

ORIGINAL ARTICLE

Prevalence and factors associated with sexual dysfunction among middle-aged women in a multi-ethnic country: A cross sectional study in Malaysia

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Abstract

Introduction: This study aimed to determine the prevalence and factors associated with female sexual dysfunction in an outpatient clinic in Malaysia.

Methods: The study was conducted among female patients aged 50 years and older who attended the outpatient clinic of a public hospital in Malaysia. A self-administered questionnaire was used that was based on the Malay version of the Female Sexual Function Index questionnaire. The predictors of female sexual dysfunction were identified using multivariate logistic regression analysis.

Results: A total of 263 females were recruited in this study, with a mean age of 60.6 ± 6.7 years. The distribution of the respondents' ethnicities was mostly Malay (42.2%), followed by Chinese (41.8%) and Indian (16.0%). The prevalence of female sexual dysfunction among participants was 68.8%. The prevalence of the subscales of female sexual dysfunction was as follows: desire (85.2%), satisfaction (74.9%), arousal (71.1%), lubrication (66.9%), pain (61.2%), and orgasm (60.8%). According to multivariate logistic regression, patients of Indian ethnicity had an increased risk of female sexual dysfunction (OR=16.60, 95% CI=2.54–108.63), and a higher frequency of sexual intercourse was correlated with a lower risk of female sexual dysfunction (OR=0.13, 95% CI=0.08–0.24).

Conclusion: Seven-tenths of the middle-aged female patients attending the outpatient clinic suffered from female sexual dysfunction. Indian ethnicity and having a lower frequency of sexual intercourse were predictors of female sexual dysfunction. Future intervention studies are needed to address this problem.

Introduction

Sexuality is a significant element of women's lives,¹ and sexual activity has a positive impact on women's physical health. Sexual dysfunction affects the quality of life of women.¹ Globally, about 41% of women have issues with some aspect of sexual activity.² Female sexual dysfunction (FSD) in women is often defined as a permanent or chronic condition and is classified into five categories: sexual desire, sexual arousal, painful intercourse, failure to experience orgasm and pain disorder.² The aetiology of FSD is often multifactorial and generally includes various components such as anatomy, physiology, medical, psychology, and social.³

In most cases, the issues of sexuality and middle-aged women must be considered as a naturally occurring combination. Detailed studies are required to provide a broader framework for the multiple aspects of FSD in older women.³ Emerging reports on FSD highlight its association with increasing age.³ The age-related changes in the physiology of women lead to various sexual problems in women. The prevalence of FSD in older age groups is relatively higher with chronic health issues and menopause.⁴ However, a more complex mechanism involved in female sexuality and the limited number of universally accepted models of the female sexual response make studying FSD a challenge.⁵

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The observed and perceived health of women, race/ethnicity, number of premarital partners, religion, sexual orientation, communication with their partner, and attitude towards sexuality were reported as predictors of FSD.⁶ There was a diverse range of FSD prevalence reported from studies worldwide. With collective and diverse customs and traditions, the sexual attitudes and behaviours of Asian populations are predominantly influenced by certain factors, irrespective of their age group.⁷ Like many Asian countries, Malaysia is a conservative country, and sexual dysfunction, especially FSD, does not receive much attention in clinical settings.⁸ In treating FSD in any individual patient, physicians can focus on patient-specific information and treat them accordingly. There is hesitance in middle-aged and older women to discuss their sexual dysfunction with their physicians.⁹ The cultural attitudes towards sexual activities in social settings significantly impact women's willingness to seek help from their physicians.¹⁰ There is a need for better understanding of FSD in Malaysia to ensure suitable preventive measures and strategies to promote female sexual health. This study aimed to determine the prevalence and factors associated with FSD in an outpatient clinic in Malaysia.

Methods**Study participants**

This study was a cross-sectional study conducted between March 2016 and June 2016 on older women, aged 50 years and older, who visited a medical outpatient clinic in a public hospital in Malaysia. The inclusion criteria were: a married women aged 50 years or older, having a partner, and being able to read or understand the Malay or English language. The exclusion criteria were: women diagnosed with psychiatric illness or mentally

challenged women. After the screening, the participants were recruited using a systematic sampling method. All participants were provided with written informed consent.

Sample size

The sample size was calculated by using Epi Info 6.0, based on the prevalence in the local study, which was 25.8% to 29.6%.^{11 12} The estimated sample size was 196, with 80% power, a 95% confidence interval (CI), and a statistically significant level (α) at 5%. The total number of respondents needed was 245, after considering a non-respondent rate of 20%.

Study tool

A questionnaire was used to evaluate clinical and epidemiological characteristics of female sexual function and socio-demographic risk factors associated with FSD. The first part of the questionnaire included patients' socio-demographic data, comorbidities, marital status, use of hormone replacement therapy, and use of lubricants during sexual intercourse. The second part of the questionnaire consisted of 19 items from the Malay version of the Female Sexual Function Index (MVFSFI), and was used to measure sexual function in the study participants.²¹ The questionnaire was locally validated and was considered a reliable and valid questionnaire (Cronbach's $\alpha=0.967$). The sensitivity of the questionnaire was 99%, and the specificity was 97%, based on a cut-off point of 55. This questionnaire had six subscales, including desire, arousal, lubrication, orgasm, satisfaction, and pain. The score of the questionnaire ranged from 4 to 95, and scores lower than 55 indicated sexual dysfunction. The scoring system for each domain is shown in **Table 1**.

Table 1. Scoring system for subdomains of the Female Sexual Function Index questionnaire

Domain	Item number	Score range	Min. / Max. score	Cut-off point for dysfunction
Desire	1,2	1–5	2 / 10	≤ 5
Arousal	3,4,5,6	0–5	0 / 20	≤ 9
Lubrication	7,8,9,10	0–5	0 / 20	≤ 10
Orgasm	11,12,13	0–5	0 / 15	≤ 4
Satisfaction	14†,15*,16*	0 (or 1)–5	2 / 15	≤ 11
Pain	17,18,19	0–5	0 / 15	≤ 7
Total	1–19	-	4 / 95	≤ 55

Note: † Score for item 14 ranges from 0 to 5; *score for items 15 and 16 range from 1 to 5.

Data analysis

The data from this study were analysed using the Statistical Package for Social Sciences (SPSS) version 22.0. Continuous data are presented as means and standard deviation if the distribution is normal, and as median and interquartile range (IQR) if the distribution is skewed. The chi-square test and Fisher's exact test were performed for categorical variables, while an independent t-test was used to compare means if they were normally distributed. Variables with p values less than 0.25 in univariate analysis were included in multiple logistic regressions to explore the risk factors of FSD. The test of significance was two-tailed, and a p-value of less than 0.05 was considered statistically significant, at a 95% confidence interval.

Ethical approval

Ethical approval was obtained from the Human Research Ethics Committees of UPM (FPSK (EXP15-medic) U001 (Y4) and the National Medical Research Registry (NMRR):

NMRR- 15-104-24225 (IIR) prior to the data collection. This study was conducted according to the Helsinki Declaration.

Results

Of the 320 eligible patients, 263 patients participated in this study, with a response rate of 82%. The average age of the study participants was 60.6 years (SD=6.7 years). The details of the respondents' socio-demographic profiles are presented in Table 2. Among the study participants, 98.5% of women lived with their married partners, and the average duration of married life was 39 ± 9 years. The average age of the women's partners was 64 ± 8 years. The frequency of sexual intercourse in the past 1 month was 1.1 ± 1.8 , with the highest frequency recorded at 16. Lubricant use during sexual intercourse was reported by 11% of respondents, and 5.7% of respondents were on hormone replacement therapy. Almost half of the patients had hypertension (48.3%), and one third of the patients had diabetes mellitus (31.2%).

Table 2. Comparison of socio-demographic data and clinical variables among respondents with and without female sexual dysfunction in an outpatient clinic (n=263)

Variable	FSD (n=181)	No FSD (n=82)	p-value
Age, years	61.8 (6.70)	58.0 (5.78)	<0.001
Duration of marriage, years	37.1 (9.60)	32.8 (7.66)	<0.001
Age of husband, years	65.3 (8.01)	61.1 (7.15)	<0.001
Ethnicity, n (%)			<0.001
Malay	58 (52.3)	53 (47.7)	
Chinese	84 (76.4)	26 (23.6)	
Indian	39 (92.9)	3 (7.1)	
Educational level, n (%)			0.009
Lower than tertiary	158 (72.1)	61 (27.9)	
Tertiary	23 (52.3)	21 (47.7)	
Occupation, n (%)			0.263
Blue collar	17 (81.0)	4 (19.0)	
White collar	14 (58.3)	10 (41.7)	
Not working	150 (68.8)	68 (31.2)	
Frequency of marriage, n (%)			0.591
First	179 (69.1)	80 (30.9)	
Second	2 (50.0)	2 (50.0)	
Use of lubricant, n (%)			0.003
Yes	13 (44.8)	16 (55.2)	
No	168 (71.8)	66 (28.2)	
Use of HRT, n (%)			0.566
Yes	9 (60.0)	6 (40.0)	
No	172 (69.4)	76 (30.6)	
Frequency of sexual intercourse in the past 1 month, n	0.2 (0.72)	2.9 (2.10)	<0.001
Number of children, n	3.4 (1.88)	4.2 (1.99)	0.004
Asthma/COPD, n (%)			0.258
Yes	16 (59.3)	11 (40.7)	
No	165 (69.9)	71 (30.1)	
Hypertension, n (%)			0.489
Yes	90 (70.9)	37 (29.1)	
No	91 (66.9)	45 (33.1)	
Diabetes mellitus, n (%)			0.11
Yes	62 (75.6)	20 (24.4)	
No	119 (65.7)	62 (34.4)	

Variable	FSD (n=181)	No FSD (n=82)	p-value
<i>Ischaemic heart disease, n (%)</i>			0.032
Yes	25 (86.2)	4 (13.8)	
No	156 (66.7)	78 (33.3)	
<i>Osteoarthritis, n (%)</i>			0.831
Yes	29 (67.4)	14 (32.6)	
No	152 (69.1)	68 (30.9)	
<i>Urinary incontinence, n (%)</i>			0.061
Yes	8 (100.0)	0 (0.0)	
No	173 (67.8)	82 (32.2)	

Note: FSD= female sexual dysfunction; COPD=chronic obstructive pulmonary disease; n=number
HRT=hormone replacement therapy

According to the MVFSFI scores, the prevalence of FSD in women who attended the outpatient clinic was 68.8%, and patients of Indian ethnicity (92.9%) had the highest frequency of FSD as compared with women of Chinese (76.4%) and Malay (52.3%) ethnicity (Table 2). Table 3 presents the frequency and mean scores for the subscales of the FSFI questionnaire. The mean MVFSFI score was 27.4 ± 6.74 . The most common domain dysfunction was desire disorder (n=224, 85.2%). Table 4 shows the predictors of FSD among older married women using multiple logistic regressions. Indian ethnicity (OR=16.60, 95% CI=2.54–108.63) was associated with an increased risk of female sexual dysfunction. In contrast, higher frequency of sexual intercourse in the past 1 month was associated with a lower risk female sexual dysfunction (OR=0.13, 95% CI=0.08–0.22).

Table 3. Prevalence in overall and subdomain female sexual dysfunction (n=263)

	Prevalence, n (%)	Median score (IQR)
FSD*	181 (68.8)	27.4 (31.02)
6 subscales of FSFI		
Desire	224 (85.2)	3.2 (1.59)
Arousal	187 (71.1)	4.7 (5.83)
Lubrication	176 (66.9)	5.6 (7.33)
Orgasm	160 (60.8)	4.3 (5.55)
Satisfaction	197 (74.9)	4.7 (6.02)
Pain	161 (61.2)	4.9 (6.19)

Note: FSD=female sexual dysfunction; FSFI=female sexual function index

Table 4. Predictors of female sexual dysfunction in an outpatient clinic (n=263)

Variable	Adjusted OR	95% CI		p value
<i>Ethnicity</i>	16.602	2.537	108.632	<0.001
Indian	2.416	0.924	6.321	
Chinese	1			
Malay				
Increased frequency of sexual intercourse in the past 1 month	0.13	0.082	0.240	<0.001
<i>Education level</i>				0.884
Tertiary	1			
Lower than tertiary	0.907	0.244	3.366	
Duration of marriage	1.065	0.981	1.157	0.135
Age of husband	0.954	0.837	1.088	0.483
Number of children	0.843	0.626	1.136	0.262
<i>Ischaemic heart disease</i>				0.432
Yes	1.94	0.371	10.143	
No	1			
<i>Use of lubricant</i>				0.407
No	1			
Yes	0.59	0.169	2.055	

Discussion

The sensitivity of female sexuality and its relationship with quality of life may vary between countries due to differences in lifestyles and cultures. This is also likely due to differences in women's preferences regarding their sexual activities and their relationship with their sexual partner, which are related to social and cultural values. In this study, the significant average frequency of sexual intercourse over the past 1 month was 1.1 ± 1.8 ; 0.2 among women with FSD and 3 among women without FSD. This finding could reflect the participants' responses to the subdomains of arousal, lubrication, orgasm, satisfaction, and pain score.

To measure FSD among study participants precisely, we used the MVFSFI, a validated scale in Malaysia. The data from the study revealed that almost 7 out of 10 females aged 50 years or older who attended outpatient clinic had FSD. Our study reported that the prevalence of FSD among middle-aged women was 69%, a value that was much higher than in other studies conducted in Malaysia. In a similar study in Malaysia, the prevalence of FSD was reported to be 29.6% among females aged 18–70 years in an outpatient clinic.¹² The possible explanation for these results was that most of the respondents were younger than 50 years old, whereas, in our study, the mean age of the respondents was older (39.2 years vs 60.6 years).

With a higher prevalence of FSD (68.8%), this study clearly showed that the problem of FSD among women who visited outpatient clinics requires increased attention from physicians. Although earlier reports mentioned that the prevalence of FSD among the female population in Asia was high, their willingness to seek treatment and follow-up was much lower.^{7,13} In Asia, including Malaysia, the perceptions and culture prevents people from openly discussing their sexual issues, even with their physician.^{14,15} Their sexual issues are not explicitly addressed in clinics, as many female patients believe that their sexual issues are not important in the later stages of life.

Reports suggest that FSD occurs more often in women with diabetes mellitus¹⁶ and hypertension.¹⁷ The presence of diabetes mellitus could affect both psychological and physiological factors in women.¹⁶ Evaluation of FSD in women older than 50 years of age depends on various factors, such as study

design, hormonal status, and geographical location, and cannot be definitively measured¹⁸; therefore, FSD must be addressed during patient interactions. To manage FSD early, physicians need to identify FSD and recognise comorbidities, such as diabetes and hypertension. Surprisingly, there was no association between FSD and either diabetes or hypertension in our study. The possible explanation for this finding could be that the frequency of lubricant use was similar between women with and without diabetes mellitus (12.2% and 10.5%, respectively) and between women with and without hypertension (9.4% and 12.5%, respectively). Therefore, diabetes and hypertension were not associated with FSD in our study. Moreover, it was reported that hypertension was associated with FSD due to hypertensive women had decreased vaginal lubrication as compared with normotensive women.¹⁹

Desire dysfunction appeared to be the most common subscale issue (85.2%) among the participants, as compared with other subscales: arousal disorder (71.1%); lubrication disorder (66.9%); orgasm disorder (60.8%); satisfaction issue (74.9%) and pain disorder (61.2%). This value was significantly higher than in previous global studies, where the frequency of desire dysfunction was between 24% and 36%.^{5,20} Nonetheless, desire dysfunction is the most prevalent sexual disorder among women who are diagnosed with FSD.²¹ Desire dysfunction in women with FSD is correlated with age, educational, economic and marital status.²² The high frequency of desire dysfunction reported in our study may indicate the issues faced by married women in Malaysia. In Malaysia, sharing the details of couples' intimate relationships with others goes against cultural values¹⁴; therefore, most women, especially those who are in a later stage of married life, restrict themselves from expressing their sexual desires to their partners. In addition, women in Malaysia are often too embarrassed to talk openly about their sex lives with anyone, including their physicians, as they are concerned about confidentiality. Another possible factor could be societal stereotypes, which suggest that sexual life should decrease with age, and that any older person exhibiting sexual interests should be labelled as aberrant, especially elderly women.⁷

Satisfaction dysfunction was the second most common disorder among participants. Sexual satisfaction, a significant element of sexuality

associated with human well-being,⁵ contributes to both physical and psychological health.²³ The high frequency of satisfaction dysfunction could be due to physiological changes, including hormonal changes, in women. The results also showed that the patients had issues with arousal, lubrication, pain, and orgasm, which represent the most common patterns of FSD. Satisfaction dysfunction in Asian women could also be associated with the man's ability to become erect, maintain his erection, and the erection hardness.²⁴ Another possible factor could be less physical contact and decreased duration of sexual foreplay, which both increase satisfaction dysfunction.²⁵ The study also reported that the associated sexual problems of arousal, lubrication pain, and orgasm depended on individual sensitivity to sexual stimulation.²⁶

FSD in participants was associated with various demographic characteristics, particularly ethnicity. More Indian females had FSD than the other ethnicities in this study. This finding contradicts a previously published study, which reported Malay ethnicity as a risk factor for FSD.¹³ The rate of FSD has been associated with older age and menopause, higher education level, longer duration of married life, having more children, and having an older husband.^{9,13,27,28}

Lifestyle parameters play an important role in FSD and vary between different ethnic groups.¹⁰ Cultural attitudes and beliefs can possibly influence a patient's help-seeking behaviour for their sexual difficulties.¹⁰ This may be the reason for the varying prevalence rates of FSD among participants.

Interestingly, this study revealed that a higher frequency of sexual intercourse was associated with a lower risk of having FSD. Gillespie[#] reported that older adults who had sexual intercourse more often were more active in their sex lives.²⁹ The ideal frequency of sexual

intercourse varies between individuals, and it depends on several factors, such as age, sociocultural factors, and desire.³⁰

There are a few limitations to this study. First, the results may not be generalisable to all women in Malaysia, as the study site was conducted at an outpatient clinic in a tertiary hospital. This study did not combine any data from earlier studies to compare the associations between the socio-demographic profiles and FSD of Malaysian women. The exclusion of the participants' sexual partners in the understanding of FSD was also one of the limitations. Therefore, we must interpret the results of this study cautiously in consideration of its constraints.

A flexible approach is one of the cornerstones of effective treatment of FSD. The prevalence of FSD was high among Malaysian women over 50 years old who visited an outpatient clinic. Therefore, physicians in healthcare settings must focus on screening for FSD when they have female patients over 50 years of age. Future research should focus on how the cultural attitudes and beliefs of Indian women influence their help-seeking behaviour for sexual dysfunction, and what type of awareness programmes could impact the sex lives of older women.

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Conflicts of interest

The authors declare that there are no competing interests.

How does this paper make a difference in general practice?

- Female sexual dysfunction affects quality of life, especially in older women.
- A higher frequency of sexual intercourse is correlated with a lower risk of developing female sexual dysfunction.
- Indians in Malaysia having a lower frequency of sexual intercourse are predictors for female sexual dysfunction.
- This study may pave the way for future intervention studies on FSD in Malaysian elderly subjects, particularly in Indian ethnicities.

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