A Study of Sexual Dysfunction and Quality of Life in Female Patients on Selective Serotonin Reuptake Inhibitor (SSRI)

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ABSTRACT

Context: Sexual dysfunction is one of the most common and disconcerting side effect during treatment with Selective serotonin reuptake inhibitors (SSRIs). Sexual side effects from these medications have significant impact on self esteem, quality of life and can lead to non compliance and relapse in long term treatment. **Aims:** To study prevalence, severity of sexual dysfunction and its possible association with quality of life in female patients on treatment with SSRI for depression and anxiety. **Materials and Methods:** This was an observational, cross sectional, single-centre study. Hundred consecutive female patients who were sexually active, on SSRIs for six weeks or more were recruited. Diagnosis of Major depressive disorder (MDD), Anxiety disorders and female sexual dysfunction was done by clinician administered interview as per Diagnostic and Statistical Manual of mental disorders (DSM 5). The patients were further assessed for demographic details, CSFQ-F-C, HAM-D, HAM-A and WHOQOL-BREF scales for sexual dysfunction, depression, anxiety and quality of life respectively. p value of <0.05 was considered to be statistically significant. **Results:** Prevalence of sexual dysfunction was 84%. Patients with sexual dysfunction scored significantly lower value in social relationships (p= 0.0002) and environment (p= 0.033) domains of quality of life. Frequency of sexual dysfunction among patients on fluoxetine was 86.20%, on escitalopram was 86.76% and on sertraline was 66.6%. Frequency of sexual dysfunction was more with higher dose of SSRIs. **Conclusions:** Patients on various SSRIs experienced sexual dysfunction and had poor quality of life. Frequency of sexual dysfunction was more with higher doses of SSRIs.

Keywords: Sexual dysfunction, Selective serotonin reuptake inhibitors, Depression, Anxiety, quality of life.

INTRODUCTION

Sexual dysfunction is the most common and disconcerting side effect of Selective serotonin reuptake inhibitors (SSRIs).[1] According to tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD-10), sexual dysfunction refers to "a person's inability to participate in a sexual relationship as he or she would wish."[2] Female sexual dysfunction includes hypoactive sexual desire disorder, sexual arousal disorder, orgasmic disorder, dyspareunia and vaginismus.[3] Sexual dysfunction has significant impact on self esteem, quality of life and can lead to non compliance and relapse in long term treatment.[4] There are few studies done for evaluation of sexual dysfunction

caused by Psychiatric illness and/or Psychotropic drugs particularly in female patients. Considering this fact, this study was conducted with an aim to study the prevalence of sexual dysfunction and quality of life in female patients receiving SSRIs.

MATERIALS AND METHODS

Hundred consecutive female patients between the age of 18 and 45 years, who were sexually active and were on SSRIs for six weeks or more were recruited from the Psychiatry outpatient department of a tertiary care hospital from October 2015 to April 2016. Patients with severe mental illness including schizophrenia, bipolar mood disorder, cognitive impairment, chronic disabling illnesses, negative symptoms, dementia, poor attention and those unable to give verbal replies were excluded from the study. Pregnant and lactating women were also excluded.[5] Patients with chronic medical conditions like hypertension, diabetes mellitus and other medical conditions except for headache and those with history of a surgery likely to cause sexual dysfunction such as hysterectomy, or surgery for prolapse and incontinence[6,7] were also excluded from the study. Written informed consent was obtained from every participant. Prior approval for the study was obtained from the local ethics committee, Institutional Review Board [IRB (HEC) No. 543/2015]. Participants were interviewed by the principal investigator for demographic variables like age, residence, religion, marital status, education, socioeconomic status and occupation. Duration of illness, duration of treatment with SSRIs, name of agent, dosage, frequency, name and dosage of drug used other than SSRIs such as tricyclic antidepressants and benzodiazepines were also recorded. Past History and family history of any psychiatric consultation were recorded. Participants were interviewed for major depressive disorder (MDD), anxiety disorders like specific phobia, social phobia, panic disorder, agoraphobia, generalised anxiety disorder and also, for female sexual dysfunction like female orgasmic disorder, female sexual interest/ arousal disorder and genito-pelvic pain/ penetration disorder by the clinician as per diagnostic criteria of Diagnostic and Statistical Manual of mental disorders (DSM 5).[8] Diagnosis was confirmed by a consultant psychiatrist holding a post graduation degree in psychiatry.

Severity of sexual dysfunction, depression, anxiety and quality of life were assessed with the following scales:

- The Changes in Sexual Functioning Questionnaire (CSFQ-F-C), is a 14 item, self administered, clinical and research scale. It was used to assess sexual functioning in females and includes five aspects i.e. sexual desire, sexual frequency, sexual pleasure, sexual arousal and sexual completion. Sexual dysfunction was determined by a cut-off point of 41 on a scale of 14-70, where lower score is indicative of decreased sexual functioning.[9]
- Depression and Anxiety were assessed using 21- item observer-rated, Hamilton Depression Rating Scale (HAM-D) and 14- item observer rated Hamilton Anxiety Rating Scale (HAM-A), respectively.[10,11]
- The 26-item World Health Organization; Quality of Life Scale brief version (WHOQOL-BREF) was used to assess quality of life. WHOQOL-BREF is a self-rating questionnaire for assessment of quality of life in the domains of physical health, psychological health, social relationship, and environment. A higher score indicates a better QOL.[12]

Qualitative data were expressed as percentages and quantitative data were expressed as mean ± standard deviation. Statistical analysis was done using GraphPad InStat version 3.06 (San Diego, California, US). Proportions of participants were compared by using Chi-square test while scores of CSFQ-F-C, HAM-D, HAM-A, and WHOQOL-BREF were compared by using Mann-Whitney test. p value of < 0.05 was considered statistically significant.

Sample size calculation:

Unlimited population: $n= z^2*p\ (1-p)/\ \varepsilon^2$

z is the z score – 1.96 for 95% of confidence interval

ε is the margin of error – beta – 10%

n is the sample size (Hospital based study)

p is the population proportion – 50% is taken (proportion not known)
Sample size = 97
As, a result a total of 100 patients were enrolled in the study.

RESULTS

We evaluated hundred consecutive female patients between the age of 18 to 45 years, who were sexually active and receiving SSRIs for at-least six weeks; who attended the Psychiatric outpatient department at our hospital.

84% Patients had Major depressive disorder, 71% patients had anxiety disorders; amongst them 19% had Specific phobia, 27% had Social phobia, 55% had Panic disorder, 7% had Agoraphobia and 43% had Generalised anxiety disorder. 84% patients had sexual dysfunction, amongst them frequency of female orgasmic disorder was 55%, Female sexual interest/ arousal disorder was 82% and genito-pelvic pain/ penetration disorder was 39%; while 55% patients had dual diagnosis. Diagnosis of psychiatric disorders was made by clinical interviews administered by consultant Psychiatrists as per the DSM-5 criteria.

Table 1: Demographic variables of study participants classified on the basis of sexual dysfunction diagnosed with clinician administered interviews using DSM 5 [n = 100].*

Variables	Sexual dysfunction Present (n=84)	Sexual dysfunction Not present (n=16)	p Value
Age (years)	35.10 ± 6.3	33.68 ± 6.1	0.40
Religion			
Hindu (n=79)	65	14	0.56
Muslim (n=21)	19	2	
Residence			
Rural/Town (n=37)	32	5	0.81
Urban (n=63)	52	11	
Occupation			
Unemployed (n=59)	52	7	0.17
Employed (n=41)	32	9	
Social Class			
1-2 (n=26)	22	4	0.92
≥ 3 (n=74)	62	12	
Marital Status			
Married (n=99)	83	16	1.00
Unmarried/ Divorced/ Widow/ Separated (n=1)	1	0	
Education			
Illiterate (n=29)	26	3	0.32
Literate (n=71)	58	13	

* Values are shown as mean ± standard deviation or number of patients, unless otherwise specified. P Value was calculated by Chi square test or Mann-Whitney U test. $p<0.05$ was considered to be statistically significant.

As per table 1, variables such as age (p=0.40), marital status (p=1.00), and education (p=0.32) were not significantly different between two groups.

As per table 2, there were statistically significant difference in variables like total duration of illness (p= 0.0001), total duration of treatment with SSRIs (p= 0.0001), female orgasmic disorder (p= 0.0001), female sexual interest/arousal disorder (p= 0.0001), genito-pelvic pain/ penetration disorder (p= 0.005) in the two groups. Variables such as SSRIs used i.e. cap. Fluoxetine (p=0.70), tab. Escitalopram (p=0.27), tab. Sertraline (p=0.13), anxiety status (p=0.41) and depressive status (p=0.74), were not found to statistically significantly different between two groups.

Table 2: Clinical characteristics of study participants classified on the basis of sexual dysfunction diagnosed by clinician administered interviews using DSM 5 [n = 100].*

Variables	Sexual dysfunction Present (n=84)	Sexual dysfunction Not present (n=16)	p Value
Total duration of illness (Months)	62.79 ± 51.4	19.68 ± 17.9	0.0001*
Cap. Fluoxetine			
Yes (n=29)	25	4	0.70
No (n=71)	59	12	
Dose: Not given (n=71)	59	12	0.92
≤ 40 mg (n=21)	18	3	
> 40 mg (n=8)	7	1	
Tab. Escitalopram			
Yes (n=68)	59	9	0.27
No (n=32)	25	7	
Dose: Not given (n=32)	25	7	0.19
10 mg (n=55)	46	9	
≥ 20 mg (n=13)	13	0	
Tab. Sertraline			
Yes (n=9)	6	3	0.13
No (n=91)	78	13	
Dose: Not given (n=91)	78	13	0.11
≤ 50 mg (n=7)	4	3	
>50 mg (n=2)	2	0	
No. of drugs used (SSRIs)			
1 (n= 94)	78	16	0.27
2 (n= 6)	6	0	
Total duration of treatment with SSRIs (months)	40.85 ± 42.9	8.56 ± 8.5	0.0001*
Tricyclic antidepressant: Yes (n= 68)	58	10	0.60
No (n=32)	26	6	
Benzodiazepines: Yes (n=81)	68	13	0.97
No (n=19)	16	3	
Past history of Psychiatric illness: Yes (n=6)	5	1	0.96
No (n=94)	79	15	
Family history of Psychiatric illness: Yes (n=15)	14	1	0.28
No (n=85)	70	15	
Anxiety status: Yes (n=71)	61	10	0.41
No (n=29)	23	6	
Depressive status: Yes (n=84)	71	13	0.74
No (n=16)	13	3	
Female orgasmic disorder: Yes (n=55)	55	0	0.0001*
No (n=45)	29	16	
Female sexual interest/ arousal disorder			
Yes (n=82)	82	0	0.0001*
No (n=18)	2	16	
Genito-Pelvic pain/ Penetration disorder			
Yes (n=39)	39	0	
No (n=61)	45	16	0.005*

*Values are shown as mean ± standard deviation or number of patients, unless otherwise specified. P Value was calculated by Chi square test or Mann-Whitney U test. Diagnosis of psychiatric disorders was made by clinical interviews administered by consultant psychiatrists as per criteria of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders. $p<0.05$ was considered to be statistically significant.

Participants with sexual dysfunction scored significantly lower value in CSFQ-F-C and all the subscales and also, a significantly lower value in social relationships and environment domains of quality of life. There were no statistically significant difference in scores of HAM-D (p=0.49), HAM-A (p=0.50), physical health and psychological domains of quality of life when compared with patients without sexual dysfunction as shown in Table 3.

Table 3: Association of sexual dysfunction in patients on SSRIs with severity and sub scales of sexual dysfunction (CSFQ-F-C score), severity of depressive symptoms (HAM D score), severity of anxiety symptoms (HAM-A score), quality of life and its domains (WHO QOL-BREF score).

Variables	Sexual Dysfunction Present (n=84)	Sexual dysfunction Not present (n=16)	p Value
CSFQ-F-C			
Total score	36.65 ± 6.4	46.18 ± 6.6	0.0001*
Sexual pleasure score	2.39 ± 0.9	4.06 ± 0.8	0.0001*
Sexual Desire/ Frequency score	4.89 ± 1.3	6.75 ± 1.4	0.0001*
Sexual Desire/ Interest Score	6.21 ± 2.5	9.31 ± 2.7	0.0001*
Sexual Arousal/ Excitement score	8.78 ± 1.8	11.25 ± 1.6	0.0001*
Sexual Orgasm/ Completion Score	9.48 ± 2.1	11.18 ± 2.4	0.003*
HAM- D	13.07 ± 5.9	12.25 ± 6.6	0.49
HAM- A	11.65 ± 5.9	11.75 ± 9.1	0.50
WHOQOL-BREF			
Physical health	63.18 ± 8.7	61.16 ± 5.1	0.24
Psychological	63.04 ± 9.5	61.71 ± 9.1	0.64
Social relationships	63.59 ± 14.0	79.16 ± 11.7	0.0002*
Environment	71.31 ± 9.3	77.34 ± 8.7	0.033*

Abbreviations: *CSFQ-F-C= Changes in Sexual Functioning Questionnaire (Female Clinical Version); HAM D= Hamilton Depression Rating Scale; HAM A= Hamilton Anxiety Scale; WHOQOL-BREF= World Health Organization Quality Of Life – BREF.*

*Values are shown as mean ± standard deviation or No. of patients, unless otherwise specified. p Value was calculated by Mann-Whitney U test. $p<0.05$ was considered to be statistically significant.

Table 4 shows characteristics of patients based on their depression and anxiety status. Patients with depression and anxiety disorders were likely to have higher scores of HAM-D and HAM-A (p = 0.009 and p =0.0001, respectively). Patients with anxiety disorders had statistically significant association with female sexual interest/ arousal disorder (p=0.0001), significantly lower values of CSFQ-F-C total score, sexual arousal/excitement score, sexual orgasm/completion score (p=0.006, p=0.02 and p=0.003, respectively), poor quality of life in social relationships (p=0.005) and environment (p=0.01) domain, compared with those without anxiety disorders.

We found that a total of 86.75% (59 out of 68) patients on escitalopram reported sexual dysfunction followed by 86.20% (25 out of 29) on fluoxetine and 66.66% (06 out of 09) on sertraline reported sexual dysfunction. This difference was not statistically significant (p value-0.2783).

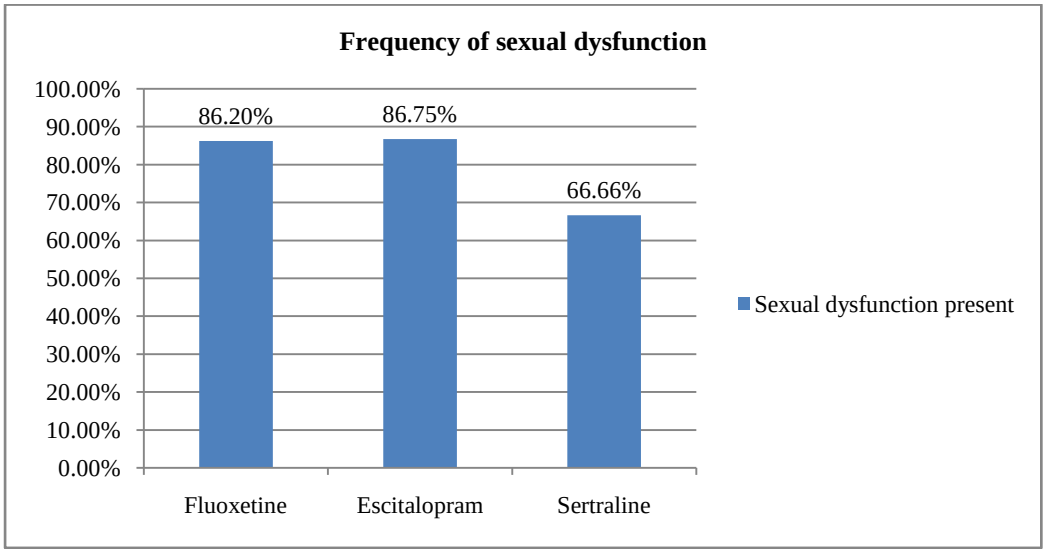
Table 4: Characteristics of patients based on depression and anxiety status.*

Variable	Depression status			Anxiety status		
	Yes (n= 84)	No (n=16)	p Value	Yes (n=71)	No (n=29)	p Value
Age (years)	34.97 ±6.5	34.37±5.0	0.77	37.74±6.3	35.20±6.1	0.67
Depression: Yes (n=84)	NA	NA		55	29	0.005*
No (n=16)				16	0	
Anxiety: Yes (n=71)	55	16	0.004*	NA	NA	
No (n=29)	29	0				
Female orgasmic disorder						
Yes (n=55)	46	9	0.91	43	12	0.08
No (n=45)	38	7		28	17	
Female sexual interest/ arousal disorder						
Yes (n=82)	69	13	0.93	60	22	0.0001*
No (n=18)	15	3		11	7	
Genito-Pelvic pain/ Penetration disorder						
Yes (n=39)	32	7	0.67	30	9	0.29
No (n=61)	52	9		41	20	
CSFQ-F-C						
1)Total score	38.46 ±6.8	36.68±9.3	0.28	37.01±7.4	41.03±6.3	0.006*
2)Sexual pleasure score	2.72±1.0	2.31±1.1	0.21	2.53±1.0	2.96±1.1	0.08
3)Sexual Desire/ Frequency score	5.25±1.4	4.87±1.8	0.25	5.05±1.5	5.51±1.4	0.09
4)Sexual Desire Interest Score	6.75±2.6	6.5±3.4	0.50	6.42±2.8	7.41±2.7	0.07
5)Sexual Arousal/ Excitement score	9.30±1.9	8.5±2.2	0.15	8.87±1.9	9.93±1.9	0.02*
6) Sexual Orgasm/ Completion score	9.77±2.2	9.68±2.3	0.70	9.33±2.2	10.79±1.9	0.003*
HAM- D	13.52±6.2	9.87±4.2	0.009*	13.63±5.7	11.24±6.6	0.07
HAM- A	12.07±6.8	9.56±2.7	0.25	13.38±6.2	7.48±4.8	0.0001*
WHOQOL-BREF						
Physical health	62.37±8.3	65.40±7.4	0.15	63.12±8.7	62.19±7.1	0.33
Psychological	62.79±9.8	63.02±7.4	0.88	61.97±9.8	64.94±8.3	0.25
Social relationships	65.87±14.4	67.18±17.0	0.93	63.49±15.0	72.41±12.4	0.005*
Environment	72.13±9.6	73.04±8.9	0.82	70.86±10.0	75.75±6.7	0.012*

Abbreviations: *CSFQ-F-C= Changes In Sexual Functioning Questionnaire (Female Clinical Version); HAM D= Hamilton Depression Rating Scale; HAM A= Hamilton Anxiety Scale; WHOQOL-BREF= World Health Organization Quality Of Life – BREF.*

* Values are shown as mean ± standard deviation or No. of patients, unless otherwise specified. p Value was calculated by Chi square test or Mann-Whitney U test. Diagnosis of psychiatric disorders was made by clinical interviews administered by consultant psychiatrists as per criteria of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders. $p<0.05$ was considered to be statistically significant.

Figure1. Frequency of sexual dysfunction with various SSRIs*



* Diagnosis of psychiatric disorders was made by clinical interviews administered by consultant Psychiatrists as per the DSM-5 criteria.
** Total 06 patients were on more than one SSRIs.
Data was presented as No. (%).

Participants were grouped in table 5 as various SSRIs, Cap. Fluoxetine (n=29), tab. Escitalopram (n=68), and tab. Sertraline (n=9) with their dosage 20 mg or ≥20 mg, 10 mg or ≥20 mg and ≤50 mg or >50 mg respectively. There were statistically significant difference of cap. Fluoxetine and its dosage on scores of CSFQ-F-C, it's all subscales except of sexual pleasure score (p=0.14) and quality of life. For tab. Escitalopram there were statistically significant difference with female orgasmic disorder (p=0.001), lower values in scores of CSFQ-F-C (total score- p=0.0001 and other scores) and poor quality of life except for physical health (p=0.20) and psychological (p=0.24) domain. There was statistically significant difference of female orgasmic disorder (p=0.01) with tab. Sertraline. No significant difference observed on scores of CSFQ-F-C and quality of life with Tab. Sertraline.

Table 5: Association of various SSRIs and their dosage with sexual dysfunction, severity of sexual dysfunction and quality of life.*

Variable	Cap. Fluoxetine (n=29)**			Tab. Escitalopram (n=68)**			Tab. Sertraline (n=9)**		
	≤20 mg (n=17)	>20 mg (n=12)	p value	10 mg (n=55)	≥20mg (n=13)	p value	≤50mg (n=5)	>50mg (n=4)	p value
Age (years)	36.29±4.9	33.75±6.5	0.16	34.8±6.4	33.69±6.0	0.55	32.6±8.0	33.25±8.8	0.99
Female orgasmic disorder: Yes	10	10	0.16	24	12	0.001*	1	4	0.016*
No	7	2		31	1		4	0	
Female sexual interest / arousal disorder: Yes	14	9	0.63	46	12	0.42	2	4	0.057
No	3	3		9	1		3	0	
Genito-pelvic pain/ penetration disorder: Yes	7	6	0.63	20	7	0.24	1	1	0.85
No	10	6		35	6		4	3	
Sexual dysfunction: Yes	15	10	0.70	46	13	0.18	2	4	0.057
No	2	2		9	0		3	0	
CSFQ-F-C									
1)Total score	39.64±6.7	31.5±4.7	0.002*	39.90±6.0	31.46±3.9	0.0001*	45.4±12.7	31.75±1.7	0.19
2) Sexual pleasure score	2.41±0.9	1.91±1.0	0.14	2.92±1.0	2.07±0.8	0.011*	3.4±1.3	2.25±0.5	0.19
3)Sexual desire/ frequency score	5.64±1.3	4.08±1.3	0.007*	5.36±1.4	4.38±1.1	0.015*	6.6±2.5	4.25±0.5	0.21
4)Sexual desire/ interest Score	7.47±3.0	4.75±1.7	0.012*	7±2.5	5±1.5	0.008*	9.8±4.6	4.75±1.2	0.14
5)Sexual arousal/ excitement score	9.41±1.9	7.83±1.4	0.029*	9.63±1.9	7.30±1.1	0.0002*	10.4±2.3	7.5±0.5	0.10
6)Sexual orgasm/ completion score	9.88±2.3	8.08±1.5	0.043*	10.32±2.1	7.92±1.5	0.0003*	10.8±2.7	8.5±1.2	0.21
WHOQOL-BREF									
Physical health	60.29±7.8	66.66±9.0	0.08	62.33±8.1	65.10±8.2	0.20	61.42±8.5	66.96±6.7	0.38
Psychological	64.70±11.1	58.68±9.8	0.059	63.25±9.3	60.25±8.6	0.24	63.33±5.4	60.41±7.2	0.45
Social relationships	62.74±18.4	57.63±10.3	0.18	69.24±14.1	60.25±10.2	0.03*	75±15.5	56.25±7.9	0.06
Environment	70.77±13.5	67.70±3.6	0.12	73.63±8.6	70.19±7.0	0.04*	76.25±12.6	69.53±6.9	0.53

Abbreviations :*CSFQ-F-C= Changes In Sexual Functioning Questionnaire (Female Clinical Version); HAM D= Hamilton Depression Rating Scale; HAM A= Hamilton Anxiety Scale; WHOQOL-BREF= World Health Organization Quality Of Life – BREF.* * Values are shown as mean ± standard deviation or Number of patients, unless otherwise specified. p value was calculated by Chi square test or Mann-Whitney U test. Diagnosis of psychiatric disorders was made by clinical interviews administered by consultant psychiatrists as per criteria of the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders. $p<0.05$ is considered to be statistically significant. ** Some patients were on more than one SSRIs.

DISCUSSION

This study focused on determining the prevalence of sexual dysfunction, major depressive disorder, anxiety disorders and quality of life in female patients on SSRIs for six weeks or more. In our study diagnosis of sexual dysfunction, major depressive disorder and anxiety disorders were made by a clinical interview based on DSM-5 criteria. Severity of sexual dysfunction, anxiety and depression were measured by CSFQ-F-C, HAM-A and HAM-D scales respectively.

We found that the prevalence of sexual dysfunction was 84%, which was higher than previous studies with the range of 25.8% to 80.3%.[13,14,1,15,16,17] The prevalence of sexual dysfunction in some other studies was found between 35-46.5%.[18,19,20] It must be noted that comparing these studies was a difficult task because of differences in study populations, applied tools, cut off points and differences in social and cultural contexts. In our study, the prevalence of sexual dysfunction could also be confounded by the presence of depression and anxiety itself.

Among hundred female patients, 84% were diagnosed with major depressive disorder, 71% had anxiety disorder and 55% had dual diagnosis. Frequency of female sexual interest/arousal disorder was 82% followed by female orgasmic disorder (55%) and genito-pelvic pain/ penetration disorder (39%). More than one domain of sexual function may be affected in the same subject, hence, the sum of disorders exceeded 100%. A previous study conducted by Clyton et al. showed that female patients experienced more dysfunction in the arousal phase (83.3%) than orgasm (45.4%).[17] In our study, SSRIs were found to affect all phases of sexual response cycle, similar to the findings of Balon et al.[21]

Our study suggested a statistically significant relationship between total duration of illness (major depressive disorder and/or anxiety disorder) and sexual dysfunction. A significant relationship was also observed between total duration of treatment with SSRIs in months and sexual dysfunction, which is consistent with the study conducted by Montejo-González et al.[22] This result suggests that incidence of sexual dysfunction increases with increasing duration of treatment with SSRIs. In present study, anxiety and not major depressive disorder was found to have significant association with sexual interest/ arousal disorder, which was consistent with the studies conducted by Barlow et al and Beck et al.[23,24]

In our study, SSRIs used by patients included fluoxetine, escitalopram and sertraline, since they were freely available in the hospital setup. Among hundred patients, twenty nine patients were on fluoxetine, sixty eight on escitalopram and nine patients were on sertraline, while six patients received two medications. Frequency of sexual dysfunction in patients on escitalopram was 86.75% followed by 86.20% on fluoxetine and 66.66% on sertraline. Our findings were opposite to those of Kennedy et al. which suggested that rates of sexual dysfunction were higher with Sertraline.[25] However, the incidence of sexual dysfunction with different SSRIs was not found to be statistically different in study groups.

In our study, various SSRIs (fluoxetine, escitalopram and sertraline) were grouped in to their dosage as per initial dose (fluoxetine $\leq$ 20mg, escitalopram 10 mg and sertraline $\leq$50 mg) and maintenance dose (fluoxetine > 20 mg, escitalopram $\geq$ 20 mg and sertraline > 50mg). Dose of fluoxetine did not show statistically significant relationship with sexual dysfunction.

Patients on escitalopram with $\geq$ 20 mg of dose, showed significant relationship with clinically female orgasmic disorder. Also a statistically significant relation of dose $\geq$ 20 mg with CSFQ-F-C total score and its all subscales was observed. In the study conducted by Sidi et al, comparison between fluoxetine and escitalopram showed that hypoactive sexual desire was more frequent with Fluoxetine than Escitalopram.[26] However, in the present study, the finding was opposite to the study conducted by Sidi et al., which can be due to smaller sample size in fluoxetine group in the present study.

A total of nine patients were on sertraline in the present study. The dose of sertraline >50 mg was found to have statistically significant association with female orgasmic disorder ($p= 0.016$), however, the sample size was relatively small. This finding was consistent with previous study which suggested that Sertraline caused dysfunction with Orgasm.[13]

We found that the quality of life was affected due to sexual dysfunction in patients on SSRIs. We had assessed quality of life by WHOQOL-BREF. In our study, a statistically significant relationship found between sexual dysfunction and quality of life in domain of social relationships and environment.[27] The social relationships domain includes questions regarding satisfaction with your personal relationships, with your sex life and with the support you get from your friends. Our findings suggested that sexual dysfunction may be an important factor for poor quality of life in the social relationships domain.

It was also found that the patients with anxiety disorders had poor quality of life in social relationships and environment domains. We also found that patients with anxiety disorders had difficulty with sexual

interest/ arousal. There was no statistical significant relationship found between depression and quality of life in our study.

CONCLUSION

As the duration of treatment with SSRIs increases, the frequency of sexual dysfunction also increases. Patients on the higher dosage of escitalopram and fluoxetine had increased severity of sexual dysfunction as compared to those on sertraline. Patients on higher dosage of escitalopram had poor quality of life in social relationships and environment domains as compared to those on Fluoxetine and Sertraline. In our study prevalence of sexual dysfunction could be confounded by the presence of depression and anxiety itself, as opposed to it being a result of SSRI treatment.

LIMITATIONS

Although we have assessed association of sexual dysfunction in female patients on SSRIs, with depression, anxiety and quality of life using validated scale of assessment, our study has several limitations like recruiting participants from single centre and small sample size. Also, measurement errors and participant bias were unavoidable. Confounding factors such as depression, anxiety, socio-cultural norms confounding by indication was not controlled for. Being a cross sectional study, cause-effect relationship can't be ascertained with this study. Large sample sized, interview based, cohort studies are recommended for further evaluation.

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