



## Female Sexual Dysfunction in Subfertility Patients vs. Those Seeking Fertility Control

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### ABSTRACT

**Background:** Female Sexual Dysfunction (FSD) and subfertility are common problems affecting approximately 43% and 20% of women respectively. Studies on the association of female sexual dysfunction and infertility are not much. The presented study compares the prevalence of female sexual dysfunction in patients on assessment for sub-fertility and those either seeking or already on fertility control services at a private sonolive clinic in Benha. **Methods:** This was an analytical cross-sectional study. Eligible women of reproductive age (20-43 years), attending the private sonolive infertility clinic in Benha Egypt in the period from January 2019 to July 2020 with complaints of subfertility, and those seeking fertility control services (as controls) were requested to fill a general demographic tool containing personal data and the Female Sexual Function Index (FSFI) questionnaire after informed consent. Sexual dysfunction was calculated as a percentage of patients not achieving an overall FSFI score of 26.55. **Results:** The prevalence of female sexual dysfunction was 45% in the sub-fertile group and 35% in the fertility control group. The difference was statistically significant ( $p=0.006$ ). The important affected items were desire and lubrication also infrequent coitus in the fertility window. **Conclusion:** The present study demonstrated a significant association between fertility status and the prevalence of female sexual dysfunction. Subfertility type was associated with sexual dysfunction especially the desire and lubrication which affect the whole score of sexual dysfunction.

**Keywords:** Female sexual dysfunction, Sub-fertility, Fecundity, Contraception

### INTRODUCTION

Sexual function plays a central role in the biopsychosocial wellbeing and quality of life of human beings [1].

Sexuality is a complex issue and implies the interaction of the physical, economic, religious, psychological, and emotional factors [2,3].

Personal perspectives of sex are derived from personal social religious philosophical and historical perspectives and the most important is the intimate relationship with the partner.

Sexuality in females is intermingled with preliminaries to be good; preliminaries include mental containment, emotional containment, and financial containment, and lastly, the physical containment in man sexuality is mostly physical.

Female Sexual Dysfunction (FSD) is defined as a disorder of sexual desire, arousal, orgasm, and sexual pain that results in significant personal distress [4-6].

Medical conditions, including cancer, kidney failure, multiple sclerosis, heart disease, and bladder problems, can lead to sexual dysfunction.

Medications, including some antidepressants, blood pressure medications, antihistamines, and chemotherapy drugs, can decrease your sexual desire.

The postmenopausal low hormonal status may lead to changes in lower genital tissues and sexual responsiveness. Low estrogen leads to decreased blood flow to the pelvic region, which can result in less genital sensation, more time to build arousal and reach orgasm.

The vaginal lining also becomes thinner and less elastic, particularly if you're not sexually active. These factors can lead to painful intercourse (dyspareunia). Sexual desire also decreases when hormonal levels decrease.

Untreated anxiety or depression can cause or contribute to sexual dysfunction, as can long-term stress and a history of sexual abuse. The worries of pregnancy and demands of being a new mother may have similar effects.

Long-standing conflicts with the partner about sex or other aspects of a relationship can diminish sexual responsiveness as well. Cultural and religious issues and problems with body image also can contribute.

Sub-fertility is a significant life stressor and might negatively impact sexual function.

The sub-fertile couple is more prone to depression, anxiety, and stress, the increased stress levels would adversely affect the marital satisfaction and adversely affect their sexual health [7].

Sexual dysfunction might result in decreased coital frequency compounding the issue of subfertility due to reduced exposure. On the other hand, the psychological pressure to get pregnant stemming from sex on demand could result in a reduction in enjoyment of sex aggravating sexual dysfunction.

Situational sexual dysfunction and loss of a couple's intimacy may occur as a consequence of timed intercourse where the focus for coitus is no longer pleasure but conception. Therefore, the relationship between subfertility and sexual function might be bidirectional and need to be addressed for adequate management of either problem. Early diagnosis and treatment of sexual dysfunction among this group of patients might improve outcomes of subfertility treatment [8,9].

## METHODS

### Objective

To compare the prevalence of sexual dysfunction, as measured by the FSFI-Q, between sub-fertile cases and those either seeking or on various contraceptive methods.

### Study Design

This was a case-controlled study.

### Study Setting and Participants

The study was conducted at the sonolive clinic a private clinic in Benha, Egypt. Both new and old patients on various stages of fertility assessment or treatment and those presenting for or already on a contraceptive method were approached and assessed for eligibility.

A sub-fertile patient was defined as one with the inability to conceive after at least 12 months of regular unprotected coitus, participants given written consent and asked to sign for approval of the questionnaires.

### Inclusion Criteria

Women 18-43 years of age attending the gynecology outpatient sonolive clinic in Benha city Egypt with subfertility and those either seeking or already on a contraceptive method who were sexually active in the preceding 4 weeks.

### Exclusion Criteria

Local gynecological and obstetric conditions like pregnancy, puerperium, gynecologic conditions like malignancies, fistula, urinary and fecal incontinence, and chronic pelvic pain, genital prolapse, and lower genital tract abnormality.

General systemic diseases that adversely affect sexual function like diabetes, hypertension, endocrine disorders, and psychiatric illnesses and those who previously had pelvic floor surgery were excluded due to the probable effect on sexual function.

### Study Procedures and Tools

Patients attending the gynecology clinic with subfertility and those presenting for or already on contraception were approached by the principal investigator.

Eligible participants were then requested to fill the two data inquiries, the FSFI-Q, and the demographic inquiry, after an explanation and giving informed consent.

Epidemiological inquiry about age, parity, and weight frequency of coitus, some of these included the partner's age, educational level, marital status, contraceptive use, substance abuse, history of sexual abuse, and also domestic violence.

Sexual function was measured using the domains in the FSFI-Q with those with overall scores below 26.55 being considered to have impaired sexual functioning. None of the approached participants declined to take part in the study.

### Sample Size

A hundred cases seeking fertility service enrolled in the study from the sonolive clinic a private gynecology clinic in Benha city, Egypt, and one hundred controls from those attending the clinic searching for fertility control.

### Data Management and Analysis

Data values were expressed as mean±SD, count (%), and odds ratio.  $p < 0.05$  was considered statistically significant. Data analysis was performed using the smith statistical package.

### Ethical Considerations

Patient confidentiality and privacy was maintained during the entire study period with the use of number identifiers alongside safe and restricted data storage and written consent given to be signed for approval.

### The Female Sexual Function Index Questionnaire (FSFI-Q)

The FSFI-Q is a multidimensional self-report tool for assessing key dimensions of female sexual functioning over the preceding 4 weeks. This standardized questionnaire described by Rosen and colleagues consists of 19-items that assess six domains of female sexual functioning [10,11]. The domains include sexual desire (items 1 and 2), arousal (items 3-6), lubrication (items 7-10), orgasm (items 11-13), satisfaction (items 14-16), and sexual pain (items 17-19). Each of the items has a Likert scale score ranging from 0 to 5 and each of the 6 domains' scores are calculated by adding the scores of the individual items that comprise the domain and multiplying by a respective domain factor which homogenizes each dimension's influence (Table 1).

The full scale or total FSFI score ranges from 2 to 36 and is the sum of all the scores in the six domains. Scores more than 26.55 considered satisfactory and those below this figure considered having sexual dysfunction [10,11] (Table 2).

**Table 1 Female Sexual Function Index-Questionnaire (FSFI-Q)**

Question	Response Options
Over the past 4 weeks, how often did you feel sexual desire or interest?	5=Almost always or always 4=Most times (more than half the time) 3=Sometimes (about half the time) 2=A few times (less than half the time) 1=Almost never or never
Over the past 4 weeks, how would you rate your level (degree) of sexual desire or interest?	5=Very high 4=High 3=Moderate 2=Low 1=Very low or none at all
Over the past 4 weeks, how often did you feel sexually aroused ("turned on") during sexual activity or intercourse?	0=No sexual activity 5=Almost always or always 4=Most times (more than half the time) 3=Sometimes (about half the time) 2=A few times (less than half the time) 1=Almost never or never

Over the past 4 weeks, how would you rate your level of sexual arousal ("turn on") during sexual activity or intercourse?	0=No sexual activity 5=Very high 4=High 3=Moderate 2=Low 1=Very low or none at all
Over the past 4 weeks, how confident were you about becoming sexually aroused during sexual activity or intercourse?	0=No sexual activity 5=Very high confidence 4=High confidence 3=Moderate confidence 2=Low confidence 1=Very low or no confidence
Over the past 4 weeks, how often have you been satisfied with your arousal (excitement) during sexual activity or intercourse?	0=No sexual activity 5=Almost always or always 4=Most times (more than half the time) 3=Sometimes (about half the time) 2=A few times (less than half the time) 1=Almost never or never
Over the past 4 weeks, how often did you become lubricated ("wet") during sexual activity or intercourse	0=No sexual activity 5=Almost always or always 4=Most times (more than half the time) 3=Sometimes (about half the time) 2=A few times (less than half the time) 1=Almost never or never
Over the past 4 weeks, how difficult was it to become lubricated ("wet") during sexual activity or intercourse?	0=No sexual activity 1=Extremely difficult or impossible 2=Very difficult 3=Difficult 4=Slightly difficult 5=Not difficult
Over the past 4 weeks, how often did you maintain your lubrication ("wetness") until completion of sexual activity or intercourse?	0=No sexual activity 5=Almost always or always 4=Most times (more than half the time) 3=Sometimes (about half the time) 2=A few times (less than half the time) 1=Almost never or never
Over the past 4 weeks, how difficult was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse?	0=No sexual activity 1=Extremely difficult or impossible 2=Very difficult 3=Difficult 4=Slightly difficult 5=Not difficult
Over the past 4 weeks, when you had sexual stimulation or intercourse, how often did you reach orgasm (climax)?	0=No sexual activity 5=Almost always or always 4=Most times (more than half the time) 3=Sometimes (about half the time) 2=A few times (less than half the time) 1=Almost never or never
Over the past 4 weeks, when you had sexual stimulation or intercourse, how difficult was it for you to reach orgasm (climax)?	0=No sexual activity 1=Extremely difficult or impossible 2=Very difficult 3=Difficult 4=Slightly difficult 5=Not difficult

Over the past 4 weeks, how satisfied were you with your ability to reach orgasm (climax) during sexual activity or intercourse?	0=No sexual activity 5=Very satisfied 4=Moderately satisfied 3>About equally satisfied and dissatisfied 2=Moderately dissatisfied 1=Very dissatisfied
Over the past 4 weeks, how satisfied have you been with the amount of emotional closeness during sexual activity between you and your partner?	0=No sexual activity 5=Very satisfied 4=Moderately satisfied 3>About equally satisfied and dissatisfied 2=Moderately dissatisfied 1=Very dissatisfied
Over the past 4 weeks, how satisfied have you been with your sexual relationship with your partner?	5=Very satisfied 4=Moderately satisfied 3>About equally satisfied and dissatisfied 2=Moderately dissatisfied 1=Very dissatisfied
Over the past 4 weeks, how satisfied have you been with your overall sexual life?	5=Very satisfied 4=Moderately satisfied 3>About equally satisfied and dissatisfied 2=Moderately dissatisfied 1=Very dissatisfied
Over the past 4 weeks, how often did you experience discomfort or pain during vaginal penetration?	0=Did not attempt intercourse 1=Almost always or always 2=Most times (more than half the time) 3=Sometimes (about half the time) 4=A few times (less than half the time) 5=Almost never or never
Over the past 4 weeks, how often did you experience discomfort or pain following vaginal penetration?	0=Did not attempt intercourse 1=Almost always or always 2=Most times (more than half the time) 3=Sometimes (about half the time) 4=A few times (less than half the time) 5 = Almost never or never
Over the past 4 weeks, how would you rate your level (degree) of discomfort or pain during or following vaginal penetration?	0=Did not attempt intercourse 1=Very high 2=High 3=Moderate 4=Low 5=Very low or none at all

Table 2 Female Sexual Function Index (FSFI) scoring

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 (or 1)-5	0.4	0.8	6.0
Pain	17, 18, 19	0-5	0.4	0	6.0
Full-scale range score				2.0	36.0

## RESULTS

A total of 200 women were recruited by convenience sampling over the study duration (January 2019 to July 2020).

Of these, 100 had presented with subfertility and were at various stages of fertility assessment while the other 100 had presented for fertility control.

No significant difference regarding the epidemiological data in the cases and the control group.

The sub-fertile and fertility control subjects did not differ significantly in terms of Body Mass Index (BMI), previous miscarriage, an education level (Table 3).

**Table 3 Socio-demographic characteristics of the sub-fertile and fertility control subjects**

Variable	Sub-fertile cases	Fertile controls	p-value
<b>Age</b>			
<b>Partner age</b>			
<40	59	55	0.5
>40	41	45	0.5
<b>BMI</b>			
Underweight (<18)	2	1	0.5
Normal weight (18-24.9)	30	35	0.4
Overweight	50	49	0.8
Obese (>30)	18	15	0.5
<b>Frequency of Coitus</b>			
Coitus out of the fertility window	66	43	0.001 (s)
<10 per month	62	55	0.3
>10 per month	38	45	0.3

The most significant result in this table is that about 66 patients from the sub-fertile group had sex out of the fertility window time.

Female Sexual Dysfunction (FSD) prevalence as per female sexual function index was 45% among the study subjects and 35% in the control fertility control group using a cut-off score of 26.55 on the FSFI-Q, the prevalence of female sexual dysfunction scores.

**Table 4 Overall sexual index Female Sexual Function Index (FSFI) questionnaire scores**

Variable	Sub-fertility cases	Fertility control	FSFI maximum score	p-value
Desire	3.5	3.9	6	0.001 (s)
Arousal	4.3	4.6	6	
Lubrication	3.5	4	6	0.0001
Orgasm	4.5	4.9	6	
Satisfaction	4.5	5	6	0.0001
Pain	4.6	4.8	6	0.1
Number of subjects with score >27	45	65 (only 35 with low score)	36	0.004

The most affected domains in both the subfertility and fertility control groups were desire and lubrication.

The proportion of those with sexual dysfunction in all the domains and total FSFI score was higher in the sub-fertility group than the fertility control group though none was statistically significant.

The prevalence of FSD in the primary and secondary sub-fertile women was 45 (n=45) and 35 (n=35) respectively which was significantly significant (p=0.004) (Table 4).

## DISCUSSION

Sexual dysfunction is a common problem that can negatively affect a woman's quality of life and interpersonal relationships.

This study demonstrated that 45% of the study participants had sexual dysfunction in the cases group with sub-fertility and seeking fertility and pregnancy while the prevalence in the control group on contraceptives or seeking contraception was 35% with a statistically significant difference p-value 0.006.

Among the sexual dysfunction, the most dominant in the study was having sexual intercourse out of the fertility window.

Also, the total score affected and the most important two factors were lubrication and desire. These findings are comparable to other studies showing a sexual dysfunction prevalence of 26%-28% among reproductive-age women [12,13].

Our study population included only reproductive-age women and had higher education attainment (90.3% had college-level education).

Advancing age and multiparty especially above 3 children associated with greater sexual dysfunction [14,15].

On the other hand, higher education has been shown in other studies to be protective of sexual dysfunction [16]. For instance, Safarinejad showed a prevalence rate of sexual dysfunction among Iranian women of 31.5% [13].

The study participants however included menopausal women (range 20-60 years) with only 38.8% having above high school education.

In Egypt, Ibrahim, et al. found a 52.8% prevalence of sexual dysfunction [17]. However, a majority (51.3%) were post-menopausal and 71% had undergone Female Genital Mutilation (FGM) hence the higher prevalence as advanced age adversely affects sexual function and possibly female FGM especially if type II or III [17].

The primary aim of our study was to compare the prevalence of sexual dysfunction between patients on follow up for sub-fertility and those seeking fertility control services, sexual dysfunction is a modifiable factor for female infertility by adjusting intercourse frequency in the fertility window, and by knowing the sexual behavior in sub-fertile cases we can modify the activity so this may help in increasing the fecundity rate.

We found a prevalence of sexual dysfunction of 45% in the subfertility and 35% in fertility control groups respectively.

A significant difference in the prevalence of sexual dysfunction between the sub-fertile groups had lower mean total FSFI and domain scores though only the satisfaction score was statistically significant from the fertility control group.

The decreased satisfaction is possibly due to low self-esteem and poor body image as a result of or as a cause of the sub-fertility and also the marital relationship especially with abusive husbands.

The psycho-social pressures to conceive stemming from "sex-on-demand" might result in loss of couple intimacy and this was an important factor for those with the low score; cases felt like they are more like machines more like a mechanism [14].

Studies on the association between subfertility and female sexual dysfunction have reported conflicting results.

Iris, et al. in their study (n=809) with 174 being sub-fertile, demonstrated a significantly greater prevalence of sexual dysfunction especially when the duration of subfertility was more than 4 years. But the fallacy in this study is the exclusion of women with secondary subfertility which is an important cause of sexual dysfunction [15].

Furukawa, et al. found no significant difference in the prevalence of sexual dysfunction between sub-fertile and fertile women [16].

The findings of lower total and individual domain FSFI scores among subfertility patients have also been reported in other studies [18,19].

Ashraf, et al. studied 384 Iranian women divided into two groups (fertile and sub-fertile). Using the FSFI, the mean sexual function scores were significantly lower in the sub-fertile group [20,21].

Tanha, et al. demonstrated significantly lower individual domain and total FSFI scores in the sub-fertile subjects in comparison with the controls [22].

Mirblouk, et al. found a significantly greater occurrence of sexual dysfunction among the sub-fertile subjects [18].

Millhisier, et al. found a significantly lower frequency of coitus among the sub-fertile groups [5].

Fataneh, et al. evaluated 608 married Iranian women aged (15-49) years (case group=306 and control=302), the case group on contraception. The study showed a significant impairment in sexual function in the case group though only 26.8% were on hormonal contraception pills [19].

Sexual dysfunction in the present study showed a significant association with subfertility which can be modified by psychological adjustment by enhancing marital relationship also by frequent coitus in the fertility window.

### CONCLUSION AND RECOMMENDATIONS

In conclusion, the present study demonstrated a significant association between fertility status and the prevalence of female sexual dysfunction. And there was a significant association between sexual dysfunction and subfertility it may be the cause and/or the result adjusting the modifiable factors in sexual intimacy maybe then enhance fecundity rate in sub-fertile cases.

### DECLARATIONS

Conflict of Interest: The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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