

# Associations of Attachment and Coping Styles With Social Functioning in Patients With Bipolar Disorder I

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**Abstract:** The aim of this study was to investigate the relationship of attachment and coping mechanisms with social functioning in patients with bipolar disorder (BD). Sixty-three patients with BD type I and 63 healthy controls were evaluated. Structured Clinical Interview for *DSM-IV* Axis I Disorders, Hamilton Depression Rating Scale, Young Mania Rating Scale, Experiences in Close Relationships Questionnaire II, Coping Orientation to Problems Experienced (COPE) inventory, and Social Functioning Scale were used. In the BD group, adaptive coping style scores and attachment avoidance scores were significantly lower than the control group, but mean scores of maladaptive coping styles were higher than the control group. Regression analysis showed that positive reinterpretation and growth, active coping, use of emotional social support, planning, religious activities, and mental disengagement subscales of COPE were significantly associated with social functioning. Psychosocial interventions to strengthen adaptive coping mechanisms may help improve the social functioning in patients with BD.

**Key Words:** Bipolar disorder, attachment, coping styles, social functioning

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Management of patients with bipolar disorder (BD) requires a comprehensive understanding of clinical and social aspects (Samalin et al., 2016). In diagnostic manuals, a BD episode is defined by symptoms that cause clinically significant distress or impairment in social, occupational, or other important areas of functioning (Grande et al., 2016). Opposed to the previous assertions that patients with BD were asymptomatic between episodes and recovered to normal or very high levels of overall functioning, recent studies have demonstrated a significant level of functional impairment (e.g., social, occupational) during euthymic periods (Gitlin and Miklowitz, 2017). Current research underlined the importance of assessment of functioning, with a distinct emphasis on specific domains such as work/educational, social, family, and cognitive functioning separately (Chen et al., 2019). Social functioning problems constitute a prominent component contributing to the functional impairment area (Pope et al., 2007; Yasuyama et al., 2017).

Social functioning is defined as “an individual’s ability to perform everyday social tasks appropriately and to maintain an adequate social life (Birchwood et al., 1990; Hirschfeld et al., 2000; Kaya et al., 2007; Kupferberg et al., 2016). Social functioning consists of several factors, such as withdrawal, interpersonal communication, independence-performance, independence-competence, recreation, prosocial activities, and employment/occupation (Birchwood et al., 1990; Yasuyama et al., 2017). The Social Functioning Scale, which measures all of these factors, is one of the scales that has been validated in patients with BD

and is widely used to evaluate social functioning (Akers et al., 2019). Recent studies on social functioning in BD have clearly demonstrated significant pervasive and persistent social functioning problems especially throughout longitudinal assessment (Gkintoni et al., 2017; Grove et al., 2016; Cannon et al., 1997). Treatment strategies that target the social domain of functional recovery beyond clinical remission may have positive impact in daily life in BD (Sanchez-Moreno et al., 2017). A better understanding of factors linked to social functioning in BD can help improve treatment outcomes (van Liempt et al., 2017).

Developmental aspects of emotional bond between the caregivers and children may have implications for mood disorders occurring in adult life (Esbjörn et al., 2012). Having an insecure attachment style was associated with more severe psychiatric symptomatology, impaired social cognitive abilities, poorer adherence to treatment, and greater dropout rates in certain patient groups (Eng et al., 2001; Gumley et al., 2014; MacBeth et al., 2011; Simpson et al., 2003). Other reports indicated an association between BD and insecure attachment and negative attachment (Gilbert et al., 2007; Kökçü and Kesebir, 2010; Morris et al., 2009). In a cross-sectional study, Kökçü and Kesebir (2010) reported that the prevalence of insecure attachment in patients with BD was higher than those of healthy individuals and that the insecure attachment style and mood disorders affect each other negatively and mutually. Young adult patients with BD with a history of childhood trauma showed poorer social functioning. Attachment was suggested as a possible mechanism that may underlie this association (Cotter et al., 2015; Sitko et al., 2014). It has also been asserted that assessment of attachment styles can be confounded during mood episodes so assessment would be more reliable during remission (Morris et al., 2009).

An important aspect of social functioning is how patients with BD cope with stressful events. Previous research focused on the role of coping with regard to disease onset, clinical features, or links with early adversities (Daruy-Filho et al., 2013; Grassi-Oliveira et al., 2010; Knowles et al., 2005; Kramer 2010). Noticing the mood symptoms early and coping with prodromal syndromes in BD are shown to prevent relapses, and the differences in coping strategies can affect the clinical outcomes in BD (Ryu et al., 2012). Other studies reported no significant relationship between coping styles, symptom degree, and the therapeutic alliance in patients with BD (Kramer et al., 2009).

A range of clinical and social factors are found to be related with social functioning in patients with BD, including interpersonal relations and cognitive performance (Baune and Malhi, 2015; Martinez-Aran et al., 2007; Sheinbaum et al., 2015). There are very limited data on the links between attachment, coping mechanisms, and social functioning in patients with BD (Bohlin et al., 2000). The aim of this study was to investigate the associations of attachment dimensions and coping mechanisms with social functioning in patients with BD.

## METHODS

### Participants and Procedure

Sixty-three patients with BD were recruited from the mood disorders outpatient unit of Bakirkoy Research and Training Hospital for Psychiatry, Neurology and Neurosurgery. Patients diagnosed with BD type I, aged between 18 and 65, who were in clinical remission for at

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least 3 months were included. The remission criteria for BD were defined as having sustained scores less than 8 on Hamilton Depression Rating Scale (HDRS) and less than 7 on the Young Mania Rating Scale (YMRS) at least for 3 months before the interview. Patients' remission status was confirmed via the patient records of routine clinical appointments and conducting the Structured Clinical Interview for *DSM-IV* Axis I Disorders (SCID-I) at the time of data collection. Exclusion criteria were having a comorbid psychotic disorder, mental retardation, neurological illness, significant medical illness, alcohol or substance use disorder (in the last year), and electroconvulsive therapy in the last year. After screening for exclusion criteria, 63 bipolar patients and 63 healthy controls were enrolled. A total of 82 were included initially, but 19 met one or more than one exclusion criteria and were not admitted into the present study. There were 12 patients who were excluded for not being in remission in the preceding 3 months. Four patients were excluded because of comorbid psychotic disorder or alcohol/substance use disorder. Therefore, 66 bipolar patients met the criteria for remission; of these, 63 gave written informed consent to participate in the study after procedures had been fully explained. The healthy control group consists of sociodemographically matched volunteers from community who were not diagnosed with any psychiatric, neurological, or medical illness or receiving any sort of medical treatment. Sociodemographic criteria when matching the controls were age, sex, educational status, marital status, and level of income. Written informed consents were obtained from the patients and control subjects. The procedure was in line with Helsinki Declaration, and the study was approved by the local ethics committee in Bakirkoy Research and Training Hospital for Psychiatry, Neurology, and Neurosurgery.

## Measures

### The Structured Clinical Interview for *DSM-IV* Axis I Disorders

Developed by First et al. (1997), SCID-I is a diagnostic tool used to determine *Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV)* axis I disorders. Including all *DSM-IV* diagnoses, each disorder is presented in a discrete section beginning with a few key questions to screen for responses that suggest further in-depth questions are applied to confirm a diagnosis. The Turkish validity and reliability study was conducted by Çorapçıoğlu et al. (1999).

### Hamilton Depression Rating Scale

The HDRS was developed by Hamilton (1959) to assess the severity of illness and follow up the progression in patients with depression. This widely used scale assesses 17 depression symptoms on a scale of five ratings. The Turkish version of the scale was tested for validity and reliability by Akdemir et al. (2001).

### Young Mania Rating Scale

Developed by Young et al. (1978), the items in this scale involve the core symptoms that are defined in the manic period of BD to assess the severity and progression of the illness rated from mild to severe. Performed by the clinician, the scale consists of 11 items, and each item measures on various scales; seven of these items are 5-point Likert type, and four of them are 9-point Likert type. The validity and reliability study of the Turkish version of the scale was performed by Karadağ et al. (2001).

### The Experiences in Close Relationships Questionnaire II

The Experiences in Close Relationships Questionnaire II (ECR-II) is used to evaluate attachment in two dimensions including anxiety and avoidance (Brennan et al., 1998). The avoidance dimension addresses the tendency of the individuals not to get close in interpersonal relations. Anxiety dimension addresses the anxiety felt by the

individual related with drifting apart from relatives. The scale consists of 36 questions and is a Likert-type scale graded between 1 and 7. This scale was adapted to Turkish by Sümer and Güngör (1999).

### The Coping Orientation to Problems Experienced Inventory

The Coping Orientation to Problems Experienced Inventory (COPE) inventory was created by Carver et al. (1989) as a multidimensional inventory developed to evaluate different coping strategies people use in response to stress. Consisting of 60 items, COPE is a self-report questionnaire with 15 subscales: a) active coping, b) restraint coping, c) planning, d) instrumental social support, e) suppression of competing activities, f) positive reinterpretation, g) turning to religion, h) humor, i) emotional social support, j) acceptance, k) behavioral disengagement, l) substance use, m) denial, n) mental disengagement, o) focus on and venting emotions. A total of 4 to 16 points can be obtained from each subscale. Turkish psychometric evaluation was conducted by Ağargün et al. (2005).

### Social Functioning Scale

The Social Functioning Scale (SFS) is a 79-item questionnaire developed by Birchwood et al. (1990) to assess social functioning in patients with schizophrenia and BD. The questionnaire asks the patient about performance in seven subscales (range of scores): social engagement, interpersonal communication, recreational activities, social activities, independence competence of activities of daily living, independence performance of activities of daily living, and occupational activity. Higher scores indicate better functioning in social area. The self-report questionnaire can be administered in interview to both the patients and the caregivers, we used only the patient version in our study. Turkish validity and reliability studies were conducted by Erakay (Erakay Şizofreni tanılı hastalarda sosyal işlevsellik Ölçeği (SİÖ) Türkçe formunun geçerliliği ve güvenilirliğinin araştırılması [unpublished thesis]).

### Statistical Analysis

The statistical package SPSS 19 for Mac (IBM Corp, Route 100 Somers, NY) was used for all analyses. In processing data obtained from the study, descriptive statistics were presented as mean  $\pm$  standard deviation depending on the distribution for continuous variables. Categorical variables were summarized as numbers and percentages. The normality test of numerical variables was determined by Kolmogorov-Smirnov test, and the skewness coefficients were examined for each numerical variable. Skewness values varied between  $-1.135$  and  $1.278$ , and kurtosis values varied between  $-0.579$  and  $1.053$ . All of the numerical variables included in the statistical analysis showed normal distribution. For comparison of two independent groups, independent samples *t*-test was used. Pearson correlation coefficient was used for investigating the relationships between SFS total and subscale scores, ECR subscale scores, and COPE subscale scores. Multiple linear regression analysis was performed to determine the effects of each subscale of the COPE Inventory on SFS total and subscale scores. For the regression analyses, sex, age, level of education, and the statistically significant variables of the correlation analyses between COPE Inventory and SFS subscale scores were chosen as the independent variables. The dependent variables were SFS subscale scores and total score in each regression analysis. Significance was evaluated at  $p < 0.05$  level.

## RESULTS

### Demographic and Clinical Characteristics

Table 1 represents the comparison of sociodemographic and clinical characteristics between the patient and control groups. Accordingly, age, sex, educational status, marital status, working status,

TABLE 1. Comparison of Sociodemographic and Clinical Characteristics by Groups

|                    | Group                     |                   | Statistical Test | p                           |
|--------------------|---------------------------|-------------------|------------------|-----------------------------|
|                    | Patients With BD (n = 63) | Controls (n = 63) |                  |                             |
| Age                | 38.7 ± 11.5               | 36.5 ± 12.1       | 1.044            | 0.298 <sup>a</sup>          |
| Sex                |                           |                   | 0.538            | 0.463 <sup>b</sup>          |
| Female             | 37 (58.7%)                | 41 (65.1%)        |                  |                             |
| Male               | 26 (41.3%)                | 22 (34.9%)        |                  |                             |
| Educational status |                           |                   | 1.775            | 0.412 <sup>b</sup>          |
| Primary            | 25 (39.7%)                | 22 (34.9%)        |                  |                             |
| Secondary          | 20 (31.7%)                | 16 (25.4%)        |                  |                             |
| High               | 18 (28.6%)                | 25 (39.7%)        |                  |                             |
| Marital status     |                           |                   | 1.570            | 0.210 <sup>b</sup>          |
| Married            | 31 (49.2%)                | 38 (60.3%)        |                  |                             |
| Single             | 32 (50.8%)                | 25 (39.7%)        |                  |                             |
| Occupation         |                           |                   | 2.045            | 0.153 <sup>b</sup>          |
| Employed           | 30 (47.6%)                | 38 (60.3%)        |                  |                             |
| Unemployed         | 33 (52.4%)                | 25 (39.7%)        |                  |                             |
| Level of income    |                           |                   | 11.142           | <b>0.004<sup>b</sup></b>    |
| Low                | 27 (42.9%)                | 10 (15.9%)        |                  |                             |
| Medium             | 32 (50.8%)                | 46 (73.0%)        |                  |                             |
| High               | 4 (6.3%)                  | 7 (11.1%)         |                  |                             |
| YMRS               | 0.97 ± 0.88               | 0.48 ± 0.59       | 3.670            | <b>&lt;0.01<sup>a</sup></b> |
| HDRS               | 2.57 ± 1.40               | 1.21 ± 0.88       | 6.528            | <b>&lt;0.01<sup>a</sup></b> |
| SFS total          | 116.86 ± 23.7             | —                 | —                | —                           |

p values in bold were accepted as statistically significant ( $p < 0.05$ ).  
<sup>a</sup>Independent samples *t*. Descriptive statistics are summarized as mean ± standard deviation.  
<sup>b</sup>Pearson chi-square test. Descriptive statistics were given as numbers (percentage).

chronic illness, and substance and cigarette use were similar among the groups. The proportion of patients with low income was higher in the patient group than in the control group ( $p < 0.01$ ). The HDRS and YMRS scores of patients were significantly higher in the patient group than in the control group ( $p < 0.01$ ).

Table 2 represents the comparison of the mean scores of the ECR subscales and COPE subscales between the groups. The mean ECR avoidance score was significantly lower in the patient group than in the control group ( $p = 0.006$ ). In the BD group, positive reinterpretation and growth ( $p < 0.001$ ), active coping ( $p < 0.001$ ), humor ( $p = 0.005$ ), acceptance ( $p = 0.015$ ), suppression of competing activities ( $p = 0.022$ ), and planning ( $p < 0.001$ ) subscales of the COPE scores were significantly lower than those in the control group. The mean scores of maladaptive COPE composites, denial ( $p = 0.016$ ), and behavioral disengagement ( $p = 0.004$ ) were higher than those in the control group.

Correlation Analysis

Correlation analyses of COPE subscale scores, ECR subscale scores, and SFS total and subscale scores of the patient group are presented in Table 3.

Regression Analysis

To examine the impact of COPE subscale scores and sociodemographic variables on SFS total and subscale scores, a stepwise regression analysis was performed. Our results showed that active coping was significantly associated with SFS total score ( $\beta = 0.479$ ;

$p < 0.001$ ). Positive reinterpretation and growth ( $\beta = 0.410$ ;  $p < 0.001$ ) and use of emotional social support ( $\beta = 0.288$ ;  $p = 0.014$ ) predicted higher scores of social engagement. Active coping ( $\beta = 0.343$ ;  $p = 0.004$ ) and level of education ( $\beta = 0.307$ ;  $p = 0.009$ ) predicted higher scores of social activities. Planning ( $\beta = 0.361$ ;  $p = 0.002$ ) predicted higher scores of religious activities ( $\beta = -0.262$ ;  $p = 0.022$ ). Female sex ( $\beta = -0.228$ ;  $p = 0.045$ ) was associated with lower scores of recreational activities. Positive reinterpretation and growth ( $\beta = 0.341$ ;  $p = 0.007$ ) predicted higher scores of independence-competence of activities of daily living. Active coping ( $\beta = 0.315$ ;  $p = 0.009$ ) and age ( $\beta = 0.271$ ;  $p = 0.024$ ) predicted higher scores of independence-performance. Mental disengagement ( $\beta = -0.307$ ;  $p = 0.014$ ) predicted lower scores of the occupation subscale of SFS (Table 4).

DISCUSSION

To our knowledge, this is the first study to investigate the associations of attachment and coping with stress with social functioning in patients with BD. Our findings showed that patients with BD showed significant deteriorations on coping strategies compared with the healthy controls. In patients with BD, positive reinterpretation and growth, active coping, use of emotional social support, planning, religious activities, and mental disengagement subscales of COPE were significantly associated with social functioning at different levels. Female sex was associated with poorer recreational activities, whereas higher educational level was associated with better social activities. Age was associated with better independence-performance in patients.

TABLE 2. Comparison of Mean ECR and COPE Scores by Groups

|                                      | Group             |                   | t     | p                |
|--------------------------------------|-------------------|-------------------|-------|------------------|
|                                      | Patients (n = 63) | Controls (n = 63) |       |                  |
| ECR-II                               |                   |                   |       |                  |
| ECR avoidance                        | 3.90 ± 0.51       | 4.15 ± 0.52       | 2.771 | <b>0.006</b>     |
| ECR anxiety                          | 4.39 ± 0.72       | 4.31 ± 0.64       | 0.606 | 0.545            |
| COPE                                 |                   |                   |       |                  |
| Positive reinterpretation and growth | 12.03 ± 2.86      | 13.82 ± 2.03      | 4.053 | <b>&lt;0.001</b> |
| Mental disengagement                 | 10.17 ± 2.16      | 9.77 ± 2.51       | 0.950 | 0.344            |
| Focus on and venting of emotions     | 11.74 ± 2.40      | 11.31 ± 2.91      | 0.900 | 0.37             |
| Use of instrumental social support   | 11.53 ± 3.11      | 11.61 ± 2.84      | 0.149 | 0.882            |
| Active coping                        | 11.15 ± 2.90      | 13.03 ± 2.52      | 3.863 | <b>&lt;0.001</b> |
| Denial                               | 8.19 ± 3.01       | 6.95 ± 2.64       | 2.449 | <b>0.016</b>     |
| Religious coping                     | 12.79 ± 3.46      | 12.34 ± 3.97      | 0.669 | 0.505            |
| Humor                                | 7.65 ± 2.81       | 9.15 ± 3.06       | 2.877 | <b>0.005</b>     |
| Behavioral disengagement             | 7.90 ± 2.94       | 6.46 ± 2.62       | 2.909 | <b>0.004</b>     |
| Restraint                            | 10.25 ± 2.46      | 9.84 ± 2.17       | 0.995 | 0.322            |
| Use of emotional social support      | 11.88 ± 2.77      | 11.31 ± 2.81      | 1.148 | 0.253            |
| Substance use                        | 6.50 ± 3.82       | 5.55 ± 2.95       | 1.565 | 0.120            |
| Acceptance                           | 10.19 ± 2.71      | 11.31 ± 2.37      | 2.479 | <b>0.015</b>     |
| Suppression of competing activities  | 9.77 ± 2.43       | 10.76 ± 2.34      | 2.311 | <b>0.022</b>     |
| Planning                             | 11.30 ± 3.06      | 13.15 ± 1.99      | 4.034 | <b>&lt;0.001</b> |

Independent samples *t*. Descriptive statistics are summarized as mean ± standard deviation.  
p values in bold were accepted as statistically significant ( $p < 0.05$ ).

TABLE 3. Correlation of COPE Subscales and ECR Subscales With SFS Total Scores in the Patient Group

|                                      | SFS               | SFS                         | SFS               | SFS                     | SFS                     | SFS                      | SFS                     | SFS     |
|--------------------------------------|-------------------|-----------------------------|-------------------|-------------------------|-------------------------|--------------------------|-------------------------|---------|
|                                      | Social Engagement | Interpersonal Communication | Social Activities | Recreational Activities | Independence-Competence | Independence-Performance | Occupational Activities | Total   |
| Positive reinterpretation and growth | 0.519**           | 0.318*                      | 0.307*            | 0.322*                  | 0.341**                 | 0.305*                   | 0.094                   | 0.415** |
| Mental disengagement                 | 0.110             | −0.079                      | 0.063             | 0.099                   | −0.015                  | 0.114                    | −0.307*                 | 0.084   |
| Focus on and venting of emotions     | −0.103            | −0.102                      | 0.148             | 0.078                   | −0.101                  | −0.067                   | −0.145                  | 0.019   |
| Use of instrumental social support   | 0.477**           | 0.126                       | 0.286*            | 0.210                   | 0.337**                 | 0.257*                   | 0.026                   | 0.360** |
| Active coping                        | 0.422**           | 0.198                       | 0.424**           | 0.401**                 | 0.308*                  | 0.316*                   | −0.045                  | 0.497** |
| Denial                               | 0.062             | −0.133                      | −0.190            | −0.216                  | 0.108                   | 0.029                    | −0.149                  | −0.066  |
| Religious coping                     | −0.040            | 0.076                       | −0.119            | −0.286*                 | 0.141                   | −0.129                   | 0.087                   | −0.160  |
| Humor                                | 0.299*            | 0.038                       | 0.167             | 0.024                   | 0.013                   | −0.005                   | −0.038                  | 0.141   |
| Behavioral disengagement             | −0.114            | −0.145                      | −0.124            | −0.154                  | −0.194                  | −0.006                   | −0.240                  | −0.111  |
| Restraint                            | 0.153             | 0.043                       | −0.120            | 0.041                   | 0.196                   | 0.210                    | −0.124                  | 0.069   |
| Use of emotional social support      | 0.444**           | 0.074                       | 0.350**           | 0.230                   | 0.216*                  | 0.305*                   | −0.003                  | 0.399** |
| Substance use                        | −0.0328**         | −0.193                      | −0.220            | −0.124                  | −0.304*                 | −0.169                   | −0.117                  | −0.260* |
| Acceptance                           | 0.157             | −0.066                      | 0.148             | 0.153                   | 0.048                   | 0.152                    | −0.214                  | 0.174   |
| Suppression of competing activities  | 0.161             | 0.057                       | 0.256*            | 0.331**                 | 0.145                   | 0.256*                   | −0.140                  | 0.325** |
| Planning                             | 0.450**           | 0.153                       | 0.356**           | 0.403**                 | 0.165                   | 0.263*                   | −0.016                  | 0.408** |
| ECR avoidance                        | 0.143             | 0.015                       | −0.001            | −0.196                  | 0.129                   | −0.080                   | 0.080                   | −0.053  |
| ECR anxiety                          | 0.043             | −0.024                      | 0.195             | 0.173                   | 0.105                   | 0.001                    | 0.105                   | 0.151   |

Pearson correlation coefficient was used.

\* $p < 0.05$ .

\*\* $p < 0.01$ .

TABLE 4. COPE Subscale Scores on Predicting SFS Total and Subscale Scores

| Regression Model | Dependent Variable          | Independent Variable                 | Standardized Estimations | <i>t</i> | <i>p</i>         | Adjusted <i>R</i> <sup>2</sup> |
|------------------|-----------------------------|--------------------------------------|--------------------------|----------|------------------|--------------------------------|
| 1                | SFS total                   | Active coping                        | 0.479                    | 4.469    | <b>&lt;0.001</b> | 0.234                          |
| 2                | Social engagement           | Positive reinterpretation and growth | 0.410                    | 3.612    | <b>&lt;0.001</b> | 0.318                          |
|                  |                             | Use of emotional social support      | 0.288                    | 2.537    | <b>0.014</b>     |                                |
| 3                | Interpersonal communication | Positive reinterpretation and growth | 0.318                    | 2.619    | <b>0.011</b>     | 0.086                          |
| 4                | Social activities           | Active coping                        | 0.343                    | 2.993    | <b>0.004</b>     | 0.243                          |
|                  |                             | Level of education                   | 0.307                    | 2.681    | <b>0.009</b>     |                                |
| 5                | Recreational activities     | Planning                             | 0.361                    | 3.236    | <b>0.002</b>     | 0.240                          |
|                  |                             | Religious activities                 | −0.262                   | −2.355   | <b>0.022</b>     |                                |
|                  |                             | Sex                                  | −0.228                   | −2.046   | <b>0.045</b>     |                                |
| 6                | Independence-competence     | Positive reinterpretation and growth | 0.341                    | 2.811    | <b>0.007</b>     | 0.102                          |
| 7                | Independence-performance    | Active coping                        | 0.315                    | 2.680    | <b>0.009</b>     | 0.146                          |
|                  |                             | Age                                  | 0.271                    | 2.312    | <b>0.024</b>     |                                |
| 8                | Occupational activity       | Mental disengagement                 | −0.307                   | −2.523   | <b>0.014</b>     | 0.080                          |

Model 1:  $F(1,61) = 19.972$ ;  $p < 0.001$ ; independent variables for model 1: age, sex, level of education, active coping, positive reinterpretation and growth, use of instrumental social support, use of emotional social support, substance use, suppression of competing activities, planning.

Model 2:  $F(2,60) = 15.472$ ;  $p < 0.001$ ; independent variables for model 2: age, sex, level of education, active coping, positive reinterpretation and growth, use of instrumental social support, use of emotional social support, substance use, planning.

Model 3:  $F(1,61) = 6.859$ ;  $p = 0.011$ ; independent variables for model 3: age, sex, level of education, positive reinterpretation and growth.

Model 4:  $F(2,60) = 10.944$ ;  $p < 0.001$ ; independent variables for model 4: age, sex, level of education, active coping, positive reinterpretation and growth, use of instrumental social support, use of emotional social support, suppression of competing activities, planning.

Model 5:  $F(3,59) = 7.534$ ;  $p < 0.001$ ; independent variables for model 5: age, sex, level of education, active coping, positive reinterpretation and growth, religious coping, suppression of competing activities, planning.

Model 6:  $F(1,61) = 7.901$ ;  $p = 0.007$ ; independent variables for model 6: age, sex, level of education, active coping, positive reinterpretation and growth, use of instrumental social support, use of emotional social support, substance use.

Model 7:  $F(2,60) = 6.301$ ;  $p = 0.003$ ; Independent Variables for Model 7: Age, sex, level of education, active coping, positive reinterpretation and growth, use of instrumental social support, use of emotional social support, substance use.

Model 8:  $F(1,61) = 6.365$ ;  $p = 0.014$ ; independent variables for model 8: age, sex, level of education, mental disengagement.

*p* values in bold were accepted as statistically significant ( $p < 0.05$ ).

To our surprise, avoidance pattern in close relationships was lower in patients with BD compared with healthy controls. Neither attachment anxiety and nor attachment avoidance was associated with social functioning in patients.

In this study, we found that patients with BD used the following coping mechanisms less frequently than the controls: positive reinterpretation and growth, active coping, humor, acceptance, suppression of competing activities, and planning. The coping mechanisms that were less frequently used by the patients with BD in our sample are also called adaptive coping strategies (Carver et al., 1989). On the other hand, patients showed more maladaptive coping, denial, and behavioral disengagement than the controls. Goossens et al. (2008) showed that patients with BD had more avoidant coping styles, which are classified as maladaptive. Kramer et al. (2009) also showed that patients with BD (both during episode and remission phases) use maladaptive coping mechanisms when compared with controls. Ryu et al. (2012) reported that patients in manic episode with psychotic symptoms used more denial and condemnation mechanisms to cope with prodrome periods. Consistent pattern of problematic coping behavior in patients with BD flags the need for tailored psychosocial interventions such as emotional and social support seeking and strategies to improve problem-focused and active coping styles (Grassi-Oliveira et al., 2010).

A recent meta-analysis showed that social functioning in BD was associated with cognitive functions and disease severity (Baune and Malhi, 2015). The course of illness is considered to have impact on overall functioning (Chen et al., 2019). In our sample of patients with BD, adaptive coping strategies such as active coping, positive reinterpretation and growth, use of emotional social support, and planning were associated with social functioning. These findings are in accordance with findings of Lam and Wong (1997) reporting an association between the use of behavioral strategies to deal with prodrome symptoms of mania and social functioning. We suggest that social, rehabilitating, and psychotherapeutic interventions can help patients with BD to improve their functioning via addressing problem-focused and adaptive coping styles.

In our sample, mental disengagement, a maladaptive coping mechanism, was associated with poorer social functioning. This finding was in line with an earlier report by Nitzburg et al. (2016) that showed higher disability in patients with BD who used behavioral disengagement (another maladaptive coping mechanism) more often. Maladaptive coping strategies are related with poor compliance (Greenhouse et al., 2000). Mental disengagement may have affected social functioning negatively by interfering with treatment compliance and potentially more relapses, although causal links cannot be established due to the cross-sectional nature of our study. Patients with more frequent use of religious activities also had poorer social functioning in our sample. This was unexpected as religious activities are usually regarded as self-sufficient strategies. On the other hand, religious coping was reported to have links with behavioral inhibition systems that may partly explain the findings in our sample (Litman, 2006).

Sex, educational level, and age predicted social functioning at different levels. Female patients' lower social functioning may be related to the societal sex roles and the associated burden. House labor and caring responsibilities are heavily dependent on women in Turkey, which can make it difficult to participate in recreational activities (Sayer, 2005). Higher educational level was associated with better functioning in the social activities domain. As the educational level increases, social network can expand and the sense of competence in social relations can increase, leading to more favorable social activities. Age was associated with better functioning in the independence-performance domain. The sense of self-control that develops with age can contribute to increasing level of independence in daily activities (Antonucci, 2001).

Surprisingly, mean attachment avoidance score was found to be lower in patients with BD than the healthy controls in our study. Morriss et al. (2009) reported that euthymic patients with BD exhibited anxious

attachment style. In the study by Kökçü and Kesebir (2010), patients with BD are more likely to have avoidant attachment style than the control group. In the study of Harnic et al. (2014), both avoidance and anxiety dimensions of attachment scores were higher in patients with BD type I, BD type II, and cyclothymic disorder when compared with the matched healthy controls. In this study, only the anxiety dimension was associated with BD, but the heterogeneity in diagnosis should be noted as the results are not specific for BD type I (Harnic et al., 2014). In collectivist countries such as Turkey, attachment avoidance is a variable that may have major implications on one's social life; therefore, avoidant characteristics in attachment may be suppressed or suspended in patients with BD who need social support (Sümer and Yetkili, 2018).

In our sample, anxiety or avoidance dimensions of attachment were not associated with social functioning. In a nonclinical sample, Sheinbaum et al. (2015) reported that the attachment styles come into play in social contexts and impact social functioning. Our findings supported the view that the attachment patterns are not directly related to disease course. Similarly, Morriss et al. (2009) showed that attachment styles were not associated with clinical factors such as age at onset, number of attacks, or hospitalization in patients with BD. Although attachment patterns are known to impact social relationships in the healthy population, our findings suggested that they did not have an effect on social functioning in BD.

One of the limitations of our study was the lack of clinical parameters such as age of onset, the number and severity of previous attacks, and the number of hospitalizations. In addition, lack of some other factors that may affect social functioning like medical comorbidities, neurocognitive functioning, and adverse effects of medicines was a limitation. Another limitation of our study was the absence of exclusion of personality disorders, another factor that may affect social functioning and disease progression. Especially, the possibility of overlap with borderline personality disorder is not rare in patients with BD, which may affect the findings, because deterioration in social relationships is one of the main manifestations of borderline personality disorder. Using only the patient version of the social functioning form, but not the caregiver form, could be considered as a limitation; the SFS caregiver form may provide additional close observer data on patients' social functioning. The cross-sectional design of the study and use of self-report assessment scales were other limitations of our study.

## CONCLUSION

In conclusion, this cross-sectional study revealed that attachment characteristics were not associated with social functioning in patients with BD in remission phase. In this light, the possible inclusion of patients with comorbid borderline personality disorder would not have affected negatively this result. Furthermore, this result may suggest that assessment of attachment styles may help the differentiation between BD and borderline personality disorder. Further studies evaluating borderline personality disorder comorbidity along with attachment patterns in patients with BD may help clarify these possible links. Along with age, sex and educational level, active coping, positive reinterpretation and growth, use of emotional social support, planning, mental disengagement, and religious activities had effects at different levels on social functioning. Psychosocial interventions to strengthen adaptive coping mechanisms may help improve the social functioning in patients with BD. Interventional studies addressing dysfunctional coping mechanisms are required to test the therapeutic value of targeting coping in patients with BD.

## DISCLOSURE

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