Female Sexual Dysfunction before and after Diagnosis of Infertility

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Abstract

This study determined the prevalence, domain, and predictors of sexual dysfunction among 222 infertile women before and after Diagnosis of infertility in Ife East Senatorial district, Nigeria. They were interviewed using interviewer-administered questionnaire and Female Sexual Function Index assessment tool. Information about their sexual functions after marriage and before the couple started having difficulty in getting pregnant were obtained and compared with sexual functions after Diagnosis of infertility. Data management was done using SPSS Version22 and STATA 12. The Chi-square test was used to test associations. P-value of was set <0.05. Before infertility diagnosis, the prevalence of sexual dysfunction was 23.9%. After infertility diagnosis, this increased to 57.2%, P<0.001. The mean scores of female sexual function index for infertile patients were 29.57 ±5.10 before the infertility diagnosis but reduced to 24.42 ± 5.86 after infertility diagnosis P <0.001. The domain scores reduced after Diagnosis of infertility, and it shows statistical significance at P<0.001. Significant predictors at multivariate analysis include increasing maternal age, increasing duration of infertility, Hausa /Fulani tribe, and female genital mutilation. Infertility increases the prevalence of female sexual dysfunction and reduces the domain scores of sexual functions.

Keywords: Dysfunction, Female, Infertility, Sexual.

Introduction

Female sexual dysfunction (FSD) is defined as "disturbance in sexual desire and psycho-physiological changes that characterize the sexual response cycle causing marked distress or interpersonal difficulty" [1]. The prevalence of FSD varies from 11% to 65% [2, 3], depending on the population studied. It was initially believed that sexual dysfunction (SD) is a disease of developed countries due to their sexual freedom. However, emerging research in Nigerian populations had revealed that sexual dysfunction might also be a significant problem.

Most studies on sexual dysfunction were in developed countries with conflicting results [4, 5]. While some studies revealed that infertile women are more predisposed to developing sexual dysfunction [6, 7], others observed no such significant difference [1, 2, 3, 5]. There is thus no consensus in this area. Published studies on sexual dysfunction among infertile women are very few in Africa and among Nordic women [1, 2, 7]. There is no study both in Nigeria and in Nordic countries on FSD before and after Diagnosis of infertility in the same population using the female sexual function index assessment tool. There is certainly the need for studies on this topic to fill the extant knowledge gaps. It is also important to evaluate sexual dysfunction in the African context since its predictors are multifaceted and may differ from region to region. Appropriate identification of predictive and protective factors would likely assist the gynecologists and others in identifying populations of infertile women at risk. Additionally, it will assist in

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revealing modifiable factors that will minimize this problem in the affected population. It may also help the gynecologist to evaluate patients and involve a psychiatrist or psychologist if necessary. To evaluate the impact of infertility on sexual dysfunction, most authors compared sexual functions between infertile and fertile women. There is a scarcity of studies comparing sexual functions among the same women before and during infertility. This type of study, the authors believe, will give a better picture of the impact of infertility on sexual functions. This study determined and compared the prevalence and domain of sexual dysfunction before and during infertility in Ife East Senatorial district, Nigeria. The study also determined the predictors of sexual dysfunction. This is the first study available in literature where sexual functions were assessed before and after an infertility diagnosis.

Methods

This study was conducted at the infertility clinics of the Department of Obstetrics and Gynaecology of the Obafemi Awolowo University Teaching Hospitals Complex Ile-Ife, Nigeria. Using a systematic sampling technique, 222 infertile women at the infertility clinic were recruited from 2020 to 2021.

The interviewer-administered questionnaire for patients consisted of socio-demographic characteristics and Female Sexual Function Index (FSFI) tool. Data were managed using SPSS Version 22 and Stata 12. Three levels of analysis were employed. The first level was the descriptive and univariate analysis to tabulate the statistics of respondents' characteristics. The second level involved bivariate analysis in determining the relationship between the dependent variable (female sexual dysfunction) and independent variables. The third level of analysis was the multivariate analysis which was done through the application of different mathematical models to know the influence of the predictor variables on the response variables. The Chi-square was used to test association, and the P-value was set at a level of <0.05.

This study was approved by the Ethics and Research Committee (ERC) of the OAUTHC Ile-Ife, Nigeria (Protocol No: ERC/2019/12/14) and by Health Research Ethics Committee, Institute of Public Health, Obafemi Awolowo University, Ile-Ife, Nigeria (Protocol No: IHUOAU/12/1389).

Results

Table 1 showed that before Diagnosis of infertility, the prevalence of SD was 53(23.9%), but after the Diagnosis of infertility, this increased to 127(57.2%), P<0.001. Table 2 showed that mean scores of female sexual function index for infertile patients was 29.57 ±5.10 before the Diagnosis of infertility but reduced to 24.42 ± 5.86 after infertility diagnosis, which shows statistical significance at <0.001. The domain scores reduced after Diagnosis of infertility, and it shows statistical significance at <0.001.

Table 1. Comparing Prevalence of Female Sexual Dysfunction before and after Diagnosis of Infertility

Infertility	Have FSD	Do not have FSD	χ^2	P
	n (%)	n (%)	51.165	p<0.001
Before Diagnosis of infertility	53 (23.9)	169 (76.1)		
Four weeks after diagnosis	127 (57.2)	95 (42.8)		

Table 2. Comparing Overall and Domains Scores for Sexual Dysfunction before and after Diagnosis of Infertility

Domains assessed	Before infertility Diagnosis Mean±SD	After infertility Diagnosis Mean±SD	T	P
Overall mean	29.57 ±5.10	24.42 ± 5.86	9.653	<0.001
Desire	4.34±1.28	3.57±1.04	8.329	<0.001
Arousal	4.64±1.12	3.77±0.95	8.735	<0.001
Lubrication	5.17±0.90	4.34±1.17	9.535	<0.001
Orgasm	5.01±1.07	4.05±1.25	9.548	<0.001
Satisfaction	5.39±0.98	4.51±1.40	8.263	<0.001
Pain	5.02±1.25	4.18±1.50	7.994	<0.001

Table 3 showed that sexual dysfunction increases from 40 % among those aged 20-29 years to 43.6% among those aged 30-39years and to 84% among those aged 40 years and above with a statistical difference of P<0.001. Most of the women from the Hausa tribe (90.1%) showed sexual dysfunction (P.022). There is no difference in religion, education, occupation, marital status, type of marriage, position in marriage. Other variables which showed significance at bivariate analysis apart from age at last birthday (P<0.001) , duration of infertility(P<0.0001) and tribe (P<0.022) include husband income (P<0.002), multiple sexual partners (P<0.020), induced abortion (P<0.041) , hypertension (P<0.001), threat of separation (P<0.001), alcohol ingestion by husband (P<0.002), evidence of stress (P<0.001), pelvic pain (P<0.001), abdominal mass(P<0.010), poor perineal hygiene (P<0.009), female genital mutilation (P<0.001), narrowing of intriotus (P<0.001). Table 4 showed that logistic regression at multivariate analysis. Age last birthday (P<0.001), Hausa tribe (P<0.032), duration of infertility (P<0.007), any evidence of female genital mutilation (P<0.002), type 2 female genital mutilation (P<0.015) retained statistical significance.

Table 3. Cross Tabulation of Socio-demographic Characteristics of Infertile Patients b Sexual Dysfunction

Variables	Have sexual dysfunction n (%)	Have no sexual dysfunction n (%)	Statistics Fisher's/ x^2 p-value
Age last birthday			
20-29	14(40.0)	21(60.0)	X^2= 35.793 p= 0.001
30-39	48(48.6)	62(56.4)	
40 and above	65(84.4)	12(15.6)	
Duration of infertility			
1-5 years	38 (38.0)	62(60.0)	X^2= 40.169 p<0.001
6-10 years	29(54.7)	24(45.3)	
>11 years	60(87.0)	9(13.0)	
Tribe			
Ibo	24(70.6)	10(29.4)	Fisher's=9.367 p=0.022
Hausa	10(90.9)	1(9.1)	
Yoruba	88(52.4)	80(47.6)	
Others	5(57.2)	4(44.4)	
Religion			
Christianity	101(55.2)	82(44.8)	X^2= 1.729 p= 0.215
Islam	26(66.7)	13(33.3)	
Level of education			
No formal	5(62.5)	3(100.0)	Fisher's=3.305 p=0.356
Primary	7(77.8)	2(22.22)	
Secondary	39(62.9)	23(37.1)	
Tertiary	76(53.1)	67(46.9)	
Occupation			
Professional	36(63.2)	21(36.8)	Fisher's=7.760 p=0.250
Civil servant	30(65.2)	16(34.8)	
Artisan	10(50.0)	10(50.0)	

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Trader	41(56.9)	31(43.1)
Farmer	-	-
Housewife/unemployed	5(41.7)	7(58.3)
Others	5(33.3)	10(66.7)

RC- reference category

Table 4. Odds Ratio of the Association between FSD and Socio-demographic Characteristics and other Risk Factors among Infertile Women

Variables	Model 1				Model 2				Model 3			
	Odd ratio	Beta	CI	P	Odd ratio	Beta	CI	P	Odd ratio	Beta	CI	P
Socio-demography												
Age last birthday	1.166	0.154	1.102-1.234	<0.001	-	-	-	-	1.052	0.050	0.959-1.153	0.284
Tribe	-	-	-	-	-	-	-	-	-	-	-	-
Ibo (RC)	1	-	-	-	-	-	-	-	1	-	-	-
Hausa	13.082	2.571	1.241-137.926	0.032	-	-	-	-	6.638	1.893	0.378-116.417	0.195
Yoruba	0.631	-0.461	0.236-1.689	0.359	-	-	-	-	1.376	0.319	0.279-6.787	0.695
Others	0.829	-0.188	0.153-4.499	0.828	-	-	-	-	0.687	-0.376	0.065-7.250	0.754
Monthly income	1.000	0.000	1.000-1.000	0.138	-	-	-	-	1.000	0.000	1.000-1.000	0.387
Husband monthly income	1.000	0.000	1.000-1.000	0.508	-	-	-	-	1.000	0.000	1.000-1.000	0.840
Risk factors												
Duration of infertility	-	-	-	-	1.126	0.199	1.033-1.228	0.007	1.151	0.141	1.043-1.270	0.005
No of sexual partners	-	-	-	-	1.139	0.130	0.861-1.507	0.362	1.111	0.106	0.828-1.492	0.483
Pelvic pain	-	-	-	-	-	-	-	-	-	-	-	-
Yes	-	-	-	-	1.571	0.452	0.548-4.504	0.401	2.165	0.773	0.688-6.814	0.186
No (RC)	-	-	-	-	1	-	-	-	1	-	-	-
Hypertension												
Yes	-	-	-	-	1.582	0.459	0.385-6.498	0.524	1.633	0.490	0.377-7.073	0.512
No (RC)	-	-	-	-	1	-	-	-	1	-	-	-
Threat for separation	-	-	-	-	-	-	-	-	-	-	-	-
Yes	-	-	-	-	2.883	1.059	0.615-13.517	0.179	2.246	0.809	0.420-12.004	0.344

	OR	B	95% CI	p-value	OR	B	95% CI	p-value
No (RC)	1	-	-	-	1	-	-	-
Any abdominal mass								
Yes	1.932	0.659	0.854-4.371	0.114	2.009	0.698	0.824-4.901	0.125
No (RC)	1	-	-	-	1	-	-	-
Physical bodily exercises								
Yes	0.522	-0.650	0.237-1.147	0.106	0.667	-0.405	0.289-1.541	0.343
No (RC)	1	-	-	-	1	-	-	-
FGM done								
Yes	0.171	-1.769	0.034-0.858	0.032	0.195	-1.634	0.037-1.020	0.053
No (RC)	1	-	-	-	1	-	-	-
Evidence of stress								
Yes	2.264	0.817	0.972-5.272	0.058	2.277	0.823	0.885-5.858	0.088
No (RC)	1	-	-	-	1	-	-	-
General Perineal hygiene								
-Good	0.542	-0.612	0.098-3.002	0.483	0.616	-0.484	0.101-3.772	0.600
Any evidence of FGM								
Yes	60.415	4.101	4.593-794.749	0.002	43.496	3.773	3.279-577.005	0.004
No (RC)	1	-	-	-	1	-	-	-
Type of FGM								
Type I (RC)	1	-	-	-	1	-	-	-
Type 2	0.060	-2.805	0.006-0.581	0.015	0.068	-2.693	0.007-0.693	0.023
Type 3	0.302	-1.197	0.026-3.504	0.338	0.399	-0.919	0.028-5.748	0.500
Narrowing of the introitus								
Yes	1.392	0.331	0.168-11.535	0.759	5.831	1.763	0.345-98.463	0.221
No (RC)	1	-	-	-	1	-	-	-
Husband drink alcohol								
Yes	2.043	0.714	0.771-5.417	0.151	2.082	0.733	0.710-6.109	0.182
No (RC)	1	-	-	-	1	-	-	-

Discussion

The prevalence of FSD was 23.9 % before Diagnosis but increased to 57.2 % after Diagnosis of infertility was made. This, therefore, support the findings by some authors that sexual dysfunction are commoner among infertile women. Unfortunately, there are scarcities of similar studies in the literature to compare if truly sexual dysfunction is more in the same study group after Diagnosis of infertility. The prevalence of 57.2% among infertile women in our study is higher than 40% reported among infertile women in a United States of America study [6] 47% reported among infertile women in Cairo, Egypt [8], 48% reported among infertile Iranian women [9]. This is a pointer to the fact that sexual dysfunction among infertile women is a significant problem necessitating a deliberate effort to explore its presence when evaluating infertile Nigerian women.

The mean FSFI scores decreased from 29.57 ±5.10 before the diagnosis to 24.42 ± 5.86 (p<0.001) after the infertility diagnosis. There was also a significant reduction in the mean domain scores of desires, arousal, lubrication, orgasm, satisfaction, and pain after Diagnosis of sexual dysfunction (P<0.001). The reason for lower mean scores after infertility diagnosis is that sexual activity is usually a spontaneous erotic adventure meant to cement marriage, boost self-image, and procreation in African settings. However, if for any reason there is some difficulty with procreation, sexual activity loses its spontaneity and erotic value because the main aim will become for conception. The resultant effect is sexual dysfunction.

The predictors of female sexual dysfunction at bivariate analysis include age at last birthday (P<0.001.), Hausa tribe (P<0.022) husband income (P<0.002), multiple sexual partners (P<0.001), the threat of separation (P<0.001), alcohol intake by husband (P<0.01) pelvic pain (P<0.001), poor perineal hygiene (P<0.009), evidence of female genital mutilation (P<0.001), type 2 female genital mutilation

(P<0.001) However at multivariate analysis only age at last birthday (P<0.001), Hausa tribe (P=0.032), duration of infertility (P=0.005), evidence of female genital mutilation(P=002), type 2 female genital mutilation(P=0.015) retained statistical significance. Increasing age at last birthday is 1.2 times more at risk, Hausa tribe has 13 times risk, increasing duration of infertility is 1.2 times at risk. Any evidence of Female Genital Mutilation increases the risk by 60 times.

Age at last birthday showed statistical significance at P<0.001. The higher the age of infertile women, the higher the risk, especially at age 40 and above. Many factors combine to make increasing age a significant predictor variable. Sexual activity decreases after the age of 40 years [10]. There is a decline in the level of hormones especially estrogen level, which leads to varying degrees of vaginal atrophy [11]. There are also lower expectations with regard to sex or the perceived importance of sex in women as age increases [12]. While some studies found higher rates of SD in younger women [13], other studies suggested SD is higher in women, especially during the menopause transition [14]. It was reported that although sexual difficulties and SD increase with age, sexual dysfunction was actually more common in younger women [15].

The tribe was another predictor variable observed to show significant association with FSD (P=0.022). Women of the Hausa tribe had 10times risk for SD than women from other tribes such as Yoruba and Ibo. Generally, women in the Hausa tribe of northern Nigeria have no control of their sexual life. The men determine when to have sex or not with their wives and, as such do not recognize the emotional intimacy of women. Since a large component of sexual desire in women is a response rather than spontaneous, there is a likelihood of having FSD in such a population. A study among family planning users in the predominantly Hausa population of Kano State,

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Northern Nigeria, showed a high prevalence of FSD (87.7%) [16].

Evidence of female genital mutilation (FGM) especially type 2, is associated with increased incidence of FSD (83.9% versus 16.1%; P<0,001). The removal of sensitive parts of the vulva during circumcision reduces the sexual stimulation and desire in women. The resultant vulvar scarring makes it difficult for the penis to penetrate, leading to sexual difficulties with anorgasmia. It had been aptly observed that the origin and practice of FGM is shrouded in secrecy, uncertainty, and confusion [17, 18]. FGM is done for archaic reasons, such as a tribal traditional practice that must be preserved and protected, a superstitious belief practised to preserve chastity and sexual purification. The campaign raised about the adverse consequences that had led to some gains by making many men and women support its abolition [19].

Conclusion

In conclusion, the prevalence of FSD increased after Diagnosis of infertility. The mean scores of FSFI and domain scores also reduced after Diagnosis of infertility. The significant predictors include increasing maternal age, increased duration of infertility, being of Hausa /Fulani tribe, and having had FGM.

Acknowledgments

Conflict of Interest

The authors declare no conflict of interest.

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