EUROX 21 (2024) 100287

Contents lists available at ScienceDirect

European Journal of Obstetrics & Gynecology and Reproductive Biology: X

journal homepage: www.journals.elsevier.com/european-journal-of-obstetrics-and-gynecology-and-reproductive-biology

Female sexuality across the menopausal age group: A cross sectional study

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ARTICLE INFO

Keywords:
Female sexuality
Menopausal women
Sexual dysfunction

ABSTRACT

Background: Female sexual dysfunction (FSD) is an important health issue and its relationship with menopausal symptoms needs special attention.
Objective: To identify the frequency of FSD in middle aged women and assess its relationship with obesity and menopausal symptoms.
Methods: This was a cross sectional study performed at a tertiary care centre in North India over a period of one year from June 2022 to May 2023. Sexually active women aged 40–55 years were included in the study sample. Exclusion criteria included those not willing to participate, having pregnancy, malignancy, mental illness or history of pelvic surgery. Baseline demographic and anthropometric details were noted. Sexual function and menopausal symptoms were assessed using Menopause Rating Scale (MRS) and Female Sexual Function Index Scale (FSFI) questionnaire respectively.
Results: Among one hundred and forty three sexually active middle aged women, 43 women had FSD (30.06%). FSD was observed in 9.09%, 22.73% and 45.45% in- 40–45 years, 46–50 years and 51–55 years respectively. No significant difference was seen in desire (p value=0.281), arousal (p value=0.424), lubrication (p value=0.143), orgasm (p value=0.637), satisfaction (p value=0.675), pain (p value=0.833), total score (p value=0.601) between body mass index (kg/m^2). A significant strong negative correlation of somatic, urogenital, psychological and total MRS scores with female sexuality domains was observed excepting non-significant mild negative correlation between somatic with pain and psychological with orgasm and pain.
Conclusion: Female sexual dysfunction are quite common and has negative correlation with menopausal symptoms. Health care providers need to focus on this issue as part of their routine assessment for better quality of life.

Introduction

Female sexual dysfunction (FSD) is a significant issue for public and reproductive health with concomitant psychological, economic and social repercussions on her as well as her family [1]. Many women simply view sex as a component of reproduction, not realizing how it affects their complete physical and mental well-being. There are not many therapy alternatives available because this field is less well known and investigated. Sexual dysfunction in women (FSD) involves issues related to lubrication, arousal, desire, pain and orgasmic behaviour [2] Interactions among biological, social, economic, psychological, racial, religious, and spiritual elements have an impact on sexuality [3]. Approximately 25–43% of women experience some form of FSD linked to aging and hormonal changes, a number that rises noticeably throughout the climacteric years [4]. This is just the reported incidence and the exact one is still higher as women hardly come up with this issue and tend to suffer in silence and agony. The situation is worse in Indian culture where one seldom hears a woman discussing about her sexuality.

Literature remains sparse on information regarding the FSD in Indian women. The primary objective of our study was to identify the frequency of FSD in middle aged women and secondary objective was to assess its association with obesity and menopausal symptoms.

Material and methods

This was a cross sectional study carried at a tertiary centre in Uttarakhand, India over a period of one year from June 2022 to May 2023. The study was initiated after approval from Institutional Ethics Committee vide reference number AIIMS/IEC/22/266 dated 27–05-2022. All sexually active women aged 40−55 years attending the

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https://doi.org/10.1016/j.eurox.2024.100287
Received 12 October 2023; Received in revised form 28 November 2023; Accepted 8 February 2024
Available online 11 February 2024

outpatient Gynaecology department were assessed for eligibility. Exclusion criteria included those not willing to participate, having pregnancy, malignancy or mental illness or history of pelvic surgeries (rectocele repair/rectovaginal fistula repair). Cases with vaginal deliveries with or without episiotomy repair were included in the study sample. Informed consent were taken from all participants and their privacy and anonymity was taken care of. For each participant, baseline demographic information in terms of age, parity and menopausal/perimenopausal status; anthropometric measurements (Body mass index; BMI, waist and hip circumference, waist hip ratio calculated) were recorded. Women were grouped into three groups based on age: group 1 (40–45 years), group 2 (46–50 years) and group 3 (51–55 years).

Using the MRS (Menopause Rating Scale) questionnaire, menopausal symptoms were evaluated. There are 11 questions on this scale, divided into three subscales: physical symptoms, psychological symptoms, and urogenital sexual issues. The scores for each item range from zero (not present) to four and their summation gives the total MRS score [5].

The Female sexual function index (FSFI), which measures female sexuality, was used to assess the sexual profile. Nineteen questions make up this tool, which evaluates six aspects of female sexual function: desire, arousal, lubrication, orgasm, satisfaction, and pain in the past four weeks. Scores ≤26.55 indicates sexual dysfunction [6].

Statistical analysis

The Statistical Package for Social Sciences (SPSS) software, created by IBM, Chicago, USA, version 25.0, was used for analysis. Data were presented as percentage (%), means with standard deviations (SD) and as a median with 25th and 75th percentiles (interquartile range). The Kolmogorov-Smirnov test was used to check data normality. Correlation of female sexual function index with menopause rating scale was through Spearman rank correlation coefficient. p value <0.05 indicates statistically significant result.

Results

During the specified time period, one hundred and forty three sexually active middle aged women were recruited.

Table 1 shows the baseline characteristics. In this study, 66(46.15%), 44(30.77%) and 33 (23.08%) patients belonged to age group 51–55, 46–50 and 40–45 years respectively. The mean age of study subjects was 49.41 ± 4.6 with median (25th-75th percentile) of 50(46.5–53). Majority of the study subjects belonged to middle class (86%) based on Modified Kuppuswamy Scale [7]. Approximately, 72.03% cases were menopausal and 27.97% were premenopausal. The weight ranged from 35 kg to 120 kg. One of the case had weight of 120 kg and two had less than 40 kg. The frequency of underweight, normal BMI, overweight and obese cases was 4.20%, 40.56%, 46.85% and 8.39% respectively. (Table 1).

Table 2 compares the female sexuality domains among different groups. Proportion of patients with total score above 26.5 (normal sexuality) was significantly higher in-group 1{40–45 years} and group 2 {46–50 years} as compared to group 3{51–55 years}. FSD was observed in 9.09%, 22.73% and 45.45% in-group 1, 2 and 3 respectively. This indicates that female sexual function deteriorated with advancing age. The overall frequency of FSD in our study was 30.06%.

Mean ± SD of desire in group 1{40–45 years} was 5.35 ± 0.96 which was significantly higher as compared to group 2{46–50 years} (4.55 ± 1.24, p value=0.003) and group 3{51–55 years} (4.25 ± 1.18, p value<.0001). Mean ± SD of desire was comparable between groups 2 and 3. (p value=0.183).

Mean ± SD of arousal in group 1{40–45 years} was 5.5 ± 0.76 which was significantly higher as compared to group 2{46–50 years} (4.85 ± 1.02, p value=0.006) and group 3{51–55 years} (4.38 ± 1.08, p value<.0001). Mean ± SD of arousal was significantly higher in group 2 as compared to group 3. (p value=0.015).

Mean ± SD of lubrication in group 1{40–45 years} was 5.33 ± 0.72 which was significantly higher as compared to group 2{46–50 years} (4.55 ± 1.05, p value=0.001) and group 3{51–55 years} (4.12 ± 1.09, p value<.0001). Mean ± SD of lubrication was significantly higher in group 2 as compared to group 3. (p value=0.029).

Mean ± SD of orgasm in group 1{40–45 years} was 5.39 ± 0.83 which was significantly higher as compared to group 2{46–50 years} (4.77 ± 1.21 and group 3{51–55 years} (4.53 ± 1.18).

Mean ± SD of satisfaction in group 1{40–45 years} was 5.52 ± 0.64 and was comparable to group 2{46–50 years} (5.12 ± 0.94, p value=0.072) and was significantly higher than group 3{51–55 years} (4.89 ± 1.08, p value=0.002). Mean ± SD of satisfaction was comparable between group 2 and group 3. (p value=0.221).

Mean ± SD of pain in group 1{40–45 years} was 5.53 ± 0.64 which was significantly higher as compared to group 3{51–55 years} (4.75 ±

Table 1
Baseline characteristics of study participants.

Baseline characteristics	Frequency	Percentage
Age(years)		
Group 1{40-45 years}	33	23.08%
Group 2{46-50 years}	44	30.77%
Group 3{51-55 years}	66	46.15%
Mean ± SD	49.41 ± 4.6	
Median(25th-75th percentile)	50(46.5-53)	
Range	40-55	
Menopausal or Premenopausal		
Premenopausal	40	27.97%
Menopausal	103	72.03%
Mean age at menopause	49.4 ± 3.05	
Education		
Illiterate	7 (4.89)	
Primary school	27 (18.88)	
High School	60 (41.95)	
Graduate & above	49 (34.26)	
Socioeconomic status*		
Upper middle class	69 (48.25)	
Lower middle class	54 (37.76)	
Upper lower class	20 (13.98)	
Parity		
Mean ± SD	2.88 ± 1.61	
Median(25th-75th percentile)	3(2-4)	
Range	0-9	
Height(cm)		
Mean ± SD	153.72 ± 4.83	
Median(25th-75th percentile)	154(151-157)	
Range	133-168	
Weight(kg)		
Mean ± SD	59.7 ± 9.7	
Median(25th-75th percentile)	59(55-65)	
Range	35-120	
Body mass index(kg/m^2)		
< 18.5 kg/m^2 {Underweight}	6	4.20%
18.5 to 24.99 kg/m^2 {Normal BMI}	58	40.56%
25 to 29.99 kg/m^2 {Overweight}	67	46.85%
> =30 kg/m^2 {Obese}	12	8.39%
Mean ± SD	25.44 ± 4.15	
Median(25th-75th percentile)	25.5(23.2-27.85)	
Range	15.6-46	
Waist circumference(cm)		
Mean ± SD	85.52 ± 7.89	
Median(25th-75th percentile)	83(80-89)	
Range	60-112	
Hip circumference(cm)		
Mean ± SD	97.66 ± 7.35	
Median(25th-75th percentile)	98(94-101)	
Range	66-127	
Waist/hip ratio		
Mean ± SD	0.87 ± 0.06	
Median(25th-75th percentile)	0.88(0.82-0.91)	
Range	0.73-0.96	

SD: Standard Deviation,
* Modified Kuppuswamy scale[7].

Table 2
Comparison of Female Sexual Function Index between Group 1, 2 and 3.

Female sexual function index	Group 1{40-45 years} (n = 33)	Group 2{46-50 years} (n = 44)	Group 3{51-55 years} (n = 66)	P value
Desire				
Mean ± SD	5.35 ± 0.96	4.55 ± 1.24	4.25 ± 1.18	<.0001[a]
Median(25th-75th percentile)	6(4.8-6)	4.8(3.6-5.4)	4.8(3.6-4.8)	1 vs 2:0.003
Range	2.4-6	1.2-6	1.2-6	1 vs 3:<.0001
				2 vs 3:0.183
Arousal				
Mean ± SD	5.5 ± 0.76	4.85 ± 1.02	4.38 ± 1.08	<.0001[a]
Median(25th-75th percentile)	6(5.4-6)	5.1(4.8-5.4)	4.8(4.2-5.1)	1 vs 2:0.006
Range	3-6	0.6-6	0.6-5.4	1 vs 3:<.0001
				2 vs 3:0.015
Lubrication				
Mean ± SD	5.33 ± 0.72	4.55 ± 1.05	4.12 ± 1.09	<.0001[a]
Median(25th-75th percentile)	5.4(4.8-6)	4.8(3.9-5.4)	3.9(3.6-4.8)	1 vs 2:0.001
Range	3.6-6	0-5.7	0-5.7	1 vs 3:<.0001
				2 vs 3:0.029
Orgasm				
Mean ± SD	5.39 ± 0.83	4.77 ± 1.21	4.53 ± 1.18	0.002[a]
Median(25th-75th percentile)	6(5.2-6)	5.2(4.7-5.2)	4.8(4-5.2)	1 vs 2:0.017
Range	2.8-6	0-6	0-6	1 vs 3:0.0004
				2 vs 3:0.274
Satisfaction				
Mean ± SD	5.52 ± 0.64	5.12 ± 0.94	4.89 ± 1.08	0.01[a]
Median(25th-75th percentile)	6(5.2-6)	5.2(4.8-5.6)	5.2(4.4-5.6)	1 vs 2:0.072
Range	3.6-6	0.8-6	0.8-6	1 vs 3:0.002
				2 vs 3:0.221
Pain				
Mean ± SD	5.53 ± 0.64	4.95 ± 1.2	4.75 ± 1.26	0.006[a]
Median(25th-75th percentile)	5.6(5.6-6)	5(4.3-6)	4.8(4-6)	1 vs 2:0.026
Range	3.6-6	0-6	0-6	1 vs 3:0.001
				2 vs 3:0.363
Total score				
No{>26.5}	30 (90.91%)	34 (77.27%)	36 (54.55%)	0.0004[b]
Yes{≤ 26.5}	3 (**9.09%**)	10 (**22.73%**)	30 (**45.45%**)	1 vs 2:0.136[*]
				1 vs 3:0.0002[*]
				2 vs 3:0.015[b]
Mean ± SD	32.61 ± 4.14	28.8 ± 5.92	26.92 ± 6.19	<.0001[a]
Median(25th-75th percentile)	33.2(31.6-36)	30.2(27.15-32.55)	27.3(25-30.8)	1 vs 2:0.004
Range	19.8-36	2.6-34.4	2.6-34.4	1 vs 3:<.0001
				2 vs 3:0.093

[*] Fisher's exact test,
[a] ANOVA
[b] Chi square test,

1.26, p value=0.001) and group 2{46–50 years} (4.95 ± 1.2, p value=0.026). Mean ± SD of pain was comparable between group 2 and group 3. (p value=0.363).

Mean ± SD of total score in group 1{40–45 years} was 32.61 ± 4.14 which was significantly higher as compared to group 2{46–50 years} (28.8 ± 5.92, p value=0.004) and group 3{51–55 years} (26.92 ± 6.19, p value=0.0001). Mean ± SD of total score was comparable between group 2 and group 3. (p value=0.093) (Table 2).

Table 3 shows that the total as well as subscale scores of MRS increased from group 1 onwards indicating severity of symptoms in older women, Significant association was seen in somatic, psychological, urogenital, total menopause rating scales with group 1, 2, 3.(p value <0.05).

Spearman rank correlation coefficient

Significant negative correlation was seen between somatic with desire, arousal, lubrication, orgasm, satisfaction, total score with correlation coefficient of −0.235, −0.326, −0.282, −0.274, −0.245, −0.295 respectively. Non-significant mild negative correlation was seen between somatic with pain with correlation coefficient of −0.157.

Significant negative correlation was seen between psychological with desire, arousal, lubrication, satisfaction, total score with correlation coefficient of −0.228, −0.344, −0.213, −0.186, −0.243 respectively. Non-significant mild negative correlation was seen between psychological with orgasm, pain with correlation coefficient of −0.151, −0.145 respectively.

Significant negative correlation was seen between urogenital with desire, arousal, lubrication, orgasm, satisfaction, pain, total score with correlation coefficient of −0.275, −0.434, −0.398, −0.313, −0.173, −0.225, −0.363 respectively.

Significant negative correlation was seen between total menopause rating scales with desire, arousal, lubrication, orgasm, satisfaction, pain, total score with correlation coefficient of −0.288, −0.432, −0.356, −0.288, −0.207, −0.215, −0.352 respectively (Table 4).

No significant difference was seen in desire (p value = 0.281),

Table 3
Comparison of Menopause rating scale with Group 1, 2, 3.

Menopause rating scales	Group 1{40-45 years} (n = 33)	Group 2{46-50 years} (n = 44)	Group 3{51-55 years} (n = 66)	P value
Somatic				
Mean ± SD	1.21 ± 0.7	1.8 ± 0.98	2.44 ± 0.84	<.0001[a]
Median(25th-75th percentile)	1(1-2)	2(1-2)	2(2-3)	1 vs 2:0.008
Range	0-2	0-6	1-5	1 vs 3:<.0001
				2 vs 3:0.0001
Psychological				
Mean ± SD	1.21 ± 0.82	2.09 ± 0.96	2.52 ± 0.95	<.0001[a]
Median(25th-75th percentile)	1(1-1)	2(1.75-2)	2(2-3)	1 vs 2:<.0001
Range	0-4	1-5	1-6	1 vs 3:<.0001
				2 vs 3:0.017
Urogenital				
Mean ± SD	1.55 ± 1.09	3.36 ± 1.18	5.94 ± 1.09	<.0001[a]
Median(25th-75th percentile)	1(1-2)	3(2-4)	6(5-7)	1 vs 2:0.0007
Range	0-4	2-6	3-8	1 vs 3:<.0001
				2 vs 3:<.0001
Total menopause rating scales				
Mean ± SD	3.97 ± 2.08	7.27 ± 2.16	10.79 ± 2.17	<.0001[a]
Median(25th-75th percentile)	4(2-5)	7(5.75-9)	11(10-12)	1 vs 2:0.0003
Range	1-9	4-14	2-15	1 vs 3:<.0001
				2 vs 3:<.0001

[a] Kruskal Wallis test

Table 4
Correlation of female sexual function index with menopause rating scale.

Variables	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain	Total score
Somatic							
Correlation coefficient	**-0.235**	**-0.326**	**-0.282**	**-0.274**	**-0.245**	-0.157	**-0.295**
P value	0.005	0.0001	0.001	0.001	0.003	0.061	0.0004
Psychological							
Correlation coefficient	**-0.228**	**-0.344**	**-0.213**	-0.151	**-0.186**	-0.145	**-0.243**
P value	0.006	<0.0001	0.011	0.073	0.027	0.085	0.004
Urogenital							
Correlation coefficient	**-0.275**	**-0.434**	**-0.398**	**-0.313**	**-0.173**	**-0.225**	**-0.363**
P value	0.001	<0.0001	<0.0001	0.0002	0.039	0.007	< 0.0001
Total menopause rating scales							
Correlation coefficient	**-0.288**	**-0.432**	**-0.356**	**-0.288**	**-0.207**	**-0.215**	**-0.352**
P value	0.001	<0.0001	<0.0001	0.001	0.013	0.010	< 0.0001

arousal (p value=0.424), lubrication (p value=0.143), orgasm (p value=0.637), satisfaction (p value=0.675), pain (p value=0.833), total score (p value=0.601) between body mass index (kg/m^2) (Table 5).

Discussion

The objective of our study was to identify the frequency of FSD among middle aged Indian women and to assess its relationship with obesity and menopausal symptoms. Studies exploring the relationship of female sexuality with menopausal symptoms are limited. In Indian scenario, talking about sexual health is still considered a taboo and women are less likely to discuss sexual health issues with their healthcare providers rather hope that the physician would initiate the discussion. Around the time of menopause, over 40% of women report changes in their sexual function in terms of loss of libido, pain and lubrication [8]. In our study as age advanced, female sexuality decreased with prevalence of FSD as high as 45% in age group of 51–55 years. This is a matter of concern and needs multidisciplinary consultation as mean menopausal age in India is 46.2 years [9] and a woman spends almost one third phase of her life as menopausal. In our cohort the mean age at menopause was 49.4 ± 3.05. Menopausal transition is a known risk factor for decline in sexuality attributed to decrease in central and peripheral sex hormones [10,11]. Cagnacci A et al. in their analysis involving 518 women aged 40–55 years reported FSD in 55%

Table 5
Comparison of female sexual function index between body mass index (kg/m^2).

Female sexual function index	<18.5 kg/m^2 {Underweight} (n = 6)	18.5 to 24.99 kg/m^2 {Normal BMI} (n = 58)	25 to 29.99 kg/m^2 {Overweight} (n = 67)	> =30 kg/m^2 {Obese} (n = 12)	P value
Desire					
Mean ± SD	5.1 ± 1.18	4.7 ± 1.23	4.57 ± 1.23	4.05 ± 1.12	0.281[a]
Median(25th-75th percentile)	5.7(4.05-6)	4.8(3.6-6)	4.8(3.6-5.4)	3.6(3.6-4.8)	
Range	3.6-6	1.2-6	1.2-6	2.4-6	
Arousal					
Mean ± SD	5.4 ± 0.76	4.85 ± 1.2	4.68 ± 1.03	4.73 ± 0.92	0.424[a]
Median(25th-75th percentile)	5.7(4.95-6)	5.1(4.8-5.4)	5.1(4.2-5.4)	5.25(4.2-5.4)	
Range	4.2-6	0.6-6	0.6-6	3-5.4	
Lubrication					
Mean ± SD	5.3 ± 0.96	4.67 ± 1.21	4.37 ± 1.04	4.38 ± 0.76	0.143[a]
Median(25th-75th percentile)	5.7(4.95-6)	4.8(3.9-5.4)	3.9(3.6-5.4)	4.35(3.6-4.8)	
Range	3.6-6	0-6	0-6	3.6-5.7	
Orgasm					
Mean ± SD	5.4 ± 0.7	4.78 ± 1.27	4.76 ± 1.17	4.87 ± 0.66	0.637[a]
Median(25th-75th percentile)	5.6(4.9-6)	5.2(4.4-5.8)	4.8(4.4-6)	4.8(4.4-5.2)	
Range	4.4-6	0-6	0-6	4-6	
Satisfaction					
Mean ± SD	5.4 ± 0.7	5 ± 1.06	5.15 ± 0.98	5.23 ± 0.58	0.675[a]
Median(25th-75th percentile)	5.6(4.9-6)	5.2(4.8-5.6)	5.6(4.8-6)	5.2(4.8-5.7)	
Range	4.4-6	0.8-6	0.8-6	4.4-6	
Pain					
Mean ± SD	5.13 ± 0.93	5.08 ± 1.3	4.9 ± 1.13	4.93 ± 0.73	0.833[a]
Median(25th-75th percentile)	5.2(4.8-5.9)	5.6(4.8-6)	4.8(4-6)	5(4.8-5.3)	
Range	3.6-6	0-6	0-6	3.6-6	
Total score					
No{>26.5}	4 (66.67%)	41 (70.69%)	47 (70.15%)	8 (66.67%)	0.987[*]
Yes{≤26.5}	2 (33.33%)	17 (29.31%)	20 (29.85%)	4 (33.33%)	
Mean ± SD	31.73 ± 5.01	29.08 ± 6.75	28.43 ± 5.87	28.18 ± 4.17	0.601[a]
Median(25th-75th percentile)	33.5(27.65-35.9)	30.8(26.4-33.75)	28.9(25-33.5)	29.3(25-30.175)	
Range	25-36	2.6-36	2.6-36	21.4-34.4	

[*] Fisher's exact test,
[a] ANOVA

for age group 40 to 45 along with a drastic rise to 82.8% in 52−55 of age [12]. In our study the prevalence of FSD in 40–45 years was only 9%, which was quite low compared to Cagnacci A et al. In another study involving 370 middle aged women (40–65 years), the prevalence of FSD in age group 40–45 years and 46–55 years was 50.9% and 66.7% respectively whereas it was as high as 84.8% in 56–65 years [13]. Mishra VV et al. in their evaluation of 153 fertile females reported FSD as 20% in women 40 years and above whereas we found the prevalence to be 30% [14]. In a recent Indian study, the authors reported that nearly 82% women aged 20–45 years had some sort of sexual dysfunction and almost 62% did not share the issue with their partners [15]. The wide variation in the prevalence of FSD could partly be attributed to a mix of various social, ethnic, cultural, religious and physical factors.

Obesity on the other hand is a global health issue. According to NFHS-5 data, 39.6% and 23% of women had waist circumference and BMIs above the range of 80 cm and 25 kg/m^2 [16]. This data reports that nearly 23% women are overweight in India. Studies focusing on the relationship between BMI and female sexuality are limited with variable results. Previous research has proposed three potential processes by which obesity may affect sexual function in individuals: insulin resistance and the resulting hormonal changes, dyslipidemia and psychological issues [17]. Mozafari M et al. reported poor sexual function in overweight and obese women [18]. In a recent systematic review and meta-analysis by Salari N et al. analyzing 1508 obese women, it was reported that obesity is a risk factor for poor sexuality [19]. Contraindictory to these studies, Smith AMA did not find any association between obesity and female sexuality [20]. In our study, no significant difference was noted for female sexuality with BMI. Unlike ours, Dutra da Silva et al. in their cross sectional study of 221 females of age 40–65 years found that compared to normal-weight women, obese and overweight postmenopausal women reported a higher index of sexual dysfunction in arousal and desire domains [21].

Menopausal symptoms are known to have detrimental effects on intimate and personal relationship. In this study, we tried to assess the effect of menopausal symptoms on female sexuality in middle aged females. Our study revealed significantly strong negative correlation of total MRS scores with female sexuality domains indicating that with severe menopausal symptoms, the sexuality in a female worsens. Our results were consistent with Galas MB eta al. Their findings showed that desire, arousal, lubrication, orgasm, satisfaction, and pain were all worse with increasing menopausal symptom levels with correlation coefficient of −0.28, −0.30, −0.24, −0.17,−0.23 and-0.16 respectively. Their research tools included MRS and polish version of FSFI [22]. In another study involving 182 menopausal woman, it was reported that increased urogenital and psychological symptoms were linked to worsening of female sexuality in all domains except pain. They noted that the total MRS score was associated with worsened desire and no significant link was seen for somatic subscale with female sexual function [23].

The main strength of this study was usage of validated questionnaire for assessing female sexuality. There are hardly any Indian studies focusing on this aspect of middle aged women. Findings of this study adds to better understanding of Female sexual function in Indian women which itself is a less commonly discussed topic. We would like to focus that assessing sexuality should be a necessary step in evaluating any female coming to gynecology clinic as majority of these issues go unnoticed and unreported leaving a women suffer in silence. Limitation lies in the cross sectional study design and was mainly for clinical cases. Further large scale Indian studies are needed to corroborate our findings.

Conclusion

This cross sectional study found a significant negative correlation of menopause rating scale scores with almost all female sexuality domains. Given the high prevalence of female sexual dysfunction with increasing age and its association with menopausal symptoms, it becomes necessary to screen women for FSD using standard questionnaires for early identification and better quality of life.

Ethical considerations

The study was initiated after approval from Institutional Ethics Committee vide reference number AIIMS/IEC/22/266 dated 27–05-2022.

Funding

None.

CRediT authorship contribution statement

Mundhra Rajlaxmi: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Visualization, Writing – original draft, Writing – review & editing. **Bahadur Anupama:** Data curation, Formal analysis, Investigation, Methodology, Supervision, Writing – review & editing. **Khoiwal Kavita:** Data curation, Formal analysis, Investigation.**Kumar Mukesh:** Data curation, Investigation, Project administration. **Chhetri Shivani Singh:** Data curation, Investigation, Project administration. **Chaturvedi Jaya:** Data curation, Supervision, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

None.

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