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RESEARCH ARTICLE

FEMALE SEXUAL DYSFUNCTION IN SUBFERTILITY PATIENTS VERSUS 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 association of female sexual dysfunction and infertility is not much .the presented study compare 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 subfertile group and 35% in 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 the fertility status and the prevalence female sexual dysfunction. Subfertility type was associated with sexual dysfunction especially the desire and lubrication which affect the whole score of sexual dysfunction.

Introduction:-

Sexual function plays a central role in the biopsychosocial wellbeing and quality of life of human beings **(1).** sexuality is complex issue and implies interaction of the physical, economic, religious, psychological and emotional factors **(2,3).**

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

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Sexualityin 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.

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

Subfertility isa significant life stressor and might negatively impact on sexual function.

Thesubfertile 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 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)**

Methodology:-

Objective:-

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

Study design

This was 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.

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

Inclusion criteria was
Women 18–43 years of age attending the gynaecology outpatient sonoliveclinic 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 was
Local gynecological and obstetric conditions like pregnancy,puerperium;,gynecologic conditions like malignancies, fistula, urinary and fecal incontinence, 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 taking part in the study.

Sample size
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 smith statistical package.

Ethical considerations
Patient confidentiality and privacy was maintained during the entire study period with use of number identifiers alongside safe and restricted data storage.and a 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 **(10, 11)**consists of 19-items that assess six domains of female sexual functioning. 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.

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)**

Female Sexual Function Index Scoring

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
7. 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
8. 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
9. 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
10. Over the past 4 weeks, how difficult was it to maintain your lubrication ("wetness") until completion of sexual	0 = No sexual activity 1 = Extremely difficult or impossible 2 = Very difficult

activity or intercourse?	3 = Difficult 4 = Slightly difficult 5 = Not difficult
11. 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
12. 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
13. 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
14. 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
15. 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
16. 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
17. 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
18. 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
19. 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

Domain	Questions	Score Range	Factor	Minimum Score	Maximum Score	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 Score Range				2.0	36.0	

Results:-

A total of 200 women were recruited by convenience sampling over the study duration (january2019 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 in the control group.

The subfertile and fertility control subjects did not differ significantly in terms of body mass index (BMI), previous miscarriage, education level.

Table 1:- Socio-demographic characteristics of the subfertile and fertility control subjects.

Vatiable	**Subfertile cases**	**Fertile controls**	**P value**
Age			
Partner age <40 >40	 59 41	 55 45	 0.5 0.5
BMI			
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
FREQUENCY OF COITUS			
Coitus out of the fertility window	66	43	0.001 (s)
<10 per month >10 per month	62 38	55 45	0.3 0.3

The most siginificant result in this table is that about 66 patients from the subfertile group had sex out of the fertility window time .

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

Table 2:- Overall sexual index (fsfi) questionnaire scores.

variable	Subfertility cases	Fertility control	Fsfimaximum 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 FSF score was higher in the subfertility group than the fertility control group though none was statistically significant .

The prevalence of FSD in the primary and secondary subfertile women was 45 (n = 45) and 35 (n = 35) respectively which was significantlysignificant (p = 0.004).

Discussion:-

Sexual dysfunction is a common problem which 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 subfertility and seeking fertility and pregnancy while the prevalence in the control group on contraceptives or seeking contraception was 35%with statistical 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 (2006) showed a prevalence rate of sexual dysfunction among Iranian women of 31.5%.

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. (2013) found a 52.8% prevalence of sexual dysfunction. However, 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 subfertility 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 subfertile cases we can modify the act 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.

Significant difference in the prevalence of sexual dysfunction between Thesubfertilegroup 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 subfertility 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 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. (2013) in their study (n = 809) with 174 being subfertile, demonstrated a significantly greater prevalence of sexual dysfunction especially when the duration of subfertility was more than 4 years. But the fallacy in this studyis exclusion of women with secondary subfertility which is an important cause of sexual dysfunction (**15)**

Furukawa et al. (2012) found no significant difference in the prevalence of sexual dysfunction between subfertile and fertile women **(16).**

The findings of lower total and individual domain FSFI scores among subfertility patients have also been reported in other studies **(21-22).**

Ashraf et al. studied 384 Iranian women divided in two groups (fertile and subfertile). Using the FSFI, the mean sexual function scores were significantly lower in the subfertile group **(18).**

Tanha et al., (2014) demonstrated a significantly lower individual domain and total FSFI scores in the subfertile subjects in comparison with the controls**. (20)**

Mirblouk et al., (2016) found a significantly greater occurrence of sexual dysfunction among the subfertile subjects **(21).**

Milheiser et al, found a significantly lower frequency of coitus among the subfertilegroups**(5).**

Fataneh et al. (2013) 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(**22)**

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

Conclusions And Recommendations:-

In conclusion, the present study demonstrated a significant association between the fertility status and the prevalence 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 may be then enhance fecundity rate in subfertile cases

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