategies. It has been reported in the literature that patients with bipolar disorder use maladaptive coping strategies at a higher level than healthy controls (7). Also, it was reported that patients with high severity of depression tend to use more maladaptive coping strategies (30). However, in both groups patients who were in remission for at least 6 months were included in our study, and it can be suggested that the indifference was due to the low clinical severity.

The first limitation of this study is the incapability to analyze the changes in coping strategies and emotion dysregulation in the clinical course due to the cross-sectional design. No follow-up data were available on how coping and emotion dysregulation changed when clinical severity changed. Another limitation is the absence of data on temperament and medications that may affect coping and emotion regulation. Finally, the small sample size and the use of self-report scales are important limitations. Compared to the clinician-applied scales, self-report scales can be more subjective.

CONCLUSION

In this study, the relationship between functionality and emotion regulation difficulties and coping attitudes was examined. Considering the findings of our study and the literature together, it can be stated that difficulty in emotion regulation may predispose to depressive symptomatology and negatively affect clinical course and functionality. Coping strategies and emotional regulation difficulties may differ as clinical severity changes. In the future, follow-up studies including acute episodes may provide important contributions to the literature. Addressing emotion regulation difficulties and increasing the use of adaptive coping strategies in therapeutic interventions contribute to the improvement of functionality as well as clinical improvement.

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