Original Article

Sexual dysfunction in bipolar depression: Gender differences

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Abstract

Objective: To find sexual dysfunction in acute-phase bipolar depression patients and subsequently characterize the gender-wise differences in sexual functioning. **Materials and Methods:** A cross-sectional, descriptive, observational, purposeful, and hospital-based study was done with 45 patients (age range: 18–59 years) with moderate to severe acute phase bipolar depression (HAM-D scores >18). The domain-wise (Pleasure, Desire/Frequency Desire/Interest, Arousal/Excitement, and Orgasm/Completion) sexual functioning was assessed by the Change in Sexual Functioning Questionnaire (CSFQ-14) (≤41 for females, ≤47 for males as a cut-off for dysfunction). This study is registered in the CTRI (Clinical Trials Registry India, Number: CTRI-2021-07-035182). **Results:** The prevalence of sexual dysfunction was 91% of bipolar disorder patients with more male participants (53.3%) compared to females (46.7%). The mean HAM-D score for the study sample was 27.93 ± 8.035. The female gender had more dysfunctional scores in desire/frequency (t = 2.229, $P = 0.031$), desire/interest (t = 2.448, $P = 0.019$), orgasm/completion (t = 2.974, $P = 0.005$), and overall total CSFQ (t = 2.946, $P = 0.005$). The odds of sexual dysfunction were significant given a one-unit increase in suicidal ideation in the index episode (adjusted OR = 1.222, 95% CI: 1.004-1.488, $P = .049$). **Conclusion:** Acute-phase bipolar patients have very high sexual dysfunction rates. Females have both global and specific sexual response cycle deficits in comparison to acute phase bipolar depressed males. Future trials shall amuse neurobiology grounded, more individualistic sexual rehabilitation-based interventional paradigms, and longitudinal research models in acute phase bipolar depression.

Keywords: Acute phase, cross-sectional study, sexual quality

Introduction

Bipolar disorder (BD) is a chronic, recurrent, and most of the time disabling mood disorder affecting approximately 1%–3% of the population.[1] Interestingly, the majority of the dysfunction is contributed longitudinally by depressive polarity.[2,3] Dysfunction in depressive polarities has been largely attributed to affective, cognitive, and psychotic symptoms domains.[3]

Sexual dysfunction has been suggested as a relevant dimension to characterize BD patients and a probable proxy of their illness severity.[4] However, most of the data regarding sexual dysfunction in bipolar disorders are reported in the maintenance phase or in relation to long-term psychotropic intake (e.g., Valproate or lithium).[5-8] In the acute manic phase, dysfunction is reportedly due to risky impulsive sexual behavior and an increase in libido.[9] In contrast, reduced libido and satisfaction permeate sexual dysfunction in unipolar depressive disorders.[9] However in acute phase bipolar depression, sexual dysfunction is scarcely studied. The gender differences in reporting such dysfunction have not been answered by studies either.

Importantly, bipolar depression is different from unipolar depression phenomenologically, with more poorly dysregulated biological systems, exaggerated response to psychosexual stressors, and differential regulation of connectomes.[10,11] Also, variable activation of the selective prefrontal regions (also

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Received: 10-06-2023 **Revised:** 16-07-2023
Accepted: 08-09-2023 **Published:** 21-12-2023

Access this article online

Quick Response Code:

Website: http://journals.lww.com/JFMPC

DOI: 10.4103/jfmpc.jfmpc_957_23

How to cite this article: Malik G, Mishra P, Chaurasia N, Garg S. Sexual dysfunction in bipolar depression: Gender differences. J Family Med Prim Care 2023;12:3356-61.

implicated in sexual stimulation) has been proposed to diagnostically differentiate bipolar from unipolar depression.[12]

With this background, we aimed to study the proportion of sexual dysfunction (quality) and related clinical correlates in acute phase bipolar depression. The ensuing objective of this study is to subsequently characterize the gender differences in sexual functioning (cycle) in bipolar depression.

Materials and Methods

This study was conducted using a cross-sectional design at a tertiary care medical institute in Northern India. The type of sampling technique employed was purposive. This study is registered in the CTRI (Clinical Trials Registry India, Number: CTRI-2021-07-035182).

Participants

Participants were recruited from the Department of Psychiatry, Shri Guru Ram Rai Institute of Medical and Health Sciences, Dehradun, India from June 2022 to November 2022. Participants aged 18–59 years, meeting the diagnostic criteria for bipolar depression (moderate to severe), using the diagnostic criteria for research (DCR) of the International Classification of Diseases-tenth edition (ICD-10)[13] with at least moderate severity on Hamilton depression rating scale (HAM-D)[14] with the score >18 were recruited. Exclusion criteria consisted of subjects with a history of organicity, any other psychiatric disorders, if unable to undergo clinical evaluation, and substance dependence except for nicotine and caffeine. A written and signed informed consent was taken from the patient and caregivers before enrollment and those who did not give informed consent were excluded from the study. Baseline clinical measures data of the recruited subjects registered in the trial has been presented in this study. A total of 60 patients were screened for the index study. Out of these, 5 patients were excluded as per exclusion criteria. Subsequently, 10 patients declined to participate. A total of 45 patients were assessed for the study [see Figure 1].

Clinical measures

In this study, the severity of depression was measured using HAM-D. The HAM-D has 21 items but the patient is scored on the first 17 items; each item is scored on a 5-point scale. Subsequently, all the participants were objectively assessed for sexual dysfunction using the Changes in Sexual Functioning Questionnaire Short Form (CSFQ-14), a structured interview.[15] There is a total of 14 items on the scale but the patient is scored on only 12 items in 5 domains (subscales), that is, Pleasure (item– 1); Desire/Frequency (items– 2 and 3); Desire/Interest (items– 4, 5, and 6); Arousal/Excitement (items– 7, 8 and 9); and Orgasm/Completion (items– 11, 12 and 13). The total CSFQ score is obtained by adding the score values of all 14 items ranging from 14 to 70 with a lower score indicating poorer quality of sexual function. The cut-off indicating sexual dysfunction for total CSFQ score is ≤41 for females and ≤47 for males.[15,16] However, if the scores obtained on each domain (subscale) and total CSFQ score reach or below the cut-off point, it indicates sexual dysfunction.

Statistical analysis

Study data were analyzed using SPSS (Version 28). The whole bipolar depression sample ($n = 45$) was analyzed based on CSFQ scores (≤41 for females, ≤47 for males as a cut-off) for the presence or absence of sexual dysfunction [see Table 1]. The descriptive analysis of the data encompassed the calculation of mean and standard deviation (SD) for continuous variables and frequency and percentages for categorical variables. The assumption of normality was verified by normal probability plots and the Kolmogorov–Smirnov test. Group differences for sample characteristics were examined with an independent *t*-test and Chi-square test (wherever applicable). Variables that failed the assumption of normality were compared by applying the Mann–Whitney U test [Tables 1 and 2]. Similarly, a gender-wise comparison (males vs. females) of sexual functioning (quality) along with other sociodemographic and clinical profiles was carried out ($n = 45$) [Table 2].

Results

Sample characteristics

Whole sample

Of the total participants ($N = 45$), sexual dysfunction was present in 91% ($N = 41$) of the sample.

The mean age of the study sample was 38.71 ± 12.23 years. The majority of the participants were married (57.8%), from nuclear families (51.1%) of urban backgrounds (64.4%), from middle socioeconomic status (64.4%), and never employed (31.1%). Positive family psychiatric history was present in 25 (55.5%)

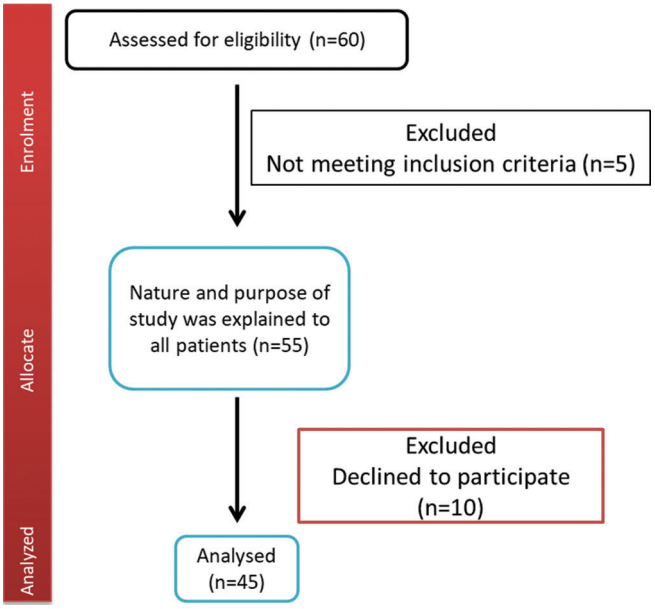

Figure 1: Flow diagram showing participants' recruitment

Table 1: Sociodemographic and clinical profile of patients with bipolar depression (whole sample (*n*=45)/with sexual dysfunction (*n*=41)/without sexual dysfunction (*n*=4))

Variables		Whole sample (*n*=45) Mean±SD/*n* (%)	Group A with sexual dysfunction (*n*=41)# Mean±SD/*n* (%)	Group B without sexual dysfunction (*n*=4) Mean±SD/*n* (%)	$X^{2@}/t/U$	*P*
Age (in years)		38.71±12.230	38.68±12.340	39.00±12.780	0.049	0.961
Manic episodes in past		1.93±2.094	1.98±2.174	1.50±1.000	0.430	0.670
Depressive episodes in past		4.36±2.822	4.39±2.880	4.00±2.449	0.261	0.795
Current episode duration (in months)		4.09±1.635	3.07±1.649	3.25±1.708	0.204	0.839
HAM-D		27.93±8.035	28.54±8.127	21.75±3.202	1.643	0.108
Gender	Male	24 (53.3)	22 (48.9)	2 (4.4)	0.020@	1.000
	Female	21 (46.7)	19 (42.2)	2 (4.4)		
Marital Status	Unmarried	18 (40)	17 (37.8)	1 (2.2)	1.325@	0.666
	Married	26 (57.8)	23 (51.1)	3 (6.7)		
	Divorced	1 (2.2)	1 (2.2)	0 (0)		
Education	Illiterate	6 (13.3)	5 (11.1)	1 (2.2)	4.206@	0.334
	Primary	5 (11.1)	4 (8.9)	1 (2.2)		
	Secondary	13 (28.9)	0 (0)	13 (28.9)		
	Graduate	13 (28.9)	11 (24.4)	2 (4.4)		
	Post Graduate	8 (17.8)	8 (17.8)	0 (0)		
Habitat	Urban	29 (64.4)	27 (60)	2 (4.4)	1.172	0.779
	Rural	7 (15.60	6 (13.3)	1 (2.2)		
	Semi-urban	9 (20.0)	8 (17.8)	1 (2.2)		
Occupation	Never employed	14 (31.1)	13 (28.9)	1 (2.2)	2.451	0.897
	Currently unemployed	11 (24.4)	9 (20.0)	2 (4.4)		
	Fulltime employed	3 (6.7)	3 (6.7)	0 (0)		
	Part-time employed	6 (13.3)	6 (13.3)	0 (0)		
	Self-employed	8 (17.8)	7 (15.60	1 (2.2)		
	Others	3 (6.7)	3 (6.7)	0 (0)		
SES	High	7 (15.8)	6 (13.3)	1 (2.2)	3.677	0.121
	Middle	29 (64.4)	28 (62.2)	1 (2.2)		
	Low	9 (20.0)	7 (15.6)	2 (4.4)		
Living Arrangement	Joint	18 (40.0)	17 (37.8)	1 (2.2)	1.949	0.400
	Nuclear	23 (51.1)	21 (46.7)	2 (4.4)		
	Alone	4 (8.9)	3 (6.7)	1 (2.2)		
Family Psychiatric History	Present	25 (55.5)	23 (51.1)	2 (4.4)	0.055	1.000
	Absent	20 (4.4)	18 (40)	2 (4.4)		
Suicidal Thoughts (index episode)	Present	23 (51.1)	23 (51.1)	0 (0)	4.590	0.049*
	Absent	22 (48.9)	18 (40)	4 (8.9)		
Psychotropics status€	Nil	7 (15.6)	7 (15.6)	0 (0)	1.447	0.695
	Antidepressant	5 (11.1)	4 (8.9)	1 (2.2)		
	Antidepressant + Mood stabilizer	22 (48.9)	20 (44.4)	2 (4.4)		
	Mood stabilizer	11 (24.4)	10 (22.2)	1 (2.2)		

HAM-D=Hamilton depression rating scale. *P< 0.05 levels (2 tailed), #: cut-off for sexual dysfunction for total CSFQ score is <41 for females and <47 for males, €: Index episode, @: Fisher exact value; #: Mann–Whitney U, $X^2/t/U$ values of those with or without sexual dysfunction, Group A: With sexual dysfunction; Group B: Without sexual dysfunction

participants and suicidal thoughts were present in 23 (51.1%) of the participants. The mean duration of the current episode (in months) of the whole sample was 4.09 ± 1.635. Also, the mean number of manic episodes and depressive episodes was 1.93 ± 2.094 and 4.36 ± 2.822, respectively. Moreover, the mean HAM-D score for the study sample was 27.93 ± 8.035. Approximately half of the patients (48.9%) were receiving antidepressants along with mood stabilizers [see Table 1].

Sample with and without sexual dysfunction

Patients with sexual dysfunction (N = 41; Group A) had a significantly more proportion of suicidal ideation (index episode) than those without sexual dysfunction (N = 4; Group B) [X2 (1, 45) = [4.95], P = 0.049] [see Table 1]. Rest, Groups A and B did not differ in any of the sociodemographic and clinical variables [see Table 1].

Gender differences

The number of male participants (53.3%) was slightly more than female participants (46.7%). The whole sample (N = 45) was compared on the different subscales of CSFQ for both males and females [Table 2]. Significant dysfunctional scores in the female gender were found in desire/frequency (t = 2.229, P = 0.031), desire/interest (t = 2.448, P = 0.019), orgasm/completion (t = 2.974, P = 0.005), and overall total CSFQ (t = 2.946, P = 0.005). However, the

Table 2: Gender differences in the sociodemographic and clinical profile of patients with bipolar depression (*n*=45)

Variables		Males (*n*=24) Mean±SD/*n* (%)	Females (*n*=21) Mean±SD/*n* (%)	$X^2/t/U$	df	*P*
Age (in years)		36.96±10.507	40.71±13.936	1.028	43	0.309
Age at onset		28.00±9.108	35.38±12.347	2.301	43	0.026*
Manic episodes in past		2.33±2.665	1.48±1.030	227.000#	43	0.532
Depressive episodes in past		4.79±3.036	3.86±2.535	1.111	43	0.273
Current episode duration (in months)		3.25±1.751	2.90±1.513	0.703	43	0.486
HAM-D		26.88±7.140	29.14±8.974	0.943	43	0.351
Marital Status	Unmarried	10 (22.2)	8 (17.8)	1.143@	2	0.755
	Married	14 (31.1)	12 (26.7)			
	Divorced	0 (0.0)	1 (2.2)			
Education	Illiterate	2 (4.4)	4 (8.9)	2.167@	4	0.747
	Primary	2 (4.4)	3 (6.7)			
	Secondary	8 (17.8)	5 (11.1)			
	Graduate	8 (17.8)	5 (11.1)			
	Post Graduate	4 (8.9)	4 (8.9)			
Habitat	Urban	15 (33.3)	14 (31.1)	1.015@	2	0.690
	Rural	3 (6.7)	4 (8.9)			
	Semi-urban	6 (13.3)	3 (6.7)			
Occupation	Never employed	3 (6.7)	11 (24.4)	18.902@	5	0.001**
	Currently unemployed	6 (13.3)	5 (11.1)			
	Fulltime employed	4 (8.9)	2 (4.4)			
	Part-time employed	3 (6.7)	0 (0.0)			
	Self-employed	8 (7.8)	0 (0.0)			
	Others	0 (0.0)	3 (6.7)			
SES	Upper	4 (8.9)	3 (6.7)	1.015@	2	0.690
	Middle	14 (13.1)	15 (33.3)			
	Lower	6 (13.3)	3 (6.7)			
Living Arrangement	Joint	10 (22.2)	8 (17.8)	1.039@	2	0.679
	Nuclear	11 (24.4)	12 (26.7)			
	Alone	3 (6.7)	1 (2.2)			
Family Psychiatric History	Present	15 (33.3)	10 (22.2)	1.004	1	0.377
	Absent	9 (20.0)	11 (24.4)			
Suicidal Thoughts€	Present	12 (26.7)	11 (24.4)	0.025	1	1.000
	Absent	12 (26.7)	10 (22.2)			
Psychotropics status€	Nil	1 (2.2)	6 (13.3)	5.871@	3	0.117
	Antidepressant	4 (8.9)	1 (2.2)			
	Antidepressant + Mood stabilizer	12 (26.7)	10 (22.2)			
	Mood stabilizer	7 (15.6)	4 (8.9)			
Pleasure		2.54 ure. 215	3.00 ure. 265	1.238	43	0.222
Desire/Frequency		5.04±2.074	3.76±1.729	2.229	43	0.031*
Desire/Interest		7.21±2.766	5.48±1.806	2.448	43	0.019*
Arousal/Excitement		8.17±2.899	7.38±2.479	0.970	43	0.338
Orgasm/Completion		6.33±3.919	4.33±2.614	2.974	43	0.005**
CSFQ total		37.71±8.893	30.38±7.619	2.946	43	0.005**

HAM-D=Hamilton depression rating scale, **P*< 0.05 levels (2 tailed); ***P*< 0.01 levels (2 tailed); @: Fisher exact value; #: Mann–Whitney *U*; €: Index Episode

pleasure and arousal/excitement (t = .970, *P* = 0.338) were comparable for both genders [see Table 2]. The age of onset of illness in male BD patients was significantly earlier than in females (t = 2.301, *P* = 0.026). Moreover, barring occupational status (X2 (5, 45) =18.902, *P* = .001), no other gender-based difference was found in the bipolar depression sample with regard to sociodemographic and clinical variables [see Table 2].

The odds of sexual dysfunction were significant given a one-unit increase in suicidal ideation in the index episode (adjusted OR = 1.222, 95% CI: 1.004–1.488, *P* = .049). Correlation of the presence of sexual dysfunction (as a binary variable) with variables such as age, age of illness onset, gender, marital status, occupation status, duration of illness/index episode, number of manic/depressive episodes, HAM-D scores, psychotropic usage has not been found to be significant.

Discussion

The present study is a cross-sectional study that evaluates sexual dysfunction in patients with acute phase bipolar depression and quantitatively compares each phase of the sexual cycle

among males and females. We observed that most of the bipolar depression patients had reported sexual dysfunction. Suicidal ideation in the index episode seems to occur frequently or is associated with sexual dysfunction in bipolar depression. Also, female bipolar depression patients had a more specific impairment in desire (both interest and frequency), orgasm, and global sexual impairment when compared to males. Moreso, orgasm phase deficits in the sexual cycle and more global sexual impairment were found in the female gender.

Prior native studies have found lower rates of sexual dysfunction among BDs (up to 77%) when compared to ours.[5,16-19] The valid explanations for the wide range of differences and discrepancies in dysfunctional rates could be the difference in assessment tools used, assessments are done at different phases (acute phase in our sample), on clinically stable patients, and heterogenous samples. In accordance with the prior studies, the index study did associate higher suicidal thoughts with sexual dysfunction.[19] It is interesting to note that Dell'Osso and colleagues reported more frequent suicidal attempts than ideation in BD patients with sexual dysfunction.[19] The morbid relationship could have bidirectional influences, that is, sexual dysfunction can induce suicidality or vice versa. However in contrast to prior studies, we did not find any relation to the illness duration with sexual dysfunction.[19,20]

Our study reported comparable HAM-D scores in bipolar depression patients with and without sexual dysfunction. Interestingly, other studies have reported 20% increased odds of sexual dysfunction with higher levels of even subthreshold depressive symptoms in BD.[20] One reason for this discrepancy could be that patients with at least moderate depression were screened in our study and heterogeneity in the sampling by other studies.

Deficits in the female sexual response cycle in our study with desire and orgasmic phase. Epidemiological studies in general would report women are more likely to complain of reduced sexual desire or difficulties in getting excited and reaching orgasms.[21,22] However studies specifically seeking the gender differences of sexual functioning in bipolar depression are rare.

Limitations of this study, at the outset, would be the low sample size and the cross-sectional design compromising the generalizability of the results. Secondly, the lack of a healthy control group deprives us of the opportunity to compare the sexual domains with the population in general. The confounding effects of psychotropics on sexual dysfunction could have been studied more systematically. Other covariates like the difference in age of onset could have been accounted for.

Conclusion

Acute phase bipolar patients have very high sexual dysfunction rates. Females have both global and specific sexual response cycle deficits in comparison to acute phase bipolar depressed males.

Recommendations

Rendering these findings, future trials shall amuse neurobiology grounded, more individualistic sexual rehabilitation-based interventional paradigms and longitudinal research models in acute phase bipolar depression. Assessment and treatment approaches should be tailored to address these gender-specific nuances. Effective communication with health professionals and primary caregivers can help identify specific sexual dysfunction symptoms and guide appropriate intervention.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

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