Sexual Dysfunction in Women with Depression: A Hospital-Based Cross-sectional Comparative Study

R. Mrinalini Reddy, R. Arul Saravanan, Samir Kumar Praharaj, M. Thirunavukarasu

ABSTRACT

Background: There is a need to explore the sexual functioning of women with depression as one part of sexuality is that it helps in developing an intimate emotional and physical relationship with another person, and this relationship may serve as a buffer against life stresses. Our aim was to study the prevalence and types of sexual dysfunction in depressed women patients and to compare them with non-depressed women. Materials and Methods: A total of 270 participants who attended a teaching hospital were selected for the study – 135 cases and 135 controls. Sociodemographic and clinical details were collected. Mini International Neuropsychiatry Interview (M.I.N.I), Hamilton Depression Rating Scale (HAM-D), Arizona Sexual Experiences (ASEX) scale, and Female Sexual Functioning Index (FSFI) scale were used. Sexual dysfunction was assessed in both groups. Results: Among the cases, 47.40% had mild depression, 44.44% had moderate depression, and 8.15% were severely depressed. On the ASEX, 46.66% of the cases had sexual dysfunction, while it was only 8.89% among the controls. The difference in sexual dysfunction among cases and controls was statistically significant. Using the FSFI, 40% of the cases had female sexual dysfunction (FSD), and it was only 11.1% in controls. Conclusion: Sexual dysfunction was more common in females with clinical depression than in those without depression. Numerous factors can operate in the causation of FSD. This study underlines the importance of screening females with depression for FSD, for its early diagnosis and management.

Key words: Depression, sexual dysfunction, women
Key messages: Sexual dysfunction is more commonly seen in women with clinical depression.
multidimensional entity with various biological and psychosocial dimensions. FSDs can occur in the form of Hypoactive sexual desire disorder (HSDD), sexual aversion disorder, female sexual arousal disorder, female orgasmic disorder, dyspareunia, and vaginismus. Furthermore, there are newer disorders identified recently, such as persistent genital arousal disorder.

The risk factors for sexual dysfunction include age, education level, emotional ill health and stress, and sexual abuse. Pregnancy also plays a role in sexual dysfunction. The sexual functioning is considerably lower in the last trimester of pregnancy. In a study, middle-aged women of 40–65 years with a lower socioeconomic and lower level of education showed the highest rates of FSD. A study from Brazil reported that the prevalence of sexual dysfunction was 28% and 49%, respectively, in females across selected social groups. The prevalence rate was between 18% and 29.3% for female orgasmic disorder and 26.7% for HSDD. Furthermore, the study also showed that women seeking professional help for sexual disturbances were only 18.8%, FSD is physically disconcerting, emotionally distressing, and socially disruptive for those who suffer from it.

A few earlier studies have suggested that depression increases the risk for the development of FSD. In women who had depression, HSDD was reported to be the most common type of FSD. The chief complaint of patients with depression may include loss of sexual desire, and conversely, the presence of lower sexual desire may lead to depression. A few studies have shown that FSD was more common in depressed women than in patients with no depression. The loss of sexual desire was found to have greater prevalence than disorders of arousal or orgasm, and in other studies, HSDD was the most prevalent in depressed patients. The Study of Women’s health Across the Nation (SWAN), in the United States, showed recurrent depression to be associated with reduced arousal and pleasure. Yet, depressed female patients are very reluctant to talk about sexual dysfunction even when they are in the hospital for the treatment of depression.

There is a paucity of studies in India on FSD. FSD is also one of the grossly underreported health conditions in India due to various social and cultural taboos. There is a further reduction in the interest and desire for sexual activities with the partner when clinically depressed. Increase in depression is leading to increased prevalence of HSDD as part of depressive symptomatology. Yet, like the women from the United States who were part of SWAN study, this dual malady is probably silently suffered by Indian women too. We undertook the study to determine whether sexual dysfunction in those with depression was more when compared with those without depression, using ASEX and FSFI.

**MATERIALS AND METHODS**

This hospital-based, cross-sectional comparative study was conducted at a Medical College Hospital between January 2017 and December 2018. Female patients who attended the Psychiatry outpatient (OP) of the tertiary care teaching hospital were approached for the study.

**Sample**

Using a previous Indian study by Roy et al., the expected proportion of women with FSD was considered as 70.3% among people with depression and 43.3% among women without depression. Power of study at 90% and two-sided alpha error of 5% yielded a sample size of 119. Allowing for an additional 10% excess, a final sample size of 135 in each group was arrived at.

Purposive sampling was used to select patients who received a diagnosis of mild, moderate, or severe depressive episode as per International Classification of Diseases, Tenth Revision (ICD-10). Both new and follow-up cases were included. The inclusion criteria for cases included women age 18–45 years who are sexually active, attended the psychiatric OP department, are diagnosed with depression, are with or without anti-depressant medications, and are willing to give consent to participate in the study. The exclusion criteria included reporting menopausal symptoms and having serious medical comorbid conditions that required hospitalization more than once in the past.

The control group consisted of females who accompanied patients to our hospital and those who came for work in the institution. Females, matched for age in 1:1 ratio to that of cases, were approached. Subjects who did not have depression or any major mental illness, never had any history of psychotropic medication use, and consented to participate in the study were included in the control group.

The participants were approached and briefed about the study and written informed consent was obtained. The interview and assessment were conducted by a female psychiatrist in the privacy of her office room.

**Tools**

Sociodemographic and clinical details were collected. The following tools were used: Mini International Neuropsychiatry Interview (M.I.N.I), Hamilton Depression Rating Scale (HAM-D-17 item), Arizona Sexual Experiences (ASEX) Scale, and Female Sexual
ASEX is a five-item, easy-to-use, rating scale designed for sexual dysfunction is a sensitive problem with added stigma, some of the questions were tempered based on the cultural context. The briefer ASEX was given first to check the sexual activity/functioning of each individual, and later, FSFI was used for assessing the domains of sexual functioning. MINI was used as a screening tool to rule out other comorbid mental illness in the study group and to screen the control group for mental illness.

### Statistical analysis

The ASEX and the FSFI total scores were considered as the primary outcome variables. Other scores and computed results from the study were secondary outcome variables. The study group was the primary explanatory (dependent) variable. Demographic variables such as age, gender, and marital status were considered as other explanatory (independent) variables. Descriptive analysis was done and presented as mean and standard deviation (SD) for continuous variables and frequency and proportions for categorical variables. Independent sample *t*-test and Chi-square tests were carried out to test for significance. IBM SPSS version 16 was used for statistical analysis.

### Ethics approval

The Institutional Ethical Committee approved the study. Written informed consent was obtained from all the participants after providing detailed information about the study and voluntary nature of participation. The confidentiality of the study participants was maintained throughout the study.

### RESULTS

A total of 281 females were approached for the study purpose. Eleven females were excluded from the study as they had menopausal symptoms. Four out of these 11 perimenopausal females had reported to be sexually inactive. Finally, a total of 135 females with depression and 135 females in the control group were studied. The mean age ± SD was 32.09 ± 5.68 years in the cases and 32.04 ± 5.58 years in the control group. The majority were housewives, were from middle socioeconomic status, had completed schooling, were Hindu by religion, and were from semi-urban domicile [Table 1]. The case and control groups did not show any statistically significant difference in the above-mentioned demographic data.

We assessed severity of depression using the HAM-D. Severe depression was seen in 8.13% of the cases. The proportion of cases with mild depression was 47.40%, while 44.44% had moderate depression. The mean ASEX score was 19.6 ± 4.65 in the cases, while it was 15.27 ± 4.13 in the controls. This mean difference was statistically significant (*t* = 4.33, 95% CI, *P* < 0.001).
Poor sex drive was reported in 64.8% (n = 87) of cases. Difficulty in sexual arousal and lubrication difficulty was reported by 54.8% (n = 74) and 68.9% (n = 93), respectively. Difficulty in reaching orgasm was seen in 71.9% (n = 97) of the cases, and 69.7% (n = 94) reported unsatisfying orgasms. The severity of depression was associated with sexual dysfunction, which was statistically significant ($\chi^2 = 68.03$, df = 24, $P = 0.000$).

The mean FSFI rating scale score was 27.79 ± 3.38 in cases, and it was 31.09 ± 3.65 in controls. The difference was statistically significant ($t = 3.30$, 95% CI, $P < 0.001$). In our study, according to the FSFI rating scale, 40% of the cases had FSD and it was only 11.1% in controls [Table 2].

In this study, 22.22% of the cases had a positive history of antidepressant medication, while only 7.4% among the controls had a positive history of any medication use. This difference in proportions among cases and controls was statistically significant. There was a statistically significant difference between the cases and the control group with respect to the use of medicines and FSD ($\chi^2 = 11.73$, df = 1; $P = 0.001$). In cases who had positive current medication history (n = 30), FSD was reported in 20%.

**DISCUSSION**

FSD is one of the underdiagnosed disorders across the world and especially in developing countries like in India with complex cultural barriers and taboo regarding an open discussion about sexual health. Across the world, it is often underreported or underdiagnosed compared with male sexual dysfunction.\[23\]

The prevalence of FSD in non-depressed women reported in Indian studies varies from 33.3% to 73.2%.\[24,25\] The varying rates were reported to be due to vastly different study samples, methodological differences, and cultural variations in sexual practice in India.\[25\] Even fewer studies have been done on FSD in women who are depressed. This study was done to assess sexual dysfunction in females with depression. A total of 135 cases of depression and 135 age-matched controls were studied. A statistically significant difference was observed in sexual dysfunction between cases and controls. The mean age of the study population was 32 years in both groups. Sexually active married women formed the majority (77.03%) of the study sample. The baseline parameters of our study sample were comparable with that of Sreelakshmy et al.,\[26\] Roy et al.,\[17\] and Kendurkar et al.\[27\]

The mean age of the study population was 32 years in both groups. Sexually active married women formed the majority (77.03%) of the study sample. The baseline parameters of our study sample were comparable with that of Sreelakshmy et al.,\[26\] Roy et al.,\[17\] and Kendurkar et al.\[27\]

In our study, the mean ASEX score was more in cases than in controls, and the difference was statistically significant. As per ASEX, 46.66% of our cases had SD, while only 8.89% of controls had SD. This difference in SD among the cases and controls was statistically significant. Our finding was consistent with the study done by Roy et al.,\[17\] who observed that on ASEX

## Table 1: Sociodemographic comparison of cases and controls

| Variables           | Cases n=135 | Controls n=135 |
|---------------------|-------------|----------------|
|                     | Frequency % | Frequency %    |
| Education           |             |                |
| Up to secondary school | 41          | 30.37          |
| Graduate            | 89          | 65.92          |
| Postgraduate        | 5           | 3.70           |
| Occupation          |             |                |
| Employed            | 47          | 34.81          |
| Student             | 14          | 10.37          |
| Housewife           | 74          | 54.81          |
| Unemployed          | 0           | 0              |
| Socioeconomic status |            |                |
| Lower               | 33          | 24.44          |
| Middle              | 82          | 60.74          |
| High                | 20          | 14.81          |
| Domicile           |             |                |
| Rural               | 44          | 32.59          |
| Semi Urban          | 63          | 46.66          |
| Urban               | 28          | 20.74          |
| Religion            |             |                |
| Hindu               | 74          | 54.81          |
| Christian           | 32          | 23.70          |
| Muslim              | 29          | 21.48          |
| Marital status      |             |                |
| Single              | 25          | 18.51          |
| Married             | 104         | 77.03          |
| Divorced            | 5           | 3.70           |
| Widower             | 1           | 0.74           |
| Family type         |             |                |
| Nuclear             | 79          | 58.51          |
| Extended            | 45          | 33.33          |
| Joint               | 11          | 8.14           |

## Table 2: Comparison of the female sexual dysfunction using ASEX scale and FSFI rating scale in the two study groups (n=270)

| Sexual dysfunction | Group | Chi-square | P   |
|--------------------|-------|------------|-----|
|                    | Cases (n=135) | Control (n=135) |     |
| ASEX scale         | No SD (<14) | 21 (15.55%) | 50 (37.03%) | 50.42 (df=3) | <0.001 |
|                    | Probable (14-21) | 51 (37.77%) | 73 (54.07%) |               |       |
|                    | SD (≥21) | 63 (46.66%) | 12 (8.89%) |               |       |
| FSFI rating scale  | FSD (below 26) | 54 (40%) | 15 (11.1%) | 29.61 (df=2) | <0.001 |
|                    | No FSD (score 26 and above) | 81 (60%) | 120 (88.9%) |               |       |

ASEX – Arizona Sexual Experiences; FSFI – Female Sexual functioning Index; SD – Sexual dysfunction; FSD – Female sexual dysfunction.
scale, 73.3% of participants were showing sexual dysfunction in the study group, but it was only 20% in the controls. As in our study, the difference in proportion between cases and controls was statistically significant.

Our study showed that there is a significant association between depression and FSD. The psychomotor and cognitive symptoms of depression, along with low self-esteem, depressive cognitions like hopelessness and helplessness, contribute significantly to this outcome. Apart from neuro-humoral changes that affect the hormonal levels, the antidepressant medications themselves also significantly contribute to FSD, making it worse.

In our study, the mean HAMD score was 14.60. This is because the majority of the cases were from the OP department and had mild to moderate depression. Similar to our study, Roy et al., in their study done at a medical college hospital in Mysuru, Karnataka, reported a mean HAMD score of 19.13, which is comparable. However, a study done at France in a community setting showed that 52% of their subjects had moderate depression, while 34% had severe depression. They had used the Montgomery and Åsberg Depression Rating Scale (MADRS), and the majority were on antidepressants for a longer time. That study did show a clear relationship between the prevalence of sexual dysfunction and severity of depression, independent of antidepressant drug treatment.

Though all components of sexual functioning were affected in our study, in the depressed group, the majority reported lubrication dysfunction, pain, and orgasmic dysfunction. Low desire, low arousal, and low satisfaction were also reported more in the cases than in the controls; however, this was not statistically significant.

The other area studied was the use of medications and their association with FSD, which showed significant difference between the women with depression and the healthy control group. The existing literature also confirms sexual dysfunction as a possible adverse event of all antidepressants. Strategies to mitigate this include reducing the antidepressant dose, switching to a different antidepressant with lower sexual side effect, and addition of hormones and/or antidotes. When compared with other Indian studies [Table 3], the overrepresentation of the mild and moderate depressive cases in our study sample is perhaps the reason for the slightly lower FSD in ASEX and FSFI.

**Limitations**

Our study was a cross-sectional descriptive study and the causal association could not be established. Furthermore, the selection of purposive samples of cases and controls from the institution precludes the generalization of the findings. Lack of validation of the translated ASEX and FSFI is another limitation. A more detailed clinical information of the cases in terms of onset, number of episodes, and duration would have added more strength to the analysis and to the generalizability of the results. We could not analyze and compare the effect of classes of antidepressants upon FSD because of the small sample.

**CONCLUSION**

Our study is an attempt to address the often-neglected area of FSD in depressed females, done at a tertiary care teaching hospital. Even though the study sample contained mostly of patients with mild and moderate depression, women with depression had significantly higher sexual dysfunction.

**Table 3: Comparison of Indian studies on FSD**

| Study                  | Location            | Study sample | Instrument used                  | Remarks                        | Prevalence of FSD |
|------------------------|---------------------|--------------|----------------------------------|--------------------------------|-------------------|
| Kar and Koola[28]      | South India         | 61 women     | Sexual Function Questionnaire    | Postal questionnaire to English-speaking women | OD 28%            |
| Avasti et al.[29]      | Chandigarh, North India | 100 women  | Brief Index of Sexual Functioning for Women; Sex Knowledge and Attitude Questionnaire II | Women attending pediatric unit | OD 9%, LD 5%, PD 7% |
| Singh et al.[30]       | Tamil Nadu, South India | 149 women  | FSFI                             | Women attending medical OP clinic | 73.2% FSD         |
| Abbhivani and Sawant[31] | Solapur, North India | 49 women with depression | ASEX, FSFI                      | Psychiatric OPD                | 67.34%            |
| Roy et al.[32]         | Karnataka, South India | 30 cases    | ASEX, FSFI, HAM-D               | Psychiatric OPD                | 73.3% (ASEX); 70% (FSFI) |
| Sreelakshmy et al.[33] | South India         | 40 patients  | FSFI, HAM-D                      | Obstetrics and gynecology OPD  | 90% FSD           |
| This study             | Tamil Nadu, South India | 135 cases; 135 controls | ASEX, FSFI, HAM-D            | Psychiatry OPD                | 46.6% (ASEX); 40% (FSFI) |

FSD – Female sexual dysfunction; OD – Orgasmic disorder; LD – Lubrication disorder; PD – Pain disorder; ASEX – Arizona Sexual Experiences; FSFI – Female Sexual functioning Index; HAM-D – Hamilton Depression Rating Scale
Sexual functioning and dysfunction are still a sensitive and stigmatized area, even among educated adult females. Though they seek treatment for somatic and psychological symptoms of depression, adult females are hesitant to seek out help for sexual dysfunction. This study underlines the importance of screening depressed female patients for sexual dysfunction.

**Financial support and sponsorship**
Nil.

**Conflicts of interest**
There are no conflicts of interest.

**REFERENCES**

1. Leiblum R, Sharon GN, Sandra. Persistent sexual arousal syndrome: A newly discovered pattern of female sexuality. J Sex Marital Ther 2001;27:365-80.

2. Abhivant N, Sawant N. Sexual dysfunction in depressed Indian women attending a hospital out patient department in Mumbai. Sri Lanka J Psychiatry 2013;4:10-3.

3. Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: Prevalence and predictors. JAMA 1999;281:537-44.

4. Leite AP, Campos AA, Dias AR, Amed AM, De Souza E, Camano L. Prevalence of sexual dysfunction during pregnancy. Rev Assoc Med Bras 2009;55:583-8.

5. Valadares AL, Pinto-Neto AM, Osis MJ, Sousa MH, Costa-Paiva L, Conde DM. Prevalence of sexual dysfunction and its associated factors in women aged 40-65 years with 11 years or more of formal education: A population-based household survey. Clinics (Sao Paulo) 2008;63:776-82.

6. Prado DS, Mota VE, Lima TI. Prevalence of sexual dysfunction in two women groups of different socioeconomic status. Rev Bras Ginecol Obstet 2010;32:139-43.

7. Abdo CH, Oliveira Jr WM, Moreira Jr ED, Fittipaldi JA. Prevalence of sexual dysfunctions and correlated conditions in a sample of Brazilian women—Results of the Brazilian study on sexual behavior (BSSB). Int J Impot Res 2004;16:160.

8. Moreira Jr ED, Brock G, Glauser DB, Nicolosi A, Laumann EO, Paik A, et al. GSSAB Investigators’ Group. Help-seeking behaviour for sexual problems: The global study of sexual attitudes and behaviors. Int J Clin Pract 2005;59:6-16.

9. Basson R, Berman J, Burnett A, Derogatis L, Ferguson D, Fourcroy J, et al. Report of the international consensus development conference on female sexual dysfunction: Definitions and classifications. J Urol 2000;163:888-93.

10. Phillips JR, Slaughter JR. Depression and sexual desire. Am Fam Physician 2000;62:782-6.

11. Casper RC, Redmond DE, Katz MM, Schaffer CB, Davis JM, Koslow SH. Somatic symptoms in primary affective disorder: Presence and relationship to the classification of depression. Arch Gen Psychiatry 1985;42:1098-104.

12. Cyranowski JM, Bromberger J, Youk A, Matthews K, Krazit HM, Powell LH. Lifetime depression history and sexual function in women at midlife. Arch Sex Behav 2004;33:539-48.

13. Rao TS, Darshan MS, Tandon A. An epidemiological study of sexual disorders in south Indian rural population. Indian J Psychiatry 2015;57:150.

14. Roy P, Manohar S, Raman R, Rao TS, Darshan MS. Female sexual dysfunction: A comparative study in drug naïve 1st episode of depression in a general hospital of South Asia. Indian J Psychiatry 2015;57:242.

15. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, et al. The Mini-International Neuropsychiatric Interview (MINI): The development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatry 1998;59(Suppl 20):20-2.

16. Hamilton M. A rating scale for depression. J Neurol Neurosurg Psychiatry 1960;23:56.

17. McGahuey A, Gelenberg AJ, Laukes CA, Moreno FA, Delgado PL, McKnight KM, et al. The Arizona sexual experience scale (ASEX): Reliability and validity. J Sex Marital Ther 2000;26:25-40.

18. Brown RC, Heiman J, Leiblum S, Meston C, Shabsigh R, Ferguson D, et al. The Female Sexual Function Index (FSFI): A multidimensional self-report instrument for the assessment of female sexual function. J Sex Marital Ther 2000;26:191-208.

19. Varghese KM, Bansal R, Kekre AN, Jacob KS. Sexual dysfunction among young married women in southern India. J Sex Marital Ther 2008;34:109-27.

20. McGahuey A, Gelenberg AJ, Laukes CA, Moreno FA, Delgado PL, McKnight KM, et al. The Arizona sexual experience scale (ASEX): Reliability and validity according to the CIDI. Eur Psychiatry 1997;12:224-31.

21. Sheehan DV, Lecrubier Y, Sheehan KH, Amorim P, Janavs J, Weiller E, et al. The Mini-International Neuropsychiatric Interview (MINI): A short diagnostic structured interview: Reliability and validity according to the CIDI. Eur Psychiatry 1997;12:224-31.

22. Beck P. Rating scales in depression: Limitations and pitfalls. Dialogues Clin Neurosci 2006;8:207-15.

23. Verma KK, Khaitan BK, Singh OP. The frequency of sexual dysfunction in patients attending a sex therapy clinic in north India. Arch Sex Behav 1998;27:309-14.

24. Clayton AH. Female sexual dysfunction related to depression and antidepressant medications. Curr Women's Health Rep 2002;2:162-7.

25. Bonierbale M, Tignol J. The ELIXIR study: Evaluation of sexual dysfunction in 4557 depressed patients in France. Curr Med Res Opin 2003;19:114-24.

26. Montgomery SA, Baldwin DS, Riley A. Antidepressant medications: A review of the evidence for drug-induced sexual dysfunction. J Affect Disord 2002;69:119-40.

27. Caro N, Kooba MM. A pilot survey of sexual functioning and preferences in a sample of English-speaking adults from a small South Indian town. J Sex Med 2007;4:1254-61.

28. Reddy , et al. Sexual dysfunction in women with depression