A study on the sexual health and menopause

Authors

1) **Rohini Jaggi, Senior Resident, Department of Obstetrics and Gynaecology, SMGS Hospital, Jammu, India.**
2) **Pratyaksha Raina, Senior Resident, Department of Obstetrics and Gynaecology, SMGS Hospital, Jammu, India.**
3) **Neha Majortra, Senior Resident, Department of Obstetrics and Gynaecology, SMGS Hospital, Jammu, India.**

Corresponding Author : Dr. Pratyaksha Raina, Senior Resident, Department of Obstetrics and Gynaecology, SMGS Hospital, Jammu, India; Email : pratyaksharaina90@gmail.com

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Abstract:

Objectives: To evaluate the effect of menopause on sexual health of middle aged and older women and to determine the association of sexual dysfunction with menopausal symptoms. **Methods:** This prospective observational cross-sectional study included 100 married sexually active menopausal women visiting gynaecology OPD or admitted in gynaecology wards of the department during the study period 2017-2018**.** Three questionnaires including demographic, menopause rating scale (MRS) and female sexual function index (FSFI) were used. The higher score means the better the sexuality. The score lower than 26.55 is considered as the cut-off value for diagnosis of female sexual dysfunction. Data reported as mean ± standard deviation and proportions as deemed appropriate for quantitative and qualitative variables respectively. **Results:** Mean duration of menopause was 10.37 ± 6.63 with a range of 0 to 26 years. Mean somato-vegetative symptom score was 4.98 ranging from 1 to 12. Most subjects had total symptom scores of 16-20 (30%) indicating higher degree of complaints, followed by 5-10 (29%), 11-15 (28%) and score of ≥21 (13%). According to FSFI domain scores, domain of arousal had least mean score of 1.40, followed by desire 1.92, lubrication 2.20, orgasm 2.64, pain 3.04 and satisfaction 3.23. Mean full scale score of 14.46 with a range of 4.9-22 indicate that all 100 subjects carried the symptoms of female sexual dysfunction. Mean value of FSFI full scale score was low in ≥16 score group (12.93) as compared to that of <16 score group (15.05), the difference being statistically highly significant (p=0.006). Higher psychological symptom score yielded lower FSFI mean scale score, subjects with high somato-vegetative symptom scores had low FSFI mean scale score. The results indicated that altogether all subjects were affected by urogenital and sexual symptoms. **Conclusion:** Sexually active women experience sexual dysfunction significantly and severity of menopausal symptoms in somatic and urogenital dimensions is associated with sexual dysfunction. It is important to recognize sexual concerns well in time so that appropriate medical treatment can be prescribed as there is high percentage of sexual desire and arousal disorder during the menopausal period.

Keywords: Sexual health, menopausal symptoms, sexual dysfunction, MRS, FSFI.

In all age groups, sexual wellbeing is regarded as a healthy and important part of an individual's personal health. Sexual wellbeing, according to the World Health Organization (WHO), is a type of coordination between the mind, senses (feelings), and body that can influence the social and intellectual aspects of human personal development [1]. Women's sexuality and sexual wellbeing are affected by developmental life events such as menarche, pregnancy, birth, lactation, and menopause, according to studies [1, 2]. Sexuality has been shown to be greatly influenced by menopause in studies [3]. Furthermore, it has been stated that if a woman has surgical menopause accompanied by oophorectomy, she would have more severe symptoms.

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Menopause is a condition that causes many physical and psychological changes in women, as well as affecting the quality of their sexual lives. Individual variations in sexual life are caused by a woman's age, education, economic status, family structure, health status, good and poor behaviours, social relationships, sexual experiences, growth style, living conditions, and cultural influences during this period [4]. According to a survey, the most frequently mentioned benefit of menopause is the absence of monthly bleeding. Some women say that menopause makes them feel like a whole woman. They don't have to worry about getting pregnant now that they've reached menopause. However, for certain women with the advent of menopause, the prospect of having a child or having another child became a settled problem, and they saw this as a major disadvantage of menopause [5].

The feeling of emptiness is expressed by some females (vacuum). The complete cessation of the menstrual cycle causes a sense of emptiness or a lack of something. This is an unsubtle statement to the lack of sexuality and attractiveness. As a result, they connect menopause to a loss of femininity. This is also thought to be affecting their self-confidence, self-image, and self-esteem. Menopause is associated with a loss of physical ability, a loss of interest in social life, a loss of sexual desires, a loss of stamina, a feeling of being old, and a feeling of depression [6]. Irritability (92 %), lethargy (88 %), exhaustion (78%), hot flushes and night sweats (75%), headaches (71%), forgetfulness (64 %), weight gain (61 %), insomnia (51%), joint and muscle pain (48 %), palpitations (44 %), weeping spells (42 %) are among the symptoms correlated with menopause, according to international data [7]. Women go through vasomotor, urogenital, psychosomatic, and psychological symptoms, as well as sexual dysfunction, during menopause. Several classification schemes for sexual dysfunction have been proposed in the past. For decades, the international classification of disease (ICD)-10 offered by the World Health Organization has been the most commonly used classification scheme for sexual dysfunction. Lack of sexual desire (F52.0) and dyspareunia (F52.6) have been added to the ICD-10 classification [8].

Vaginal secretions and transudate from the surrounding blood vessels both decrease as oestrogen levels decline. Vaginal secretions have dropped significantly, the delay in the timing of lubrication during sexual intercourse contribute to dyspareunia in postmenopausal women [9]. The ovaries and adrenals contain about half of the circulatory testosterone before menopause, with the remainder coming from peripheral conversion of precursors originating from the ovary and adrenals. After menopause, androstenedione conversion in the periphery becomes the primary source of circulatory testosterone [10]. Estrogen deficiency also causes vaginal shortening and narrowing of vagina and thinning of vaginal wall. These changes lead to dryness and dyspareunia. Reduced testosterone levels in menopausal women are linked to a loss of sexual appetite and satisfaction, a sense of decreased physical well-being, and chronic fatigue [11]. Female sexual dysfunction is common in menopausal women as a result of endocrine changes. Vaginal dryness, dyspareunia, low sexual desire, and poor sexual desire are the most common complaints among postmenopausal women.

Most women in their forties and fifties regard their sexuality as moderately or very significant. The majority of people seem to be unaffected by the loss of sex hormones caused by the natural decline of adrenal androgens, the variable decline in ovarian androgens, and the cessation of ovarian oestrogen output. This prospective retrospective research was performed to assess the impact of menopause on sexual health of middle aged and older women and to determine the association of sexual dysfunction with menopausal symptoms.

Materials and methods

This prospective observational cross-sectional study was carried out in the post graduate department of obstetrics and gynaecology, SMGS hospital GMC, Jammu during the year 2017 -2018 after taking valid informed consent from the patients. The study was approved by the ethics committee of the institute. Subjects included 100 married sexually active menopausal women visiting gynaecology OPD or admitted in gynaecology wards of the department**.**

Exclusion criteria included women who were under treatment for sexual disorders, who had used hormones upto 60 days before the selection process, those with any medical or psychiatric condition requiring medication at present, those with any past history of diagnosed mental illness or specific medical disease among couples, women whose spouses had premature ejaculation or sexual disabilities and those who live apart from their spouses at the time of interview.

In this study three questionnaires including demographic, menopause rating scale (MRS) and female sexual function index (FSFI) were used. Socio-demographic and clinical data were collected using a specially designed

questionnaire. The severity of menopausal symptoms was assessed using the MRS, developed in Germany by the Berlin center for epidemiology and health research (1990). It consists of a list of 11 menopausal symptoms. The score increases point by point with increasing severity of subjectively perceived complaints in each of the 11 items. The minimal/maximal scores vary between three dimensions – psychological 4 symptoms: depressed, irritable, anxious and exhausted (0 to 16 scoring points); somato-vegetative 4 symptoms: sweating/flush, cardiac complaints, sleeping disorders, joint and muscle complaints (0 to 16 points) and urogenital 3 symptoms: sexual problems, urinary complaints and vaginal dryness. The composite score is the sum of the dimension scores. It ranges between 0 (asymptomatic) and 44 (highest degree of complaints).

The sexual function was assessed by using the FSFI scale. The scale is a 19-items questionnaire, developed as multidimentional self report instrument for the assessment of the key dimensions of sexual function in women in last 1 month. This questionnaire consists of questions in 6 domains including desire, arousal, lubrication, orgasm, satisfaction and pain. The items of each scale are divided into 6-domains which include desire (2 questions), subjective arousal (4 questions), lubrication (4 questions), orgasm (3 questions), satisfaction (3 questions) and pain (3 questions).

Since in the FSFI questionnaire, the questions are not equally distributed, initially to equiponderate the fields together, score of questions in each area are added together and then multiplied by the number of factors. For questions on sexual desire, domain scores considered were 1-5, for orgasm, lubrication, pain 0-5 and for sexual satisfaction (5 or 0, 1) as shown in table A. A score of zero indicates that during the past 4 weeks, woman had no sexual activity.

Table A: FSFI scale

Domain	Questions	Score range	Factor	Minimum score	Maximum score
Desire	1,2	1-5	0.6	1.2	6.0
Arousal	3,4,5,6	0-5	0.3	0	6.0
Lubrication	7,8,9,10	0-5	0.3	0	6.0
Orgasm	11,12,13	0-5	0.4	0	6.0
Satisfaction	14,15,16	0/1-5	0.4	0	6.0
Pain	17,18,19	0-5	0.4	0	6.0

The total FSFI score is the sum of all the scores obtained in each 6-domain (36). The higher score means the better the sexuality. The score lower than 26.55 is considered as the cut-off value for diagnosis of female sexual dysfunction.

The data was analysed using computer software microsoft excel and SPSS version 21.0 for windows. Data reported as mean ± standard deviation and proportions as deemed appropriate for quantitative and qualitative variables respectively. The statistical difference in mean value between two groups was tested using unpaired 't' test. ANOVA (analysis of variance) was also performed to evaluate statistical significance in more than two groups. A p-value of <0.05 was considered as statistically significance. All p-values reported were two-tailed.

Results

There were more subjects in the age group of 50-59 years (49%), followed by 60-69 years (35%), 40-49 years (13%) and least in $\geq$70 years (3%). Mean age ± standard deviation of the study group was 56.32 ± 6.72 with a range of 43 to 70 years. Majority of subjects reached menopausal stage during 40 to 49 years period (76%), followed by 50 to 59 years (21%). Three women reached menopause when they were <40 years of age. Mean menopausal age ± standard deviation was 45.95 ± 3.54 years, ranging from 37 to 53 years. Duration of menopause was $\leq$5 years in 31% subjects, 6 to 10 years in 28%, 16 to 20 in 19%, 11 to 15 years in 16% and >20 years in 6% subjects. Mean duration of menopause ± standard deviation was 10.37 ± 6.63 with a range of 0 to 26 years. Majority (99%) of women were multipara with 23% each with parity 3 and parity 4, 18% each with parity two and parity five and 17% with parity six or more. Only one woman had parity one. Mean parity ± standard deviation was 3.96 ± 1.51 with a range of 1 to 9.

Majority of women had psychological symptom scores of 1 to 4 (mild) (82%), while remaining women had scores of 5 to 8 (moderate) (18%). No subject had score indicating severe or very severe psychological symptom. Mean psychological symptom score was 3.2 ranging from 1 to 8.

Most women had somato-vegetative symptom scores of 1 to 4 (mild) (48%), followed by scores of 5 to 8 (moderate) (38%) and remaining had scores of 9 to 12 (severe) (14%). No subject had score indicating very severe somato-vegetative symptom. Mean somato-vegetative symptom score was 4.98 ranging from 1 to 12. Most woman had urogenital and sexual symptom scores 7 to 9 (severe) (34%), followed by 4 to 6 (moderate) (30%), 1 to 3 (mild) (22%) and 10 to 21 (very severe) (14%). Mean urogenital and sexual symptom score was 6.38 ranging from 1 to 12.

According to individual domain scores of FSFI, more subjects had scores of <3 for arousal (97%), followed by desire (84%), lubrication (71%), orgasm (59%), pain (42%) and satisfaction (32%) indicating symptoms of sexual dysfunction (table 1). According to FSFI domain scores, domain of arousal had least mean score of 1.40, followed by desire 1.92, lubrication 2.20, orgasm 2.64, pain 3.04 and satisfaction 3.23. Mean full scale score of 14.46 with a range of 4.9-22 indicate that all 100 subjects carried the symptoms of female sexual dysfunction (table 2).

Table 1: Distribution of subjects according to individual domain scores of female sexual function index (FSFI)

Individual domain scores of FSFI		Number of subjects	Percentage (%)
Desire	<3	84	84.00
	≥3	16	16.00
Arousal	<3	97	97.00
	≥3	3	3.00
Lubrication	<3	71	71.00
	≥3	29	29.00
Orgasm	<3	59	59.00
	≥3	41	41.00
Satisfaction	<3	32	32.00
	≥3	68	68.00
Pain	<3	42	42.00
	≥3	58	58.00

For subjects with MRS total symptom scores of ≥16 indicating higher degree of complaints, mean values of FSFI domain of lubrication and orgasm were significantly low as compared to those of MRS total symptom scores of <16. For domain of arousal, satisfaction and pain mean values in ≥16 score group was also low, but the difference as compared to that of <16 score was not significant (p>0.05). In case of domain of desire, mean value in ≥16 score group was high as compared to that of <16 score, the difference being statistically not significant. Mean value of FSFI full scale score was low in ≥16 score group (12.93) as compared to that of <16 score group (15.05), the difference being statistically highly significant (p=0.006) (table 3).

Table 2. Mean domain scores and full scale score of female sexual function index (FSFI)

FSFI domain	Mean FSFI scores ± Standard deviation	Range
Desire	1.92 ± 0.71	1.2 – 3.6
Arousal	1.40 ± 0.71	0.3 – 3.9
Lubrication	2.20 ± 1.16	0.3 – 5.4
Orgasm	2.64 ± 1.04	0.4 – 5.6
Satisfaction	3.23 ± 1.27	0.4 – 4.8
Pain	3.04 ± 1.19	0 – 4.8
Full Scale Score	14.46 ± 4.34	4.9 – 22

Table 3: Effect of MRS total symptom scores on FSFI domain scores

FSFI domain	MRS total symptom scores		Statistical inference (Unpaired 't' test)
	<16 (n=57) Mean ± Standard deviation	≥16 (n=43) Mean ± Standard deviation	
Desire	1.78 ± 0.59	1.98 ± 0.66	t=1.59; p=0.11*
Arousal	1.35 ± 0.68	1.23 ± 0.44	t=1.22; p=0.22*
Lubrication	2.42 ± 1.26	1.78 ± 0.93	t=2.55; p=0.01**
Orgasm	2.83 ± 0.98	2.34 ± 1.20	t=2.24; p=0.02**
Satisfaction	3.19 ± 1.32	2.61 ± 1.06	t=1.00; p=0.31*
Pain	3.45 ± 1.36	2.97 ± 1.34	t=1.75; p=0.08*
FSFI full scale score	15.05 ± 4.48	12.93 ± 4.16	t=2.80; p=0.006***

*Not significant; **Significant; ***Highly significant

FSFI mean scale score was low in subjects with psychological symptom scores of 5 to 8 (moderate) as compared to those of with 1 to 4 scores, the difference was significant (p=0.02) indicating that higher psychological symptom

score yielded lower FSFI mean scale score (table 4). FSFI mean scale score was low in subjects with somato-vegetative symptom scores of 9 to 12 (severe) compared to those with scores of 5 to 8 (moderate) and 1 to 4 (mild), the difference being statistically highly significant (p=0.005). The results indicated that subjects with high somato-vegetative symptom scores had low FSFI mean scale score (table 5). FSFI mean scale score was low in subjects with urogenital and sexual symptom scores of 10 to 12 (12.85), followed by those with symptom scores of 4 to 6 (14.38), scores of 1 to 3 (14.79) and scores of 7 to 9 (14.99). Statistically the difference indicated no significant (p=0.46). The results indicated that altogether all subjects were affected by urogenital and sexual symptoms (table 6).

Table 4: Association of FSFI scale scores with MRS psychological symptom scores

Psychological symptom scores	FSFI Scale Scores Mean ± Standard deviation	Statistical inference (Unpaired 't' test)
1 – 4 (Mild) (n=82)	14.93 ± 4.43	t=2.35; p=0.02; Significant
5 – 8 (Moderate) (n=18)	12.33 ± 3.22	

Table 5: Association of FSFI scale scores with MRS somato-vegetative symptom scores

Somato-vegetative symptom scores	FSFI scale scores Mean ± Standard deviation	Statistical inference (One-way ANOVA)
1 – 4 (Mild) (n=48)	15.88 ± 4.10	F=5.53; p=0.005; Highly significant
5 – 8 (Moderate) (n=38)	13.72 ± 5.21	
9 – 12 (Severe) (n=14)	12.94 ± 3.79	

Table 6: Association of FSFI scale scores with MRS urogenital and sexual symptom scores

Urogenital and sexual symptom scores	FSFI Scale Scores Mean ± Standard deviation	Statistical inference (One-way ANOVA)
1 – 3 (Mild) (n=22)	14.79 ± 4.61	F=0.85; p=0.46; Not significant
4 – 6 (Moderate) (n=30)	14.38 ± 3.92	
7 – 9 (Severe) (n=34)	14.99 ± 4.59	
10 – 12 (Very severe) (n=14)	12.85 ± 4.21	

Discussion

In the present study most of the menopausal women who were sexually active were in the age group of 50-59 years (49%) and sexual activity decreased as the age increased i.e. only 3% in ≥70 years. Mean age of the study group was 56.32 years. Santpure et al [12] and Thomas et al [13] reported mean age of sexual active women to be 52.42 and 51.8 years respectively. In these studies also, proportion of women who were sexually active decreased with advancing age, which is comparable to our study.

The mean age of menopause in our study was 45.95 years and mean duration of menopause was 10.37 years. Mean age of menopause in studies by Santpure et al [12] Pebdani et al [14], Hashemi et al[15] and Mazhar et al [16] was 47.59, 48.1, 47.35 and 47 years respectively. Mean age at menopause in Indian women is less in comparison to women from developed countries, it varies from country to country, and also region to region. These variances can be attributed to regional, community and ethinic variations. Genetic, environmental and nutritional factors may also play a role.

In our study majority (90%) of subjects were multipara with mean parity of 3.96. No difference in sexual activity was observed for number of childbirths. Similar results were found in study by Kamezaki and Saito[17].

In our study, 82% of subjects had mild psychological symptoms in MRS, 18% had moderate symptoms and no subject had severe or very severe psychological symptom. Mean psychological symptom score was 3.2. 48% of subject had mild somato-vegetative symptoms, 38% had moderate and 14% had severe somato-vegetative symptoms. Mean somato-vegetative score was 4.98. 34% had severe urogenital symptoms, 30% had moderate, 22% had mild and 14% had very severe urogenital symptoms. Mean urogenital sexual symptom score was 6.38. In a study by Krajewska-Ferishah et al [18], the MRS score per subscale was as follows: psychological symptoms 4.8, somatic 4.9 and urogenital and sexual symptoms 2.5. In our study, the highest frequency of psychological, somato-vegetative and urogenital symptoms were either mild or moderate which is comparable to a study by Eftekhar et al [19] in which 95% were somatic, 92% psychological and 97% urogenital symptoms were either mild or moderate.

Mean total symptom score in MRS in our study was 14.56 and overall 43% subjects had total symptoms score of ≥16. The mean MRS in Mazhar et al [16] was 11.2, which is comparable to our study.

In our study, according to FSFI domain score, domain of arousal had least mean score of 1.40 followed by desire 1.92, lubrication 2.20, orgasm 2.64, pain 3.04 and satisfaction 3.23. In a study by Jamali et al [20], lowest mean score was noted in desire 2.82, arousal 3.10, orgasm 3.11, pain 3.2, lubrication 3.31 and satisfaction 3.72 which is comparable to our study.

Mean full scale score of 14.46 indicated that all 100 subjects carried the symptoms of females sexual dysfunction in the present study as FSFI score lower than 26.55 is considered as the cut-off value for diagnosis of female sexual dysfunction. Studies by Jamali et al [20], Eftekhar et al [19], Hashemi et al [15] quoted the prevalence of sexual dysfunction in percentiles as 81.5%, 53%, 70% respectively. The difference between the obtained result in our study and other studies can be due to different age groups and differences in racial, religious and cultural aspects, sample size, attitude of these women towards the menopause phenomenon and the study inclusion criteria. In our study only the married sexually active menopausal women were considered and study was performed in clinical setting which is not necessarily representation of the general population.

In our study, most frequent female sexual dysfunction was arousal (97%), followed by desire (84%), lubrication (71%), orgasm (59%), pain (42%) and satisfaction (32%). The incidence of female sexual dysfunction in study by Jamali et al. (20) was arousal (91.8%), pain (90.40%), orgasm (86.9%), desire (86.7%), lubrication (88.6%), satisfaction (79.7%); whereas Eftekhar et al (2016) reported lubrication (70%), arousal (70%) and desire (62%).

The effect of menopause on sexual health is assessed by effect of MRS on FSFI. For subjects with MRS total symptom scores of ≥16 indicating higher degree of complaints, mean value of FSFI domain of lubrication and orgasm were significantly low as compared to those of MRS total symptom score of <16. For domain of arousal, satisfaction and pain mean values in ≥16 score group was also low, but the difference as compared to that of <16 score was not significant, in case of domain of desire, mean value in ≥16 score was high as compared to that of <16 score, the difference being statistically not significant. Mean value of FSFI full scale score was low in ≥16 score group (12.93) as compared to that of <16 score group (15.05), the difference being statistically highly significant (p=0.006), thus as the MRS score increases FSFI score decreases.

To determine the association of sexual dysfunction with menopausal symptoms, the MRS score for subscale was compared with FSFI. FSFI mean scale score was low 12.33 in subjects with psychological symptoms score of 5 to 8 (moderate) as compared to those of with 1 to 4 (mild) scores (14.93), the difference was significant (p=0.02) indicating that higher psychological symptom score yield lower FSFI mean scale score.

FSFI mean scale score was low 12.94 in subject with somato-vegetative symptom scores of 9 to 12 (severe) compared to those with scores of 5 to 8 (moderate) as 13.72 and 1 to 4 (mild) as 15.88, difference being statistically highly significant (p=0.005). Thus the subjects with high somato-vegetative symptom scores had lower FSFI mean scale score.

FSFI mean scale score was low in subjects with urogenital and sexual symptom scores of 10 to 12 (very severe) in MRS as 12.85 followed by those with symptom scores of 4 to 6 (moderate) as 14.38, scores of 1 to 3 (mild) as 14.79 and scores of 7 to 9 (severe) as 14.99. Statistically the difference indicated no significant (p=0.46), the result indicated that altogether all subjects were affected by urogenital and sexual symptoms.

Thus in our study when the MRS score per subscale was compared with FSFI, higher psychological and somato-vegetative symptom score yielded lower FSFI mean scale score, where as all subjects were affected by urogenital and sexual symptoms. In study by Eftekhar et al[19], there was significant relationship between severity of somatic and urogenital symptoms with sexual dysfunction. However, there was no relationship between severity of psychological factors and sexual dysfunction.

Conclusion

Sexually active women experience sexual dysfunction significantly and severity of menopausal symptoms in somatic and urogenital dimensions are associated with sexual dysfunction. It is important to recognize sexual concerns well in time so that appropriate medical treatment can be prescribed as there is high percentage of sexual desire and arousal disorder during the menopausal period. Considering current increase in life expectancy, women have longer menopausal duration. Health providers in this field can enhance women's understandings and sexual attiudes; facilitate marital relationship during this particular stage. There is need of emphasis on counseling and education about sexual activities during the menopausal period which will help in the better management of patients allowing them to lead good quality of life.

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