Assessment of Dyadic Adjustment and Sexual Functions in Patients with Bipolar Disorder

Zeynep NAMLI¹ , Gonca KARAKUŞ² , Lut TAMAM²

¹Mehmet Akif İnan Training and Research Hospital, Department of Psychiatry, Şanlıurfa, Turkey

²Department of Psychiatry, Çukurova University Medical Faculty, Adana, Turkey

ABSTRACT

Introducion: There are limited studies investigating the relation between dyadic adjustment, and sexual functions. The aim of this study was to compare patients with bipolar disorder (BD) in euthymic phase with healthy controls, and confirm our hypothesis which we expect to find that dyadic adjustment is negatively affected in bipolar patients with sexual dysfunctions (SDs).

Methods: A total of 50 euthymic bipolar patients (32 female, 18 male), and 50 healthy individuals as a control group (27 female, 23 male) were included in the study. A data form for socio-demographic features and two other forms for clinical characteristics of bipolar disorder and sexual functions have been filled by clinician. The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-4) Axis I was used to determine axis I psychiatric disorders. All patients completed Golombok Rust Inventory of Sexual Satisfaction (GRISS), and Dyadic Adjustment Scale (DAS).

Results: Twenty-five (50%) of bipolar patients, and 13 (48.8%) of healthy controls were found to have SDs. There was a significant difference between bipolar patients, and healthy controls in regard to

the presence of SDs ($p=0.013$). Dissatisfaction, communication, and anorgasmia subscale scores, and total scores of GRISS was found to be higher in female patients with BD. Intercourse frequency, impotence and premature ejaculation subscale scores and total scores of GRISS were higher in male patient group than healthy controls. When bipolar patients and healthy controls were compared, there was a significant difference between dyadic cohesion and affectional expression scores as measured by DAS. As a result of the univariate and regression analyzes, it was determined that the variable affecting the dyadic adjustment in bipolar patients was affected by sexual dysfunction rather than disease presence.

Conclusion: The results of this study have shown that the prevalence rate of SDs is higher in bipolar patients than healthy individuals. It was determined that the variable affecting the dyadic adjustment of patients with BB was affected by sexual function rather than disease presence. The presence of SDs in bipolar patients have negative effects on dyadic adjustment.

Keywords: Bipolar disorder, sexual functions, dyadic adjustment

Cite this article as: Namli Z, Karakuş G, Tamam L. Assessment of Dyadic Adjustment and Sexual Functions in Patients with Bipolar Disorder. Arch Neuropsychiatry 2018;55:171-176. https://doi.org/10.5152/npa.2017.19213

INTRODUCTION

There is insufficient data on the sexual functions and dyadic adjustments of people with severe mental illnesses. The side effects of the drug treatments used, especially antidepressants and antipsychotics, and life quality affected by mental illnesses are held the most responsible for sexual dysfunctioning (1).

Many writers think that in people with mental illnesses the basis of problems with forming relationships, especially dyadic problems, is serious sexual dysfunction. In addition, sexual dysfunction may cause an exacerbation of some illnesses or a delay in response to treatment (1).

Bipolar disorder is a disease of successive attacks: in a manic or hypomanic attack there is an increase in libido, inappropriate sexual relationships and hypersexuality, while in a depressive attack sexual drive is seen to decrease (2, 3). In some studies assessing patients during attacks, hypersexuality was seen in more than half of patients in a manic attack, and it was reported that this hypersexuality was higher in female patients and that 29% of them had real sexual experiences. During a

bipolar disorder mixed attack, a reduction in sexual drive was reported in more than 60% of patients. Also, reduced sexual drive is reported in approximately one third of patients diagnosed with bipolar disorder in the depressive phase (4), and the antipsychotics, antidepressants and mood regulators used in the treatment of bipolar disorder can also have negatively influence sexual function.

In a study examining the adjustment to marriage of people with bipolar disorder and their partners and normal couples, it was shown that the marriage adjustment of the two groups was similar. In a study in Turkey, it was found that the marital relations and sexual functions of female patients diagnosed with bipolar disorder were similar to the control group (5). However, sexual adjustment is known to be an important factor in dyadic adjustment. In this study, our aim was to test our hypothesis that dyadic adjustment was negatively affected in patients diagnosed with bipolar disorder who had a sexual function disorder in the euthymic phase by comparison with a control group.

METHODS

Data Collection

Before starting the study, approval was obtained from the Ethics Committee of Çukurova University Medical Faculty. Included in the study were 50 patients, 32 female and 18 male, between the ages of 18 and 65 years, who had been diagnosed with BD I and BD II according to DSM-IV-TR diagnostic measurements, who were euthymic and who were married or had a sexual partner, and a control group of 50 people, 27 female and 23 male, between the ages of 18 and 65 years, who had no psychiatric illness, were randomly selected and who were married or had a sexual partner. Before inclusion in the study, the sick and healthy volunteers were given detailed information on the research, the tests to be performed and the evaluation of the results, and their informed approval was obtained in writing. A minimum of primary level of education was required of those included so they could complete the self-reporting tests. Exclusion criteria were a diagnosis of active phase bipolar disorder, active psychosis or dementia, or delirium or mental retardation.

In order to determine whether the patients accepted for participation in the study were euthymic, they were first given the Hamilton Depression Rating Scale (HAM-D) and the Young Mania Rating Scale (YMRS), and the Mini-mental Test (MMT) for the diagnosis of dementia. Patients were included in the study who scored less than 7 on the YMRS, less than 13 on the HAM-D and who had no dementia findings from the MMT or a clinical interview. The patients were given a socio-demographic data form, the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), a bipolar disorder data form, a sexual functions data form, the Golombok Rust Inventory of Sexual Satisfaction (GRISS) and the Dyadic Adjustment Scale (DAS).

The interviews were conducted in two stages, lasted approximately 45-60 minutes, and were performed by the same person (ZN). In the first stage, the socio-demographic data form, the bipolar disorder data form and the sexual function data form were completed by the clinician. SCID-I was applied to determine any accompanying psychiatric diseases. Patients were asked to complete GRISS to assess sexual function and DAS to assess dyadic adjustment. In the second stage, the scales were collected and evaluated.

With the control group, who had no known psychiatric illnesses, the participants were given the socio-demographic data form and the sexual function data form by the clinician. GRISS and DAS were completed by the participants.

Participants in our study with a total standard GRISS score of 5 or above were evaluated as having a sexual function problem.

Data Collection Instruments

1. **Socio-Demographic Data Form:** In this study, a socio-demographic data form created by ourselves was used to collect data on the individual's name, communication details, time of first attending our clinic, gender, age, education level, profession, marital status, socio-economic level, the number of children, the presence of mental or clinical illness in the family, history of illness, menstruation, birth control method and the presence of sexually transmitted disease.
2. **Bipolar Disorder Data Form:** This form contained questions on the duration of illness, the number of attacks and their types, the type of bipolar disorder, the number of admissions to hospital, the use of electroconvulsive therapy, the presence of symptoms between episodes, seasonality, fast cycling, the presence of psychotic symptoms during episodes, medical treatment used, and attempts at self-harm in patients with bipolar disorder included in the study.

3. **Sexual Function Data Form:** The data from, created by ourselves, was intended to summarize sex life, with questions on the age of puberty, the age of first masturbation and its frequency, the age of first sexual intercourse, the frequency of intercourse, whether there was any change in sex life after the birth of children, the effect of drug treatment on sex life, and whether any counseling had been received on sexuality.
4. **The Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I):** This was developed by First et al., and adapted for Turkish and tested for reliability by Öztürkçügil et al. It consists of six modules and takes approximately 25-60 minutes to complete (6).
5. **The Young Mania Rating Scale (YMRS):** This scale consists of 11 items, each of which measures five degrees of symptom severity. Validity and reliability have been tested for the Turkish scale (6).
6. **The Hamilton Depression Rating Scale (HAM-D):** This scale measures the level and severity of depression and is administered by an interviewer. It consists of 17 items. Work on Turkish validity and reliability was performed by Akdemir et al. in 1996 (6).
7. **The Standardized Minimental test (MMT):** This test was created to quickly assess cognitive abilities, and consists of 21 items. It was developed in 1975 by Folstein and was adapted to Turkish with validity and reliability work by Güngen et al. (6).
8. **The Golombok Rust Inventory of Sexual Satisfaction (GRISS):** This is a form of 28 items, used to determine the quality of sexual relations in heterosexual men and women and to evaluate sexual function disorders, which can be applied to the heterosexual sex life of men and women, which is completed by marking the form itself by the individual, and which is prepared for both men and women. It was adapted to Turkish by Tuğrul et al.

Each item is scored from 0 to 4. Some items are scored in a reverse direction. In evaluating the inventory, both the total and the scores obtained from the sub-dimensions can be used. In the evaluation of this test, a high score indicates a disorder of sexual function and the quality of a relationship.

The men's and women's forms each contain seven sub-dimensions, five of which are shared. The shared sub-dimensions are those of avoidance, satisfaction, communication, sensuality and frequency of relations. In addition to these, the women's form has sub-dimensions on vaginismus and orgasm disorder, and the men's form has sub-dimensions on premature ejaculation and impotence. The sub-dimensions of frequency of relations and communication each have two items, and the others have four. Also, each of the two forms has four items which are outside these sub-dimensions but which relate to the quality of sexual relations (6).
9. **The Dyadic Adjustment Scale (DAS):** This is a 32-item, multi-dimensional scale developed in 1976 by Spanier. It consists of the four subscales of dyadic satisfaction, dyadic cohesion, dyadic consensus and affectional expression. Possible scores on the test range from 0 to 151. A high total score shows that an individual's relationship or marriage adjustment is good. Work on the validity and reliability of the Turkish DAS was performed in 1997 by Fıçıoğlu and Demir (7, 8).

Statistical Analysis

All statistical evaluation was carried out using the SPSS for Windows 20.0 package. In the comparison of categorical variables and ratios, chi-square, and where necessary the Fisher exact chi-square test, was used. In comparing the means of the continuous variables of the two groups, t-test was used. Also, in order to compare more than two groups, univariate analysis was applied, and regression analysis was used in determining variables which affected DAS scores.

RESULTS

Table 1 shows the socio-demographic and family characteristics of the patients and the control group included in the study. No statistically significant difference was found between the two groups in terms of age, gender or education level. Also, Table 2 shows the data obtained by comparing the control and patient groups through the sexual functions data form in order to evaluate sexual development. No significant difference was found in such parameters as the age of awareness of sexual topics, the age of first masturbation, masturbation before and after marriage, the age of first sexual intercourse, and the frequency of sexual intercourse per month.

It was found that 90% of the patients diagnosed with bipolar disorder who were included in the study had bipolar type 1, and 10% had type 2. Their mean illness duration was 14.68 ± 6.9 years, their mean number of attacks was 6.50 ± 3.78 , and their mean number of admissions to hospital was 2.63 ± 2.04 . It was found that 60% of the bipolar patients had full functionality between attacks, 68% showed seasonality, in 56% the attacks had a psychotic character, and in 40% there was a history of self-harm. All the patients in the bipolar group of our study were receiving drug treatment. Only one of the 50 patients was followed with atypical antipsychotic drugs while the remaining 49 were using one or more mood regulators; 38 were using antidepressants, antipsychotics or anxiolytics.

The result of the evaluation performed according to GRISS scores showed that the number of individuals with some kind of sexual function problem was 25 (50%) in the bipolar disorder group, and 13 (26%) in the control group. The difference between the groups was statistically significant ($p = 0.013$). Thirteen of the bipolar patients with sexual dysfunction were women and 12 were men ($p = 0.077$); in the control group there were five women and eight men ($p = 0.191$) who have sexual dysfunction. In neither group was a significant difference found between genders. Of the 32 female bipolar patients 40% had sexual dysfunctions, while 67% of the 18 male patients had sexual dysfunctions.

When bipolar patients with and without sexual function problems were compared regarding the characteristics of their illness, it was found that psychotic characteristics were seen more frequently in patients with sexual function problems ($p = 0.023$). No statistically significant difference was found in patients with and without sexual dysfunctions in terms of the type of bipolar disorder, the mean number of attacks, the number of admissions to hospital, having received ECT, the level of functionality between attacks, seasonality or attempts at self-harm.

Table 3 shows a comparison of the GRISS total and subscale mean standard scores of men and women in the bipolar and control groups. In the bipolar group, a high level of statistical significance was found in women in the GRISS communication, satisfaction and orgasm subscale scores and the mean total standard scores, and in men in a comparison of the two groups, in frequency and impotence subscale scores and mean total standard scores. This supports the observation that in both the female and male patient group sexual function problems were more frequent than in the control group.

DAS was used in this study to assess dyadic adjustment. High scores showed that dyadic adjustment was good. Table 4 shows a comparison of the DAS scores of the bipolar and control groups. Between the two groups, the subscales of dyadic cohesion and affectional expression were found to be statistically significantly higher in the control group. In comparing the bipolar and control groups, the mean score on the total scale of the control group was found to be higher, although this was not statistically significant ($p = 0.079$).

Table 1. Comparison of Sociodemographic and Family Characteristics of Bipolar Disorder Patients and Control Group

	BD (n=50)	Control (n=50)	P
Age (year)(avg. $\pm$ SD)	40.92($\pm$ 9.7)	38.04($\pm$ 8.0)	0.110
Sexuality (N%)			0.309
Female	32(64%)	27(54%)	
Male	18(36%)	23(46%)	
Training level (N%)			0.074
Primary and middle school	13(26%)	6(12%)	
High school and higher	37(74%)	44(88%)	
Duration of marriage (year) (avg. $\pm$ SD)	15.6 $\pm$ 10.4	11.3 $\pm$ 9.2	0.037
Marriage age (year) (avg. $\pm$ SD)	26.02 $\pm$ 6.7	25.4 $\pm$ 3.5	0.606
Marriage age of partner(year) (avg. $\pm$ SD)	27.1 $\pm$ 4.6	25.4 $\pm$ 3.9	0.060
Marital status (N%)			0.110
Single-widow	8 (16%)	3 (6%)	
Married	42 (84%)	47 (94%)	
Marriage (N%)			0.123
Companionate marriage	20 (44.4%)	29 (60.4%)	
Arranged marriage	25(55.6%)	19 (39.6%)	
Childbearing (N%)			0.618
No	5 (11.1%)	7 (14.6%)	
Yes	40 (88.9%)	41 (85.4%)	
Family (N%)			0.084
Elementary family	46 (92%)	40 (80%)	
Extended family	4 (8%)	10 (20%)	

Chi-square test and independent samples t test were performed.

BD: bipolar disorder; n: number of people; %: percentage; avg: average; SD: Standard deviation

Table 5 shows a comparison of the results of univariate analysis of the DAS subscale scores and total scores of the bipolar patients and of the control group with and without sexual function problems. A statistically significant difference was found between the bipolar and control groups in dyadic cohesion and affectional expression, and between those with and without sexual dysfunction in the subscale scores of dyadic satisfaction and dyadic consensus. In an evaluation made by separating the groups into those with and without sexual dysfunction, no statistically significant difference was found in subscale and total scores. It was determined that there was no effect on the total dyadic adjustment scale score of being in the bipolar or the control group, that the presence of sexual dysfunction had an effect, and that within groups the presence of sexual dysfunction had no effect.

Linear regression was performed using scales in which the p-value was significant or <0.025 in univariate analyses performed with this scale which could have an effect on the total DAS score. Regression analysis can be said to be the effect of total GRISS score corrected for age, GRISS satisfaction sub-scale, marital status and frequency of sexual intercourse before marriage on the total dyadic adjustment score ($-3.394 \times$ GRISS total score $- 4.389 \times$ GRISS satisfaction subscale $+ 20.01 \times$ marital status $+ 6.2 \times$ frequency of sexual intercourse before marriage)

Table 2. Comparison of Sexual Function Data Form in the Bipolar Disorder Patients and Control Group

	BD	Control	P
Age of sexual education (avg. $\pm$ SD)	16.2 $\pm$ 5.03	15.6 $\pm$ 3.16	0.492
Age of first masturbation (avg. $\pm$ SD)	15.6 $\pm$ 3.92	14.4 $\pm$ 1.56	0.102
Masturbation before marriage N (%)			0.424
No	27 (54%)	23 (46%)	
Yes	23 (46%)	27 (54%)	
Masturbation after marriage N (%)			0.117
No	38 (84.4%)	34 (70.8%)	
Yes	7 (15.6%)	14 (29.2%)	
Menstrual cycle N(%)			0.112
Regular	18 (56.2%)	22 (81.5%)	
Irregular	10 (31.2%)	4 (14.8%)	
Menopause	4 (12.5%)	1 (3.7%)	
Birth control method N (%)			0.317
No	28 (56%)	23 (46%)	
Yes	22 (44%)	27 (54%)	
Age of first sexual experience (avg. $\pm$ SD)	21.5 $\pm$ 5.57	21.8 $\pm$ 4.09	0.760
Frequency of sexual experience (time/month)(avg. $\pm$ SD)	6.32 $\pm$ 6.52	8.58 $\pm$ 7.11	0.101
Frequency of sexual experience before marriage (avg. $\pm$ SD)	4.42 $\pm$ 3.74	3.30 $\pm$ 2.98	0.101
Change in sexual life after becoming a child N (%)			0.001*
No change	25 (62.5%)	9 (22%)	
Better	4 (10%)	3 (7.3%)	
Worse	9 (22.5%)	25 (61%)	
Other	2 (5%)	4 (9.8%)	
Thinking of experiencing sexual problem N(%)			0.005*
No	35 (70%)	46 (92%)	
Yes	15 (30%)	4 (8%)	
Partner's psychiatric disorder N (%)			0.029*
No	38 (76%)	46 (92%)	
Yes	12 (24%)	4 (8%)	

Chi-square test and independent samples t test were performed.

BD: bipolar disorder; n: number of people; %: percentage; avg: average; SD: Standard deviation. *:p<0.05

Table 3. Comparison of GRISS Total and Subscale Standard Scores According to Sex in Patients Diagnosed with Bipolar Disorder and Control Group

Sex		BD	Control	p
Female	Total score (avg. $\pm$ SD)	4.31 $\pm$ 2.17	3.14 $\pm$ 1.56	0.036*
	Infrequency (avg. $\pm$ SD)	4.59 $\pm$ 1.93	4.96 $\pm$ 1.62	0.397
	Non-communication (avg. $\pm$ SD)	5.40 $\pm$ 2.39	3.88 $\pm$ 2.13	0.015*
	Dissatisfaction (avg. $\pm$ SD)	3.53 $\pm$ 1.58	2.51 $\pm$ 1.15	0.011*
	Avoidance (avg. $\pm$ SD)	3.56 $\pm$ 2.13	3.40 $\pm$ 1.86	0.908
	Non-sensuality (avg. $\pm$ SD)	4.28 $\pm$ 2.27	3.55 $\pm$ 1.73	0.218
	Vaginismus (avg. $\pm$ SD)	4.90 $\pm$ 2.00	5.14 $\pm$ 1.74	0.906
	Anorgasmia (avg. $\pm$ SD)	3.93 $\pm$ 1.62	2.81 $\pm$ 0.83	0.005*
Male	Total score (avg. $\pm$ SD)	5.38 $\pm$ 1.97	3.78 $\pm$ 1.83	0.021*
	Infrequency (avg. $\pm$ SD)	5.50 $\pm$ 1.79	3.91 $\pm$ 1.80	0.010*
	Non- communication (avg. $\pm$ SD)	3.72 $\pm$ 2.08	3.08 $\pm$ 1.88	0.363
	Dissatisfaction (avg. $\pm$ SD)	3.55 $\pm$ 1.68	3.04 $\pm$ 1.52	0.370
	Avoidance (avg. $\pm$ SD)	3.05 $\pm$ 1.92	2.52 $\pm$ 1.37	0.457
	Non-sensuality (avg. $\pm$ SD)	3.27 $\pm$ 1.90	3.00 $\pm$ 1.85	0.630
	Impotence (avg. $\pm$ SD)	4.72 $\pm$ 1.63	2.73 $\pm$ 1.21	0.000*
	Premature ejaculation (avg. $\pm$ SD)	5.27 $\pm$ 1.93	3.69 $\pm$ 1.94	0.009*

BD:bipolar disorder; n: number of people; %: percentage; avg:average; SD:standart deviation; *:p<0.05; Mann Whitney U test

Table 4. Comparison of DAS Total and Subscale Standard Scores in Patients Diagnosed with Bipolar Disorder and Control Group

	BD	Control	P
Dyadic satisfaction (avg. $\pm$ SD)	48.22 $\pm$ 10.36	48.50 $\pm$ 9.69	0.889
Dyadic cohesion (avg. $\pm$ SD)	34.0 $\pm$ 8.89	38.34 $\pm$ 6.74	0.007*
Dyadic consensus (avg. $\pm$ SD)	8.42 $\pm$ 3.03	9.14 $\pm$ 2.32	0.186
Affectional expression (avg. $\pm$ SD)	13.44 $\pm$ 5.43	15.74 $\pm$ 4.63	0.025*
Total score (avg. $\pm$ SD)	104.04 $\pm$ 23.7	111.72 $\pm$ 19.2	0.079

DAS: dyadic adjustment scale; BD: bipolar disorder; avg: average; SD:standart deviation; *:p<0.05 Independent samples t test

DISCUSSION

The most important aspect of our study was comparing patients diagnosed with bipolar disorder with healthy people, considering dyadic adjustment and evaluating the effect of sexual function on dyadic adjustment.

In this study, it was found as a result of a comparison between the sexual functions of patients diagnosed with bipolar disorder and a healthy control group, who were close to each other in age, education level and gender characteristics, that bipolar patients had a higher proportion of sexual function problems. The presence of sexual function problems was determined in half of the patient group. No clear difference was found between the genders with regard to sexual dysfunction in bipolar patients. Although 30% of bipolar patients thought that they had a sexual

problem according to the sexual function data form, and this proportion was statistically significantly higher than the control group, the result of evaluation performed with scales was found to be higher (50%). In a 1987 study by Kristensen and Jorgensen assessing sexual functions in patients diagnosed with bipolar disorder, bipolar patients were compared with a control group, and sexual dysfunction was determined in approximately 25% of the female bipolar patients and in one third of the males. It was found that the level of dissatisfaction with current sexual life in the bipolar patients was higher than in the control group (9). In our study, the rate of sexual function problems in bipolar patients was found to be higher than in this study. This may be because in our study sexual functions were assessed with a scale and not confirmed by interview and the sample group in the other study was smaller than ours, and because only patients using lithium were taken into the evaluation. In a study

Table 5. Comparison of DAS Subscale Scores and Total Scores in Patients with Bipolar Disorder and Control Group with and without Sexual Dysfunction

	BD		Control		P		
	SD+(n=25)	SD-(n=25)	SD+(n=13)	SD-(n=37)	Group	SD	GroupXSD
Dyadic satisfaction (avg. $\pm$ SD)	45.08 $\pm$ 11.13	51.36 $\pm$ 8.65	46.0 $\pm$ 9.35	49.37 $\pm$ 9.78	0.802	0.024	0.493
Dyadic cohesion (avg. $\pm$ SD)	31.12 $\pm$ 8.42	36.88 $\pm$ 8.56	37.7 $\pm$ 6.25	38.56 $\pm$ 6.98	0.014	0.047	0.142
Dyadic consensus (avg. $\pm$ SD)	6.92 $\pm$ 3.10	9.92 $\pm$ 2.11	8.30 $\pm$ 2.10	9.43 $\pm$ 2.35	0.40	0.00	0.081
Affectional expression (avg. $\pm$ SD)	12.20 $\pm$ 5.83	14.68 $\pm$ 4.81	16.15 $\pm$ 4.72	15.59 $\pm$ 4.65	0.026	0.375	0.161
Total score (avg. $\pm$ SD)	95.32 $\pm$ 25.18	112.76 $\pm$ 18.83	108.15 $\pm$ 17.37	112.97 $\pm$ 19.98	0.148	0.015	0.161

DAS: dyadic adjustment scale; BD:bipolar disorder; SD: sexual dysfunction; avg:average; SD:standart deviation; *:p<0.05; Univariate analysis

conducted in 1996 by Aizenberg et al. on male patients diagnosed with bipolar disorder and schizoaffective disorder who were receiving lithium monotherapy and were on remission, sexual function disorder was found to be present in 31.4% of the patients (10). In our study, this proportion was calculated to be approximately 67% in male patients. Differently in our study, only bipolar patients were included, and drug treatments other than lithium were being used. In a study in 2013 by Mahmoud et al. on sexual functions in bipolar and schizophrenia patients using a questionnaire which they created themselves, sexual function problems were present in 54.8% of bipolar patients, and 51.6% stated that they were not satisfied with their sex lives (11).

In our study, a comparison was made sexual function with GRISS between the male and female bipolar patients and the control group. After converting the raw scores obtained from GRISS to standard scores, the mean score was compared. Comparing female bipolar patients with the control group, it was determined that the GRISS total mean score of the patient group was higher. Communication, satisfaction and orgasm disorder were found to be greater in female bipolar patients. Comparing male bipolar patients and the control group, it was similarly found that the GRISS mean total score was higher in the patient group. Infrequency, impotence and premature ejaculation problems were found to be greater in male patients.

In a study in Turkey by Hariri et al. comparing 84 schizophrenic, 90 bipolar and 88 heroin-addicted patients and a 98-member control group, sexual functions were determined using GRISS. Differently from our study, although the vaginismus subscale scores of the female bipolar patients were found to be higher than in the control group, there was no clear difference in other areas. In male bipolar patients, frequency, sensuality, avoidance, satisfaction, premature ejaculation and GRISS total mean scores were higher than in the control group (1). The sample group of this study was larger than that of our study.

The reason why different results have been obtained in studies on sexual function in bipolar patients may be that sample groups were different (gender, age distribution, place of residence, education level, drug treatment received, comorbid diseases, etc.) and that the scales used to assess sexual function were different from one another.

In a study in Turkey in 2010 evaluating the relationship between metabolic syndrome and sexual function in 148 bipolar patients, it was determined that approximately half of the patients showed sexual dysfunctions (12). In this study, differently from ours, sexual functions were assessed with the Arizona Sexual Experiences Scale.

According to the results of a study by Nagaraj et al. researching sexual dysfunction in male patients diagnosed with bipolar disorder, the sexual

function problem most frequently experienced by patients was erectile dysfunction and the second most frequent was a reduction in libido (13). In this study, sexual functions were evaluated using the UKU side effects rating scale. In our study, the most frequently experienced problems in male bipolar patients according to GRISS were firstly frequency of sexual function and the second was premature ejaculation.

In research by Hariri et al. on the frequency of sexual dysfunction in bipolar, schizophrenia and heroin-addicted patients, the most frequently experienced problems were vaginismus in women and premature ejaculation in men (1). Using the same scale on our study, it was found that the most frequent problem in men was infrequency, and in women non-communication.

In our study, we examined not only sexual functions but also the adjustment of patients to their partners. Eight persons in the patient group and three in the control group were single or widowed. All other participants were married. Most participants in both groups had children. The patient and control groups had similar characteristics in terms of dyadic and family characteristics.

When a comparison was made of the total DAS scores and the subscale scores (dyadic satisfaction, dyadic cohesion, dyadic consensus and affectional expression) used to assess adjustment of the control and patient groups, the total DAS score was found to be higher in the control group, although this did not reach statistical significance. That is, dyadic adjustment was roughly the same in the two groups. When the subscales were examined, it was found that the control group was significantly better adjusted in the areas of dyadic cohesion and affectional expression.

There are not many studies assessing family functions in patients diagnosed with bipolar disorder. In a study by Frank et al. comparing the marriage adjustment of 16 bipolar patients on remission and their partners to that of a control group, it was found that the marriage adjustment of the two groups was similar (14). In a study in Turkey comparing the partners of bipolar patients with those of a healthy control group using the Family Assessment Scale, the proportion of those feeling that family structure and operation were healthy was 33.3% in the partners of bipolar patients and 51.9% in the partners of the group without mental illness. Assessing the subscales of the Family Assessment Scale (problem solving, roles, ability to give an emotional response, ability to show the necessary interest, behavior control and general functions), a significant difference was found between the two groups in all areas except ability to give an emotional response (15).

The subscales of DAS used in our study and those of the Family Assessment Scale are considerably different from one another. Ability to give an

emotional response and affectional expression are subscales which are similar. However, there was a difference between the patient and control groups in our study in the area of affectional expression which may be because of the difference between the questions on the scales.

One of the important parameters influencing sexual functions is the adjustment of the partners to each other. It is thought that when dyadic adjustment is defective, sexual function will be negatively affected, or conversely that when sexual function is affected, dyadic adjustment can also be negatively affected. In a study by Rust et al. evaluating the relationship between unhappiness in marriage and sexual function disorder, it was found that the relationship between happiness in marriage and sexuality in men was stronger than in women (16). Evaluating the data regarding dyadic adjustment in our study, it was found that the scores of bipolar patients on the subscales of dyadic cohesion and affectional expression were lower than those of the control group. In an evaluation performed by separating the two groups into those with and without sexual dysfunction, no statistically significant difference was found in the subscale and total scores. It was determined that being in the bipolar or control group had no effect on the total score on the dyadic adjustment scale, that the presence of sexual dysfunction had an effect, and that within the groups the presence of sexual dysfunction had no effect. From this it can be said that the main factor affecting dyadic adjustment is whether sexual function is affected rather than the factor of being sick or healthy. This may suggest that the choice of a drug which may affect sexual function in bipolar patients should be made more carefully as it may affect dyadic adjustment.

According to the results of regression analysis, Total GRISS score and the satisfaction subscale score, marital status and frequency of pre-marital sexual intercourse affect the total DAS score.

An important limitation of our study was that the sample group was small and that sexual function was evaluated with a scale but no diagnostic interviews were conducted. Fifty patients and fifty individuals in the control group were included in the study. In order to obtain results which are statistically more significant, it may have been appropriate to conduct a study with a broader group. Also, no assessment was made of the effect of drugs on sexual function in bipolar patients because of their use of multiple drugs and the difficulty of grouping the drugs used. Sexuality is very much affected by cultural values, and so the evaluation of the questionnaires may be misleading. Dyadic adjustment was assessed in the patient and control groups in our study by means of a scale. There are insufficient studies in the literature in which partners of the patient group participated, and for this reason a limitation of the study is that dyadic adjustment was evaluated only through the eyes of the patient. There is a need for studies on this topic with broader sampling and in which an evaluation is made of patients who are not using drugs or who are only using single mood regulators together with their partners.

Ethics Committee Approval: Certification was received from the Local Ethics Committee of the Çukurova University School of Medicine, Turkey.

Informed Consent: Written informed consent form was obtained from all patients.

Peer-review: Externally peer-reviewed.

Author Contributions: Concept - ZN, GK, LT; Design - ZN, GK; Supervision - GK, LT; Resource - ZN, GK, LT; Materials - ZN, GK, LT; Data Collection and/ or Processing - ZN, GK; Analysis and/or Interpretation - ZN, GK, LT; Literature Search - ZN, GK; Writing - ZN, GK, LT; Critical Reviews - GK, LT.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: It was supported by Cukurova University Scientific Research Projects Unit (Project no: TF2013LTP25).

REFERENCES

1. Hariri AG, Karadag F, Gurol DT, Aksoy UM, Tezcan AE. Sexual problems in a sample of the Turkish psychiatric population. *Compr Psychiatry* 2009;50:353–360. [CrossRef]
2. Işık E, Işık U. Çocuk, Ergen, Erişkin ve Yaşlılarda Depresif ve Bipolar Bozukluklar 1. Baskı, Ankara: Rotatıp Kitabevi; 2013.
3. Köroğlu E, Güleç C. Psikiyatri Temel Kitabı, 2. Baskı, Ankara: HYB Basım Yayın; 2007.
4. Downey JI. Driven sexual behavior in bipolar spectrum patients: psychodynamic issues. *J Am Acad Psychoanal Dyn Psychiatry* 2011;39:77–92. [CrossRef]
5. Pehlivan K. Psikiyatrik Kadın Hastalarda Evlilik ve Ebeveyn Olma: Bir Gözden Geçirme. *Düşünen Adam* 2006;19:143–154.
6. Aydemir Ö, Köroğlu E, editörler. Psikiyatride Kullanılan Klinik Ölçekler 6. Baskı, Ankara: HYB Yayıncılık, 2012.
7. Fişiloğlu H, Demir A. Applicability of the Dyadic Adjustment Scale for Measurement of Marital Quality with Turkish Couples. *Eur J Psychol Assess* 2000;16:214–218.
8. Adam Karduz F. Evli Çiftlerin Duygusal Zeka Düzeyleri ile Çift Uyum Düzeyleri Arasındaki İlişki. Yüksek Lisans Tezi, Sakarya Üniversitesi Sosyal Bilimler Enstitüsü, Sakarya, 2009.
9. Kristensen E, Jorgensen P. Sexual function in lithium-treated manic-depressive patients. *Pharmacopsychiatry* 1987;20:165–167. [CrossRef]
10. Aizenberg D, Sigler M, Zemishlany Z, Weizman A. Lithium and male sexual function in affective patients. *Clin Neuropharmacol* 1996;19:515–519.
11. Ben Mahmoud S, Zouari L, Dammak M, Ben Thabet J, Zouari N, Maâlej M. Evaluation of sexuality in 61 subjects suffering from chronic psychosis. *Sexologies* 2013;22:59–63. [CrossRef]
12. Keklik AC. Bipolar bozukluğu olan hastalarda metabolik sendrom ve cinsel işlev bozukluğu ilişkisinin değerlendirilmesi. Uzmanlık tezi, Bakırköy Prof. Dr. Mazhar Osman Ruh Sağlığı ve Sinir Hastalıkları Eğitim ve Araştırma Hastanesi, İstanbul, 2010.
13. Ghadirian AM, Annable L, Belanger MC. Lithium, benzodiazepines and sexual function in bipolar patients. *Am J Psychiatry* 1992;149:801–805. [CrossRef]
14. Frank E, Targum SD, Gershon ES, Anderson C, Stewart BD, Davenport Y, Ketchum KL, Kupfer DJ. A comparison of nonpatient and bipolar patient-well spouse couples. *Am J Psychiatry* 1981;138:764–768. [CrossRef]
15. Ünal G. Bipolar Affektif Bozukluğu Olan Hastaların Aile İşlevlerinin Değerlendirilmesi. *Düşünen Adam* 2002 15:221–228.
16. Rust J, Golombok S, Collier J. Marital problems and sexual dysfunction: how are they related? *Br J Psychiatry* 1988;152:629–631.