# Prevalence and characteristics of female sexual dysfunction among a sample of Egyptian women

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## **Abstract**

**BACKGROUND:** Reports from Egypt on the prevalence and risk factors of female sexual dysfunction (FSD) are scant.

**AIMS:** To determine the prevalence and risk factors for FSD.

**SETTINGS AND DESIGN:** A cross-sectional survey was conducted in eight family planning clinics in Alexandria, Egypt.

**MATERIALS AND METHODS:** A total of 693 women aged 17 - 54 years old were interviewed on several aspects of FSD including desire, arousal, pain and orgasmic disorders (OD). Criteria of sexual dysfunction followed classification by DSM-IV. The sexual dysfunction was evaluated by a translated version the Female Sexual Function Index (FSFI). Data on medical history, toxic habits and current use of medication were also obtained.

**RESULTS:** FSFI total scores suggested FSD in more than half of the women surveyed (53.7%). Domain scores suggestive of sexual difficulties ranged from the highest prevalent difficulty related to desire (82.2%) to the least prevalent one of poor satisfaction (33.4%). Age above 40 years (odds ratios [OR] 3.1; 95% CI 1.9to 4.8), fewer years of education (OR 2.0; 95% CI 1.3 to 3.2) and having fewer number of sexual intercourse per week (OR 4.6; 95% CI 3.0 to 6.9) were the potential predictors for the presence of possible FSD among the current sample after using logistic regression. Results showed that 84.1% of the women surveyed had never sought professional consultation for their sexual problems.

**CONCLUSIONS:** Female sexual dysfunction is highly prevalent in the clinic setting, particularly among women above 40 and those who were less educated.

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## Introduction

Female Sexual dysfunction (FSD) is defined as a disturbance in or pain during the sexual response. There are four major categories of FSD: sexual desire disorders, sexual arousal disorders, orgasmic disorders, and sexual pain disorders. A woman can be considered sexually dysfunctional if she has one or more of these disorders and if she feels uncomfortable about them. (1) Surveys done in the US and Europe have identified that FSD is strikingly prevalent. (2,3) However, epidemiological investigations regarding the prevalence and factors associated with FSD from developing countries are limited. (4,5) By some estimates, as many as four in ten women experience at least one sexual concern. (3,6) There are many methods to evaluate FSD in clinical and research settings, including questionnaires, structured interviews, and detailed case histories. Among these, questionnaires have become an easy first choice to screen individuals into different categories of FSD. (7)

Several factors may contribute to sexual dysfunction (SD) including physical conditions, hormonal change, psychological and social factors. (8)

Female sexual dysfunction is a prevalent health problem that has been inadequately investigated in the Arab world. In Egypt, literature on the prevalence of sexual dysfunction among women is scant. (9,10) Moreover, the utility of the FSFI has not yet been documented in this population. Hence, the objective of the present research was to assess sexual function among middle-aged women using the FSFI and to determine associated risk factors for sexual dysfunction.

## **Materials & Methods**

A cross-sectional clinic-based study was done included sexually active women (married women) in the reproductive age group who were attending eight family planning clinics in Alexandria, Egypt. Women were chosen by systematically selecting every fourth woman. The sample size was determined using Epi Info version 6 (CDC, Atlanta, GA, USA). Considering an approximate prevalence of FSD of 53% (10), taking a 95% confidence interval and a degree of precision of 0.05, this gives a minimum sample size of 594 participants. A total of 720 women were chosen to increase the statistical reliability of the study. However, 27 women declined to participate, which gave a response rate of 96.3%. The final sample size interviewed was 693. This number was proportionally allocated to the six selected clinics, one from each district in Alexandria Governorate.

## **Data collection**

After reviewing the available literature, a pre-tested, structured interview questionnaire was used. In addition to investigating the socio-demographic characteristics, sexual and reproductive histories, the questionnaire included a translated version of the Female Sexual Function Index (FSFI). An Arabic Version of the FSFI questionnaire was developed and checked through forward then backward translation by qualified translators. Then it was subjected to a pilot testing on 20 patients and some wording of it was modified accordingly. The FSFI is a valid and accurate measure of the female sexual function during the previous 4 weeks. This questionnaire comprises of 19 questions that evaluate six different domains of sexual function including desire, arousal, lubrication, orgasm, satisfaction and pain. The answer is rated on a 5-point Likert scale between 0 and 5. Each domain score was obtained by adding individual items of the domain and multiplying this result by the domain factor (i.e. desire, 0.6; arousal and lubrication, 0.3; orgasm, satisfaction and pain, 0.4). (11)

The FSFI total score is determined by the sum of the six domains. The score varies from 2 to 36, where higher scores are associated with the lower degree of SD. Since a total score of 26.5 is the cutoff point for women with SD (12), the present study considered patients that were scored 26.5 and under as presenting the disorder.

Women were interviewed by female researchers at a private room to ensure privacy. The aim of the study was explained to all participants and only volunteered responses were recorded. This study conducted after taking the approval of the Research and Ethical Committee of the High Institute of Public Health, Alexandria University.

# **Statistical Analysis**

Data entry and analysis were carried out using SPSS version 16 (SPSS Inc., Chicago IL, USA). Univariate analysis was performed with  $\chi 2$  test and student t-test whenever applicable. Logistic regression analyses were used to identify variables that were significantly related to FSD. The outcome variable was having FSD, with considering women's age, education, number of deliveries, husband's age duration of marriage, frequency of sexual intercourse as covariates (significant variables by univariate analysis).

## **Results**

# Sample characteristics

Regarding the baseline characteristics of the studied sample, women's age ranged from 17 to 54 years, with a mean age of  $34.1\pm8.9$  years. Nearly half of the women were married at age 20-29 years (47.5%). The highest proportion of women (28.8%) reported that they had been married for five years or less. Secondary educated women had the highest proportion among other levels constituted 37.4% of the women, followed by those who did not have any formal education (30.9%). As for the working status, more than one third of the women were working for cash (37.2%). Demographic data are not shown in the tables.

# **Prevalence of FSD**

Using the pre-determined cut off scores, 53.7% of women in this sample had total FSFI scores suggestive of FSD. Domain scores suggestive of difficulties ranged from the highest prevalent difficulty related to desire (82.2%) to the least prevalent one of poor satisfaction (33.4%). Prevalence of Domain scores suggestive of Dysfunction is shown in Fig 1.

Table 1 displays the numbers and proportion of women with FSFI scores suggesting FSD and difficulties in the various domains in those above and below 40 years of age. Overall FSD, as indicated by the total FSFI scores, was more common in women older than 40 years than in those younger than 40 years (76.2% vs. 43.9%; P<0.001).All categories of difficulties were significantly more prevalent in older than in younger women.

The mean global FSFI score and subscale scores of all domains were found significantly lower in the group of women with FSD than the other women surveyed. The mean total FSFI score was found to be 19.9±5.5 in women who met the criteria for FSD on FSFI while this mean score was significantly higher (t=28.9, P<0.001) in the group of women without FSD (29.2±1.8), data were not shown in tables.

## **Risk Factors for FSD**

Univariate analysis of the risk factors associated with FSD is shown in Table 2. Women with FSD were significantly more likely to be older than 40 years ( $\chi$ 2=61.4, P<0.001); to have lower educational level ( $\chi$ 2=14.1, P=0.002); have sexual intercourse fewer than 3 times a week ( $\chi$ 2=94.0, P<0.001); have been married for 10 years or more ( $\chi$ 2=12.71, P=0.026); and to have 4 or more children ( $\chi$ 2=12.4, P<0.001). There was no significant difference between women with FSD and women without FSD in their working status ( $\chi$ 2=0.15, P=0.37); circumcision status ( $\chi$ 2=2.37, P=0.08); or use of contraception ( $\chi$ 2=1.16, P=0.20). However, after adjusting for confounders, logistic regression independently identified age above 40 years (adjusted OR 3.1; 95% CI 1.9 to 4.8); fewer years of education (adjusted OR 2.0; 95% CI 1.3 to 3.2) and having fewer number of sexual intercourse per week (adjusted OR 4.6; 95% CI 3.0 to 6.9) as potential predictors for the presence of possible FSD. Number of deliveries, husbands' age and years of marriage did not emerge significant in logistic regression as contributory (Table 3).

Table 4 presents the help-seeking behavior and reasons for not seeking help for FSD. In general, 583 women (84.1%) had never sought professional consultation for their sexual problems. Women reported their preferences for seeking help or advice for their sexual problems to seek advice from their families (76.3%), then from medical personnel (a doctor or a nurse: 19.5%). Nearly half of the sampled women who sought medical help reported that doctor had explained briefly in response to their problems (51.8%). Based on the results, four in ten of the women

believed that their doctor explained in details and helped them. The most reported reasons for not seeking help were: 'Embarrassment' (66.7%) and 'Think the doctor cannot help' (8.9%).

Table 1: Prevalence of FSD based on total scores on the female sexual function index and problems in individual domains among the sampled women

Age in years	FSD	Low desire	Low arousal	Poor lubrication	Lack of orgasm	Lack of satisfaction	pain
All ages (N= 693)	372 (53.7)*	570 (82.2)§	458 (66.1) ¶	320 (46.1)	321 (46.3) ^	232 (33.4) #	302 (43.5)\$
< 40 (N= 483)	212 (43.9)	374 (77.4)	271 (56.1)	161 (33.3)	179 (37.1)	145 (30.0)	78 (37.1)
$\geq 40$ (N= 210)	160 (76.2)	196 (93.3)	187 (89.0)	159 (75.7)	142 (67.6)	87 (41.4)	224 (46.3)

N= number in all age groups; Number in columns 2-8 are the number of women with possible FSD or low domain score (below the cutoff value) of the FSFI in corresponding age categories and percentage between (%);  $^*P<0.001$ ;  $^$ 

Confidence Interval (CI) for FSD; 49.96- 57.37, Desire: 79.27- 84.96, arousal: 62.5- 69.54, lubrication: 42.48- 49.9, orgasm: 42.63 - 50.04, satisfaction: 30.04- 37.06 and pain: 39.92 - 47.29.

Table 2: Baseline Characteristics of women with FSD

Variable	Women with FSD (n=372)	Women without FSD (n=321)	χ2	P value
Age (year)			61.4	<0.001
< 40	212 (43.9)	271 ( 56.1)		
≥40	160 (76.2)	50 (23.8)		
<b>Education level</b>			14.1	0.002
No formal education	136 (63.6)	78 (36.4)		
Primary school	60 (55.0)	49 (45.0)		
Secondary & Graduates	176 (47.6)	194 (52.4)		
Women's Work			0.15	0.37
Working	136 (52.7)	122 (47.3)		

Not Working	236 (54.3)	199 (45.7)		
Circumcision	, ,	, ,	2.37	0.08
Yes	344 (54.6)	286 (45.4)		
No	28 (44.4)	35 (55.6)		
<b>Contraception use</b>			1.61	0.20
Yes	56 (48.3)	60 (51.7)		
No	316 (54.8)	261 (45.2)		
Parity	. ,	. ,	12.4	0.002
<4	273 (50.2)	271 (49.8)		
≥4	99 (66.4)	50 (33.6)		
<b>Duration</b> of marriage	, ,	, ,	19.6	< 0.001
(year)				
<10	81 (40.5)	119 (59.5)		
≥10	291 (53.7)	202 (46.3)		
Frequency of sexual			94.0	< 0.001
intercourse per week				
< 3	321 (65.5)	169 (34.5)		
≥3	51 (25.1)	152 (74.9)		
Age of husbands (year)			28.6	< 0.001
< 40	120 (41.7)	168 (58.3)		
≥40	252 (62.2)	153 (37.8)		

FSD Female Sexual Dysfunction

Values are given as number (percentage), calculated as row percentages.

Table 3: Logistic regression of potential risk factors in women for FSD as suggested by total scores on the Female Sexual Function Index

Variable	Adjusted odds ratios (95% CI)	P value
Age (year)		<0.001
< 40	1	
≥40	3.1 (1.9- 4.8)	<0.001
Education		
None	2.0 (1.3-3.2)	<0.001
Primary	1.8 (1.1-2.1)	0.01
Secondary	1.4 (1.03-1.4)	< 0.05
Graduate	1	
Number of deliveries		
<4	0.8 (0.54-1.41)	0.50
≥4	1	
<b>Duration of marriage (year)</b>		

<10	0.8 (0.55-1.3)	0.56
≥10	1	
Frequency of sexual		
intercourse per week		
< 3	4.6 (3.0-6.9)	<0.001
≥3	1	
Age of husbands (year)		
< 40	0.9 (0.61-1.44)	0.77
≥40	1	

FSD, Female Sexual Dysfunction; Abbreviations: OR, Odds Ratio; CI, Confidence Interval.

Table 4: Help-seeking for FSD

Variable	No.	%
Ever sought doctors help for sexuality problems		
Yes	110	15.9
No	583	84.1
They usually seek help or advice for their sexual problem from#		
Family or social support (mothers, husbands, sisters)	529	76.3
Medical care (doctor or nurse)	135	19.5
Looking for information the media (internet,	29	4.2
magazine,)		
Doctors response for those who sought help		
Doctor explained briefly	57	51.8
Explained in details and helps me	46	41. 9
The doctor ignored it	7	6.3
Reasons for not seeking doctor's help for sexual problems (1	n=583)*	
Embarrassment	389	66.7
Think doctors cannot help	52	8.9
lack of perception of the problem	39	6.6
Thought the issue is not a medical problem	41	7.1
I was not asked about my problem during my routine	6	1
visit(s)		
Important to have a female doctor	64	10.9
Affordability of medical care	40	6.8

<sup>\*</sup> Multiple answers were allowed

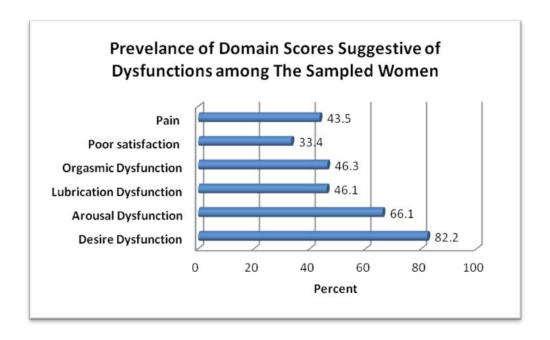


Fig. 1: Prevalence of Domain scores suggestive of Dysfunction among the sampled women.

## **Discussion**

Despite increasing scientist interest in FSD, its true prevalence in the general population remains a contentious issue with few published community based studies.(3,13) One reason is the great deal of variation in the published prevalence estimates of FSD, with large differences in its prevalence reported between countries. (14)

The present study presents epidemiological data on the prevalence and risk factors of FSD in a sample of women from Egypt. It highlights the high prevalence of SD among the women studied (53.9%) and the importance of investigating sexual function among women attending the family planning clinics. This figure is somewhat consistent with that of Elnashar et al. (2003) who performed a cross-sectional questionnaire survey on 936 women attending women health clinics in Lower Egypt and found that 68.9% of women in their sample had one or more sexual problems. (10) This variation in the FSD rates reported by both Elnashar study and the current study might be due to the way FSD is measured in both studies. Another study conducted to measure FSD among women attending outpatient clinics in Upper Egypt found a higher prevalence of FSD among this sample of women (76.9%). Women from Upper Egypt had somewhat different demographic and cultural characteristics than their counterparts in Lower Egypt which is partly explains the variation in the reported FSD rates than the current study. In addition, both studies used different tools for measuring the FSD. (15) The estimates of FSD ranged from 19 to 50% in 'normal outpatient populations. (16,17) These variations may reflect

medical and psychological factors, particularly in the setting of possible socio-economic and cultural differences, the clinical definition used for each dysfunction, methodology used in data collection and the characteristic of samples studied (general population or gynecology clinics). (5) In addition, lack of standardization of outcome measures is an important issue in the FSD literature which has been raised by previous authors. (13) On the other hand, the results of hospital based studies from the developing world (9,18), especially those that used the FSFI (19,20), reveal prevalence rates for FSD ranging from 43 to 69%.

Socio-cultural and methodological issues have great influence over the prevalence and contributory factors of FSD worldwide (17, 19). Among the current sample, the prevalence of FSD increased from 43.9% in those below 40 years to 76.2% in the age group of 40 years and above. The prevalence of all SDs increases as the women become older. The results suggest that this increase might be associated with the increasing demands of growing children and running an expanding family. This increase in prevalence with age was also seen for each category of sexual difficulty assessed by the FSFI. Our findings correlates well with that of Cayan et al., who studied a sample of Turkish women living in households aged 18–66 years using the FSFI. The prevalence of FSD increased from 22% in those aged 18–27 years to 66% in those aged 48–57 years. (21)

The educational level of the couple, and particularly whether they had not received any formal education, was correlated with the incidence of sexual problems among the current sample. This higher incidence of SD in less educated women is really not unexpected. In agreement with the current study, studies from India & Brazil suggested that the prevalence of FSD rises with woman's lower education attainment. (20,22,23) However, some other research from developing countries reported an association between higher education and the reported rates of FSD. (4,18)

Not surprising, the present findings show that 84.1% of the surveyed women had never sought professional consultation for their sexual problems. Our data is somewhat consistent with the results of Berman et al. (24) who reported that 40% of women did not seek physician help for their SDs. The low rate of direct complaints about sexual problems among women in this study might reflect cultural factors, such as shyness and embarrassment. This was reflected well by what the majority of participating women mentioned as their main reason for not seeking medical care for their sexual dysfunctions.

The current findings have revealed that among women, an attempt to seek medical help for sexual problems has been only 19.5%. A similar figure was reported by Moreira et al. among the women they surveyed. (25)

The most reported reasons by the women in our sample for not consulting a doctor about sexuality problems were: 'Embarrassment' and 'Thinking the issue is not a medical problem'. It seems these reasons indicate that women with FSD may not consider their problem serious.

Similarly, studies have found that not feeling on the severity of the sexual problems may deter individuals discussing their sexual difficulties. (13,26) In addition, the idea that 'the sexual problem was a normal part of getting older/ being comfortable the way I am' were commonly cited reasons by women in Moreira et al study. (25)

# **Strengths & Limitations**

This study tackled FSD which is a prevalent, however, infrequently investigated among Arab women generally. Conducting the study in a family planning clinic (only women are allowed there), helped women to speak up freely and talk about many of the culturally sensitive aspects in this study. The results of the present study should be interpreted with recognition of its limitations. The study group consisted of women who attended an outpatient clinic, which may not be representative of the community. Community-based sampling may not be possible because of the sensitivity of the topic at our culture. The study included married women and excluded unmarried women (because of cultural barriers) and women who were separated or divorced (because of the similar cultural barriers that prohibit a woman who is supposedly sexually inactive to talk about sexuality). Women who were separated or divorced may be more at risk of FSD, which may have falsely raised the prevalence of FSD if they were included.

Moreover, only a limited number of risk factors were assessed due to concerns about the length of interviews. As the questionnaire we used relies on self-reported data, it might be subjected to recall and desirability bias.

Further in-depth qualitative research is needed to help in understanding the many vague areas of FSD, its predictors and women's health seeking behaviors associated with it among Egyptian women.

In conclusion, FSD is common among Egyptian females, especially those over 40; however, they do not seek medical advice to help them. Further policies and service provision concerning women health should consider and tackle these issues.

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The authors would like to dedicate this paper to late Dr Amina Abdou, and Dr Mona Shama. Both were concerned about women health. Actually, Dr Amina Abdou initiated this research for her doctor degree in Public health, and Dr Mona Shama shared in this research. Unfortunately, they both lost their battle against breast cancer.

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