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SCHIZOPHRENIA AND BIPOLAR AFFECTIVE DISORDER: A DIMENSIONAL APPROACH

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SUMMARY

Aim: *Schizophrenia (SCH) and bipolar affective disorder (BAD) are currently classified separately according to the DSM (The Diagnostic and Statistical Manual of Mental Disorders) and ICD (International Statistical Classification of Diseases and Related Health Problems) standardized diagnostic guidelines. However, the validity of this categorical approach is controversial because psychotic symptoms may be observed in both diagnoses. The purpose of this study was to compare the clinical and social characteristics in a sample group consisting of patients diagnosed with SCH or BAD to help demonstrate the basic difficulty in the current classification of SCH and BAD as two etiologically distinct diseases.*

Subjects and methods: *The study sample group consisted of 102 patients diagnosed with SCH and 92 patients diagnosed with BAD. All of the participants were evaluated by Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition with regard to beginning symptoms of the disease, the symptoms and signs of active disease period within total disease duration, continuining residual symptoms in intermediate period. The patients were administered the Positive and Negative Syndrome Scale, the Quality of Life Enjoyment and Satisfaction Questionnaire and the Social Functioning Scale.*

Results: *The SCH and BAD groups in this study were statistically similar in terms of sex, length of education, age at disease onset, attempted suicide, quality of life and social functioning.*

Conclusion: *Our study findings indicated that the course of disease in patients with BAD-1, in which psychotic features predominate and which exhibits a recurring course, shares various characteristics with SCH. It can be concluded that further phenomenological and neurobiological evaluations are required for intermediate cases with similiar clinical characteristics with schizophrenia and bipolar disorders.*

Key words: *schizophrenia - bipolar affective disorder - dimensional approach*

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INTRODUCTION

Schizophrenia (SCH) and bipolar affective disorder (BAD) are two psychological disorders that are associated with insufficient clinical response, a chronic recurring course and an inadequate level of functioning in a significant number of patients (Correll et al. 2007, Jones et al. 2006).

These two diseases, which have a combined mean global prevalence of 0.7-1% (Merikangas et al. 2007), affect males and females equally. The symptoms of both diseases generally commence in early adulthood, and both diseases are accompanied by an increased risk of suicide (Berrettini 2003).

SCH is frequently characterized as a thought disorder. The primary diagnostic feature of SCH is described as extended psychotic symptoms and functional impairment. BAD-type I (BAD-I) is defined in DSM IV as being characterized by at least one manic episode (APA 1994). Although the presence of a depressive period is not essential for diagnosis, depressive symptoms generally occur in the manic episode. Although a significant number of BAD-I patients exhibit psychotic symptoms during the course of their disease, BAD-I is not typically considered a psychotic disorder (Pacheco et al. 2010).

Kraepelin divided SCH and BAD into two distinct diseases on the basis of clinical picture and observation approximately 120 years ago (Kreapelin 1899). SCH and BAD are currently classified separately according to DSM (The Diagnostic and Statistical Manual of Mental Disorders) and ICD (International Statistical Classification of Diseases and Related Health Problems) standardized diagnostic guidelines. However, the validity of this categorical approach is controversial because psychotic symptoms may be seen in both diagnoses. This similarity makes differential diagnosis difficult, particularly in the early stages of the disease, and may lead to mutual false diagnoses (Weiser et al. 2001).

It is difficult to diagnostically classify patients who may have various common syndromes, such as psychotic symptoms and manic and depressive symptoms, into these two distinct categories. Manic or depressive episodes may be observed between or during psychotic episodes in a significant number of patients with SCH, whereas psychotic symptoms may be observed during manic or depressive episodes in patients with BAD (Bramon and Sham 2001). Additionally, common etiological agents are reported for these two diseases. The risk factors for both disorders include infectious agents (Bramon and Sham 2001), medication use (Andreasson et al. 1987), migrant status (McGrath et al. 2004), social

problems (Cannon et al. 1997), obstetric complications (Jones et al. 1998, Kinney et al. 1998) and environmental and genetic factors.

Dimensional Approach in psychiatry is by Project of Research Domain Criteria (RDoC) for the aim of understanding the disease and treatment (Hägele C et al. 2016, Cuthbert BN and Insel TR 2013). A dimensional approach has been proposed as an alternative to categorical differentiation, which suggests that SCH and BAD are pathologies without great variation that exhibit continuity with regard to a psychotic dimension (Crow 1995). Based on widespread clinical, epidemiological and genetic features, several researchers have claimed that SCH and BAD represent the same disorder within a broad spectrum (Carpenter & Buchanan 1994). The clinical and genetic heterogeneity of the two diseases, to some extent, contributes to the difficulty in arriving at a specific diagnosis. The basic difficulty in dividing them into two conditions lies in the need to make a clinical distinction when psychotic symptoms and mood symptoms overlap (Pacheco et al. 2010). In fact, the difficulty in separating these two diseases is reflected by schizoaffective disorder, a third category, which is defined by both psychosis and mood symptoms and is frequently difficult to distinguish from SCH.

If these disorders are etiologically distinct, differences would be expected in terms of key features such as age at onset and the duration of disease and psychosocial functioning (Pacheco et al. 2010).

To demonstrate the basic difficulty in dividing SCH and BAD into two distinct disease groups based on etiology, the purpose of this study was to compare clinical and social characteristics in a sample group consisting of patients diagnosed with SCH (with paranoid features) and BAD (with psychotic features) in a psychiatric health and diseases hospital.

SUBJECTS AND METHODS

Sampling

560 patients with the diagnosis of schizophrenia and 338 patients with BAD were refered to Mental Health Hospital between the dates of May 2013-May 2014. Among these patients 128 patients with schizophrenia and 113 patients with BAD with psychotic type manic who had come to their 4 consecutive visits, compliant with their treatment regime and who were not in active disease period were evaluated for the study.

The following subjects were excluded from the study: those who were diagnosed with psychiatric conditions other than schizophrenic disorder (paranoid-type) and BAD with psychotic features on the basis of DSM-IV following application of SCID-I; those with previous diagnoses of dementia, a history of physical disease affecting the central nervous system, a history of head trauma resulting in unconsciousness, or mental retardation; and those who refused to provide informed consent.

All of the participants were evaluated by Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) (SCID-I) with regard to beginning symptoms of the disease, the symptoms and signs of active disease period within total disease duration, continuining residual symptoms in intermediate period.

The patients involved in the study have these features: They have episodic disease with mania episodes exhibiting psychotic properties compatible with mood. The psychotic symptoms improve first followed by speeding. The patients are symptom-free during inter-episodic period and on regular follow-up throughout the study period. They are on remission and have limited functionality. The patients have chronic disease with either continuing residual symptoms or complete resolution after exacerbations. They are patients wihout episodes with dominantly affective symptoms in the disease period. Subsequent to this diagnostic evaluations, 102 patients with schizophreni (paranoid type) and 92 patients with BAD (with psychotic-type manic episodes) were included to this study.

The patients received detailed information regarding the research. Their sociodemographic characteristics were recorded after we obtained their written informed consent. All of the patients were administered the Positive and Negative Syndrome Scale (PANSS) to assess the severity of symptoms, the Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q) to assess the quality of life and the Social Functioning Scale (SFS) to assess social functioning. Clinical interviews, SCID-I, PANSS, Q-LES-Q and SFS were administered by the physician responsible for the research.

The study was approved by the Trabzon Provincial Public Hospitals Union General Secretariat Kanuni Education and Research Hospital ethical committee (decision no. 23618724) and hospital administration.

Evaluation Tools

Sociodemographic Data Form

Developed by the authors, this form was designed to assess the participants' sociodemographic details (such as age, sex, marital status and employment status) and clinical features (such as age at the time of onset of the disease, the total duration of the disease and the total number of hospitalizations).

Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I): SCID-I was developed in 1987 to diagnose DSM-III-R Axis I disorders with a structured clinical evaluation tool (Spitzer et al. 1987). It was subsequently updated for DSM-IV (First et al. 1997).

Positive and Negative Syndrome Scale (PANSS)

PANSS, developed by Kay et al. (1987) is a semi-structured interview scale consisting of 30 items for assessing the level of severity using a 7-point scale. Seven of the 30 psychiatric parameters constitute a posi-

tive symptoms subscale, 7 constitute a negative symptoms subscale and the remaining 16 parameters constitute a general psychopathology subscale. The reliability and validity of the Turkish language version of the scale were established by Kostakoğlu et al. (1999).

Quality of Life Enjoyment and Satisfaction Questionnaire (Q-LES-Q)

Developed by Endicott et al. (1993) to measure quality of life, the questionnaire was completed by the patients. High scores indicate high enjoyment and satisfaction. The reliability and validity of the Turkish language version of the questionnaire were established by Özer et al. (2001), although the psychometric data were not cited. The general evaluation section of the scale has been used in various studies in Turkey. The general evaluation section was employed in this study.

Social Functioning Scale (SFS)

Developed by Max Birchwood et al. (1990), the reliability and validity of the scale in Turkey were established by Erakay (2001). The scale was completed by a family member living with the patient. It consists of six distinct fields: social activity/social withdrawal, interpersonal behavior, common social activities, spare time activities, independence and work/occupation. High scores from the subscales indicate greater positivity in functioning. Standards have not been calculated, and the scale is used in comparative studies. Only the form completed by the patient was included in this study's analysis (because not all of the patients' relatives could be contacted).

Statistical Analyses:

The normal distribution of variables was examined using the Kolmogorov-Smirnov test. The descriptive data were expressed as the mean and standard deviation values for the normally distributed variables and as the mean plus min-max for the non-normally distributed data. The chi-squared test plus Student's t test for the normally distributed parameters and the Mann-Whitney U test for the non-normally distributed parameters were used to compare the qualitative data. $P<0.05$ was considered to be statistically significant.

Table 1. Sociodemographic data of patient groups

	SCH (n=101)	BAD (n=92)	p
Age	38.46±9.07	38.74±11.94	0.854**
Gender			
Men	65 (64.4%)	49 (53.%3)	0.117*
Women	36 (35.6%)	43 (46.7%)	
Marital status			
Single	55 (54.5%)	43 (46.7%)	0.449*
Married	36 (35.6%)	41 (44.6%)	
Widow	10 (9.9%)	8 (8.7%)	
Duration of Education (years)	9.82±3.69	8.91±3.48	0.083**
Employment status			
Positive	48 (47.5%)	37 (40.2%)	0.307*
Negative	53 (52.5%)	55 (59.8%)	

n - The number of patients; % - Percentages (Column percentage is used); * Chi-square test; ** Student's t test

Table 2. Clinical characteristics of the patient groups

	SCH (n=101)	BAD (n=92)	p
The age at onset of disease	24 (15-51)	23 (13-60)	0.222*
Total duration of disease	12.77±7.74	12.52±8.91	0.835***
Total duration of hospitalization	3 (0-15)	3 (0-12)	0.246*
History of psychiatric disease in the family			
Yes	42 (41.6%)	46 (50.0%)	0.241**
No	59 (58.4%)	46 (50.0%)	
Suicide attempt			
Yes	33 (32.7%)	18 (19.6%)	0.058**
No	68 (67.3%)	74 (80.4%)	
Smoking			
Yes	37 (36.4%)	46 (50.0%)	0.042**
No	64 (63.6%)	46 (50.0%)	
Alcohol and substance use			
Yes	1 (1.0%)	5 (5.4%)	0.105**
No	100 (99.0%)	87 (94.6%)	

n - The number of patients; % - Percentages (Column percentage is used); * Mann Whitney U test; ** Chi-square test; *** Student's t test

Table 3. PANNS, Q-LES-Q, SFS scores of patient groups

	SCH (n=101)	BAD (n=92)	p
PANSS-Positive	8 (7-20)	7 (7-14)	<0.001*
PANSS-Negative	7 (7-27)	7 (7-17)	<0.001*
PANSS-General	18(16-38)	16 (16-26)	0.003*
PANSS-Total	35 (30-72)	30 (30-50)	<0.001*
Q-LES-Q	55.57±6.50	57.20±8.30	0.148**
SFS			
Social activity/social withdrawal	12 (3-15)	12 (9-15)	0.285*
İnterpersonal behavior	7 (5-9)	8 (6-9)	0.150*
Common social activities	17 (5-27)	16 (3-34)	0.524*
Spare time activities	15 (10-23)	16 (10-21)	0.079*
İndependence level/effectiveness	39 (31-39)	39 (31-39)	0.755*
İndependence level/performance	31 (5-39)	30 (18-39)	0.104*

n - The number of patients; * Mann Whitney U test; ** Student's t test; PANSS: Positive and Negative Syndrome Scale; SFS: Social Functioning Scale; Q-LES-Q: Quality of Life Enjoyment and Satisfaction Questionnaire

RESULTS

Seventy-nine (40.9%) patients in the study were female and 114 (59.1%) were male. No difference was determined between the SCH and BAD patient groups in terms of gender (p=0.117). The mean ages were 38.46±9.07 years in patients with SCH and 38.74±11.94 years in patients with BAD. The mean length of education was 9.82±3.69 years in patients with Sch and 8.91±3.48 years in patients with BAD. No difference was observed between the groups in terms of sociodemographic characteristics (p>0.05) (Table 1).

No difference was found between the patients with SCH and those with BAD in terms of median age at disease onset and the total duration of hospitalization or the mean duration of the disease (p>0.05). No difference was observed between the groups in terms of the history of psychiatric disease in the family, attempted suicide or alcohol and substance use (p>0.05). However, the patients with BAD smoked significantly more than did those with SCH (p=0.042) (Table 2).

The median PANSS-P value was 8 (min=1-max=20) in patients with SCH and 7 (min=7-max=14) in those with BAD. The median PANSS-N value was 7 (min=2-max=27) in patients with SCH and 7 (min=5-max=17) in those with BAD. The Median PANSS-G value was 18 (min=14-max=38) in patients with SCH and 16 (min=15-max=26) in those with BAD. The SCH patients' median PANSS-T value was 35 (min=30-max=72), compared with 30 (min=30-max=50) for patients with BAD. Significant differences were determined between the groups in terms of the median PANNS-P, PANSS-N, PANSS-G and PANSS-T values (p<0.001, p<0.001, p=0.009 and p<0.001, respectively).

No significant differences were determined between the groups in terms of median SFS social activity/withdrawal, interpersonal behavior, common social activities, spare time activities, independence level/effectiveness and independence/performance subgroup values and mean Q-LES-Q values (p>0.05) (Table 3).

DISCUSSION

The purpose of this study was to compare clinical and social characteristics in a sample group consisting of patients diagnosed with SCH (paranoid-type) or BAD-I (with psychotic features) in etiological terms from a dimensional perspective.

The SCH and BAD patient groups were statistically similar in terms of gender. Equal incidences of these two diseases between men and women have also been reported in previous studies, thus supporting our own finding (Kennedy et al. 2005).

In terms of education, the lengths of educations were similar in both diagnostic groups, and there was no difference in terms of education levels. Several studies have reported that education levels decrease with age in patients subsequently developing SCH or BAD. This deficiency is reported to be lower in pre-psychosis mood disorder compared with SCH (Jones and Tarrant 2000) and the BAD patients in this study who exhibited psychotic features may account for the similarity in education levels between the groups. Additionally, the lengths of education in the groups were similar to the general level of education reported in Turkey (2014).

Although both SCH and BAD appear in early adulthood, the onset of SCH has been reported to be earlier than that of BAD (Sham et al. 1994). The ages at onset were similar in the two groups in this study. In support of this finding, earlier age at the time of onset of BAD has been shown in recent years (Surja and El Mallakh 2007), and this finding has been attributed to the initial episodes being more severe in patients with BAD, which results in hospitalization at earlier ages6. According to Keck et al., there is a tendency to seek earlier treatment and hospitalization in cases of BAD with a previous history of psychosis than in cases of BAD without psychosis (Keck et al. 2003). The fact that BAD patients with psychotic features were enrolled in this study may contribute to the similarity in age at the time of onset of the disease between the groups.

Because SCH causes greater functional impairment than BAD, higher levels of hospitalization are generally reported in SCH (Seidman et al. 2002). The levels of hospitalization were also comparable between the patient groups in this study. One reason for this difference may be that in addition to having psychotic features, the BAD patient group also exhibited more resistance and frequent recurrence.

No difference was determined between the SCH and BAD groups in this study in terms of risk of attempted suicide or suicidal ideation. Mann et al. concluded that pronounced impulsive and aggressive characteristics significantly increase the risk of suicidal behavior and ideation, irrespective of the psychiatric diagnosis (Mann et al. 1999). The patients in this study were not assessed in terms of personality traits. Although the patients with BAD exhibited significantly greater cigarette use than did those with SCH, there was no difference between the groups in terms of alcohol or substance use. The level of alcohol and substance use reported in this study was lower than that found in previous studies (Krebs et al. 1998). This low level of alcohol and substance use in both groups may derive from features of the society in which the study was performed compared with other societies (Alegria et al. 2007, Breslau et al. 2006).

Following these evaluations, the patients who had BAD-I with psychotic features did not differ significantly from the SCH patient group in terms of either sociodemographic or disease characteristics. In agreement with these findings, previous studies have reported similarities between SCH and BAD in terms of various epidemiological characteristics, such as age at disease onset, risk of lifetime occurrence, global distribution, suicide risk and equal prevalence between male and female genders (Berretini 2000).

The patients with SCH had significantly higher PANNS-P, PANSS-N, PANSS-G and PANSS-T scores than did the patients with BAD. This observation may indicate residual psychotic symptoms persisting during remission periods in SCH patients compared with a cyclic course with improvements and flare-ups in patients with BAD. Additionally, both patient groups PANNS-P, PANSS-N, PANSS-G and PANSS-T scale scores were assessed as below the mild level, which is compatible with the remission period in which the patients were enrolled.

No difference was observed in terms of quality of life or social functioning between the patients with BAD-I with psychotic features and the patients with SCH.

Qualıty of life in patients wıth SCH has been reported to be lower than that in the general socıety and in individuals wıth physical diseases, although several studies have reported no difference and clinical studies have shown that quality of life worsens with the duration of the disease (Katschnig 2000). Impairment in social functioning has been described as a feature that is frequently present before the onset of SCH and that predicts the course of the disease in the long term (Stephens et al. 1997). Social functioning in SCH has been reported to be affected by negative and positive symptoms, mood, social behaviors and environmental conditions (Mueser 2000), and research findings have shown that negative symptoms, in particular, have adverse impacts on social functioning (Wittorf et al. 2008). The majority of previous research has determined there to be no relationship between residual positive symptoms and social functioning (Dickerson et al. 1997). The SCH patient group in this study consisted of patients with paranoid features, and we think that the level of social functioning determined was associated with positive symptoms. In support of this finding, several observational studies have shown a relation between positive symptoms and social functioning (Wittorf et al. 2008).

The cyclical course of bipolar disorder with improvements and flare-ups, has been reported to affect the individual physically and emotionally and to impair family functions and occupational and social relations (Sierrra et al. 2005). Additionally, a significant impairment in quality of life has been reported not only in attack periods but also in other periods (Michalak et al. 2005). Similar quality of life and social functioning levels were observed in this study in both the BAD-1 with psychotic features patient group and the paranoid-type SCH group, in which positive symptoms predominate. In contrast to our own study findings, several studies have reported that interpersonal relationships are better in social terms in bipolar disorder than in SCH (Fein and McGrath 1990). In our study, no difference was observed in terms of social functioning and quality of life between bipolar patients with psychotic features and SCH patients. Although SCH is a severe chronic disease with poor prognosis, BAD generally exhibits a better prognosis than SCH (Tsuang et al. 1979). However, studies have reported that the prognosis is not always poor in SCH and that good prognosis is not always observed in BAD (Lee and Murray 1998, Ketter at al. 2004). In that context, considering the similar duration of disease in the two groups in this study, it may be thought that patients with bipolar disorder with psychotic features exhibit similar characteristics to patients with SCH in terms of prognostic factors, such as quality of life and social functioning as the duration of disease increases. Indeed, studies have shown that a more recurrent, more severe, treatment-resistant and worsening course may be observed over the years, at least in several patients with bipolar disorder (Post 1992), symptoms such as derailment of thought and loss of purpose. Even 2-4 years later, severe thought impairment may persist in 30% of the patients, and abnormal thoughts may be present in another 30% of the patients (Ketter at al. 2004).

Studies have reported that BAD exhibits a period of relatively normal functioning between two episodes, whereas SCH exhibits a chronic and destructive course. Our study findings indicated that the course of disease

in patients with BAD-1, in which psychotic features predominate and which exhibits a recurring course, shares various characteristics with SCH.

CONCLUSION

This study was based on the data obtained from a psychiatric health and diseases hospital. It might be expected that the patients with BAD-1 enrolled in the study would constitute resistant patients who were rich in psychotic features and with frequent recurrences. Additionally, the fact that only patients with paranoid-type SCH or BAD with psychotic features were enrolled may represent a limitation of the study in terms of excluding other SCH and BAD diagnoses.

In conclusion, along with the benefits of categorical approach in providing communication between clinicians, avoiding factors causing tendency to disease by revealing premorbid risk factors, predicting prognosis and determining the quality of life and the need for care, it may also exclude the imprecise diagnoses by providing clear-cut diagnostic criteria for diseases. The samples not related to categories can exist by dimensional approach. It can be proposed that further phenomenological and neurobiological evaluations are required for intermediate cases with similiar clinical characteristics with schizophrenia and bipolar disorders.

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Contribution of individual authors:

Demet Saglam Aykut & Evrim Özkorumak Karagüzel: study design;

Demet Saglam Aykut, Ahmet Tiryaki & Filiz Civil Arslan: Collecting data;

Demet Saglam Aykut, Filiz Civil Arslan & Evrim Özkorumak Karagüzel: literature search and analyzes;

Demet Saglam Aykut & Evrim Özkorumak Karagüzel: writing the manuscript;

Demet Saglam Aykut & Filiz Civil Arslan: statistical analysis;

Ahmet Tiryaki: reviewing manuscript.

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