Prevalence of sexual dysfunction among females in a university community in Enugu, Nigeria

UI Nwagha, TC Oguanuo[1], K Ekwuazi[1], TO Olubobokun[2], TU Nwagha[3], AK Onyebuchi[4], PO Ezeonu[4], K Nwadike[5]

Departments of Physiology/Obstetrics and Gynaecology, [1]Obstetrics and Gynecology, [3]Haematology and Immunology and [5]Pharmacology and Therapeutics, College of Medicine, University of Nigeria, Enugu Campus, [2]Department of Physiology, Faculty of Basic Medical Sciences, University of Uyo, [4]Department of Obstetrics and Gynecology, Federal Teaching Hospital College of Medicine, Abakaliki, Nigeria

Abstract

Background: Female sexual dysfunction is a common, condition that significantly reduces the quality-of-life of the affected persons. Unfortunately, because of the veil of secrecy that shrouds discussions on human sexuality, there has been limited research on this topic in some sociocultural settings.

Aim: The aim was to determine the prevalence and some sociodemographic factors associated with sexual dysfunction in females in a university community at the University of Nigeria, Enugu Campus, Enugu State, Nigeria.

Subjects and Methods: This is a cross-sectional study involving 500 females recruited randomly in a tertiary institution in Nigeria. A self-administered structured pretested questionnaire on sexual activity was administered (the Female Sexual Function Index [FSFI]). Statistical analysis was performed using SPSS software package (Version 17.0, Chicago, IL, USA). Multiple logistic regression was used to determine the relationship between the sociodemographic factors, and the total FSFI scores dichotomized as normal and reduced sexual function. In addition, multiple linear regression was used to determine the relationship between the six different domains scores and the continuous values of the total score. For all, calculations, $P < 0.05$ was considered as statistically significant at 95% confidence interval (CI).

Results: The prevalence of female sexual dysfunction (FSFI score ≤ 26.50) was 53.3%. The highest prevalence occurred in the 41-50 years age group (73.3%; 66/90), married and living together 56.4% (123/218) and had postsecondary education (56.1%; 137/244). Only age significantly predicted female sexual function ($P = 0.007$; 95% CI; 0.691–0.943). Marital status, religion, ethnic group, and educational qualification had no significant effect ($P < 0.05$). The total FSFI significantly increase as desire increases ($P = 0.002$; 95% CI = 0.817–3.573).

Conclusion: Female sexual dysfunction is common in the university environment, with the highest prevalence occurring in 41-50 years age group.

Key words: Hypoactive, Nigeria, sexual dysfunction, university community

Introduction

Sexual function is a fundamental aspect of women's quality of life, reflecting their biological, emotional and social well-being.[1,2] Sexual activity has been described as an essential aspect of quality of life.[3] Unfortunately, in some societies, discus on sexual function has been the subject of controversy and extreme secretiveness. This is particularly evident in the study environment where poverty, ignorance, religion, and sociocultural factors tend to significantly affect views on sexuality. Consequently, sexual dysfunction is disclosed with a lot of reservations.

Address for correspondence:
Prof. Uchenna I Nwagha,
Department of Physiology/Obstetrics and Gynaecology,
College of Medicine, University of Nigeria, Enugu Campus, Nigeria.
E-mail: uchenna.nwagha@unn.edu.ng

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Sexual dysfunction is an impaired or inadequate ability of a woman to engage in, or enjoy satisfactory sexual intercourse and orgasm.[4] Sometimes, it is accompanied by psycho-physiological changes, associated with marked distress and interpersonal difficulty. Symptoms are mostly psychological in origin, but may include dyspareunia, vaginismus, and persistent inability to reach orgasm.[4] It is an essential public health problem which is more prevalent among women than men.[5,6] In addition, it is an age-related and common problem, affecting 20-50% of women.[7] Usually, a combination of biologic and psychosocial components suffixes, with diverse and varied etiopathogenesis.[8] Indeed it has been noted that women with sexual dysfunction display impaired psychological wellbeing.[9]

The study of sexual function presents enormous difficulties to researchers, especially in Africa due to diversities and ambiguities in religious and cultural beliefs that tend to affect education and marriage practices. Indeed it is taboo to discuss sexual matters, with children and adolescents. Sex outside marriage is also taboo, and there has been no study to evaluate the influence of this on sexual behaviors and function. The age at first sex and marriage is variable, and the best of our knowledge literature is very scant in this regard. A study reported in 2003 by Slap *et al.,* showed that the mean age at first sex in Plateau state, Nigeria was 14.8 (SD 2.8) years overall for male students and 15.2 (2.6) years for female students.[10] Students from polygamous family settings were more likely to have engaged in sexual activity than students from monogamous family settings, but cultural and religious influences played no significant roles.

Some sociodemographic factors may play a role on sexual function. Previous studies have shown that age, ethnic group, body weight, and body mass index are related to sexual function.[11-13] Indeed, sexual function has been shown to decrease with advancing age both in men and women.

The prevalence of sexual dysfunction varies among communities. A descriptive study on the frequency of sexual dysfunction among female students of Mazandara Medical University, Iran using the Female Sexual Function Index (FSFI) reported that 91% had one form of the disorder.[14] The high prevalence may not be unrelated to the religious and sociocultural environment of the study population. A predominantly Moslem community, where four wives are allowed per spouse, may not be ideal to determine the actual prevalence of sexual dysfunction. Two other descriptive studies in two liberal Universities the Mid-West and Argentina presented diverse prevalence's of 47% and 25% respectively descriptive.[15,16]

Although the epidemiology of sexual dysfunction has been reported in the literature worldwide, knowledge in sexual dysfunction among college undergraduates is insufficient in Sub-Saharan Africa generally and Nigeria particularly. Few identified published research on sexual dysfunction in Africa were, outside the University setting in Ghana metropolis, using the Golombok Rust Inventory of Sexual Satisfaction questionnaire.[5,6] In Nigeria, few studies have analyzed sexual function in normal healthy women, using a nonvalidated 15-item questionnaires developed by the authors.[17] Majority of other studies on sexual function, that used the standard 19 questions FSFI questionnaire were done on psychiatric patients,[18] infertile women,[19] and hypertensive patients.[20] However, these are medically challenged subjects; thus, the results may not be directly comparable. Indeed, measuring the severity of the symptoms in these obviously psychologically impaired subjects may be challenging. Hence, we used a more vibrant, nonmedically challenged sexually active population, depicted in healthy females, in the university community.

Consequently, this study aims to assess the prevalence and some sociodemographic factors associated with sexual dysfunction in a university community, in Sub-Sahara Africa, using a multidimensional instrument.

Subjects and Methods

Study area
The University of Nigeria, Enugu Campus, is an extension of the University of Nigeria, Nsukka. There are five faculties on the campus; they include Faculty of Law, Business Administration, Health Sciences, Medical Sciences and Environmental Sciences. The population comprises of students, academic and nonacademic staff.

Eligibility criteria
Between February and September 2012, females of reproductive age (15-50 years) were selected by simple random sampling using a lucky dip of yes or no. The affected women in this study were female students living in the various hostels of the University of Nigeria, Enugu Campus and Female Staff in the various departments (Library, Medical Center, Student Affairs, Bursary, and The Personnel Offices) of the University. Inclusion criteria include females in stable monogamous, heterosexual relationship. Individuals with chronic medical conditions like hypertension, diabetes mellitus or on any medication that affects sexual function were excluded. Chronic alcoholics or those who smoke were also excluded as they as they affect sexual function in various ways. Individuals who declined consent and who are in an unstable or polygamous relationship were excluded. In other to obtain a power of 80%, a sample size of 384 was calculated. This was based on the prevalence rate of 50%, a standard normal variance at 95% confidence interval (CI) of 1.96, and absolute standard error of 0.05.[21] However, in other to take care of attrition, a total of 500 women

were recruited. The questionnaires were distributed to the students in their hostels and in the offices of those who met the inclusion criteria.

Ethical clearance/informed consent

Ethical clearance certificate with number NHREC/05/01/2008B was obtained from the University of Nigeria Teaching Hospital, Ethical Review Board. The study objectives and methods were explained to the participants individually. Confidentiality and anonymity were assured, and a signed written consent was obtained using a paper separate from the questionnaires. Prospective participants were meant to understand that declining from participation, or withdrawing from participation will have no consequences at all.

The tool

A structured sociodemographic characteristic of the respondents was incorporated into the FSFI questionnaire. The FSFI is a 19-item questionnaire, which was developed as a brief, multidimensional self-report instrument for assessing the fundamental dimensions of sexual function in women in the previous 4 weeks was, used.[22] It provides scores on six domains of sexual function (desire, arousal, lubrication, orgasm, satisfaction, and pain) as well as a total score. The FSFI has been validated on clinically diagnosed samples of women with female sexual arousal disorder, female orgasmic disorder, and hypoactive sexual desire disorder.[23] However, before the commencement of the study, validity and reliability were reaffirmed, using 50 age-matched females of the university community of the study population. The Cronbach's alpha was calculated to be 0.8, which is within the acceptable limits for reliability. Questions 1, 2, 15, and 16 were structured to have five options from 1 to 5; all the others have six options, scored from 0 to 5. For the convenience of calculation, the scores were placed by the side of the questions (A-E or F as the case may; see Appendix 1).

Each domain score was obtained by adding each score of the domain and multiplying this result by the domain factors. The domain factors are as follows:
• Desire = 0.6
• Arousal = 0.3
• Lubrication = 0.3
• Orgasm = 0.4
• Satisfaction = 0.4
• Pain = 0.4.

The FSFI total score was determined by the sum of the six domains and varies from 2 to 36, where higher scores are associated to the lower level of sexual dysfunction. As proposed by Wiegel *et al.* (2005),[24] an FSFI total score of 26.50 or less is indicative of sexual dysfunction (lower sexual function).

Statistical analysis

Statistical analysis was performed using the SPSS software package (Version 17.0 for Windows, SPSS Inc., Chicago, IL, USA). Results were presented as percentages. The total FSFI was calculated and categorized into dichotomous variables (normal and low), using 26.50 as cutoff point for sexual dysfunction.[24] Multiple (binary) logistic regression was done in a stepwise selection model. This included the Hosmer Lemeshow test for goodness fit and correlation matrix on the independent variables for multicollinearity. The independent variables tested were some of the sociodemographic factors (age group, educational qualification, marital status, religion, and ethnic group), while the dependent variable is the total score, which was dichotomized as normal or low. In addition, multiple linear regressions in a stepwise selection model were conducted to determine the relationship between the six different domains and the continuous values of the total score. For all calculations, a $P < 0.05$ was considered as statistically significant at 95% CI.

Results

During the study period, a total of 500 females age ranging from 15 to 50 years were given questionnaires to fill. Four hundred (400/500), 80% of the questionnaires were included in the analysis. The remaining 20% were either not retrieved, had incomplete submissions, or the respondents were not in a stable monogamous, and heterosexual relationship. None of the respondents included in the final computation was less than 18 years of age. Table 1 represents the sociodemographic characteristics. The median age group of the studied sample ($n = 400$) was 31-35 age group. The modal age group was 20-25 years. About 5% (20/400) of the females have secondary education, 61% (244/400) have postsecondary degree. One hundred and fifty-eight, 39.5% (158/400) were single, and 54.5% (258/400) were married and living together. About 49% (196/400) was catholic while 26% (104/400) were pentecostal.

Table 2 shows the prevalence of sexual dysfunction in the various categories of the sociodemographic factors. The prevalence of female sexual dysfunction in this study was 53.5% (214/400) based on cutoff point of 26.55. The highest prevalence's occurred in the 41-50 years age group (73.3%; 66/90), married and living together 56.4% (123/218) and postsecondary school (56.1%; 137/244), The mean scores for the FSFI domains were desire (4.1 ± 0.8), arousal (4.4 ± 0.9), orgasm (4.2 ± 1.0), satisfaction (4.5 ± 1.0), and pain (4.3 ± 1.1). The mean total FSFI score was 25.7 ± 4.4.

Table 3 shows the multiple logistic regression between the sociodemographic factors and the dichotomous variable of normal and low.

Table 1: The distribution in percentages of the different sociodemographic factors		
	Frequency	Percentage
Age (years)		
≤20	10	2.5
21-30	162	40.5
31-40	138	34.5
41-50	90	22.5
Marital status		
Single	158	39.5
Widowed	8	2.0
Divorced	4	1.0
Married/separated	12	3.0
Married/living together	218	54.5
Educational qualification		
Secondary school	20	5.0
Postsecondary school	244	61.0
Postgraduate	133	33.3
Others	3	0.8
Ethnic group		
Ibo	310	77.5
Hausa/Fulani	14	3.5
Yoruba	33	8.3
Others	43	10.8
Religion		
Catholic	196	49.0
Protestant	66	16.5
Pentecostal	104	26.0
Moslem	2	0.5
Traditional	3	0.8
Others	29	7.3

Table 2: The prevalence and percentages of sexual dysfunction in the different categories of the sociodemographic factors				
	Low	Percentage of low	Normal	Percentage of normal
Age (years)				
≤20	5	50	5	50
21-30	78	48.1	84	51.9
31-40	65	47.1	73	52.9
41-50	66	73.3	24	26.7
Marital status				
Single	82	51.9	76	48.1
Widowed	3	37.5	5	62.5
Divorced	2	50	2	50
Married/separated	4	33.3	8	66.7
Married/living together	123	56.4	95	43.6
Educational qualification				
Secondary school	10	50	10	50
Postsecondary school	137	56.1	107	43.9
Postgraduate	64	48.1	69	51.9
Others	3	100	0	0
Religion				
Catholic	116	59.2	80	40.8
Protestant	29	43.9	37	56.1
Pentecostal	49	47.1	55	52.9
Moslem	2	100	0	0
Traditional	2	66.7	1	33.3
Others	16	55.2	13	44.8
Ethnic group				
Ibo	174	56.1	136	43.9
Hausa/Fulani	6	42.9	8	57.1
Yoruba	10	30.3	23	69.7
Others	24	55.8	19	44.2

Case-wise plots were not produced because there were no outliers. There were also no missing cases. The Hosmer Lemeshow test for goodness fit was not significant ($P = 0.226$). A correlation matrix on the independent variables showed a weak multicollinearity.

Age was the only variable that was significantly related to sexual function ($P = 0.007$; 95% CI; 0.691–0.943), while controlling for other sociodemographic factors. The results of the multiple linear regression between the six different domains and the continuous (nondichotomized values) of the total score showed that only desire predicted the total FSFI as the total FSFI significantly increased as desire increases ($P = 0.002$; 95% CI = 0.817–3.573). In addition, age was also observed to have predicted desire and arousal, as desire and arousal decreased significantly with increasing age ($P = 0.001$; 95% CI = −0.166 to −061) and ($P = 0.004$; 95% CI = −0.115 to −0.022) respectively.

Discussion

The current study found that 53.5% of the females had total FSFI scores below 26.55, the cutoff value proposed by Weigel *et al.*,[24] hence suggesting a high prevalence of sexual dysfunction in the study population. The rate is high and comparable to that reported by Mezones-Holguin *et al.*,[25] who also observed a high prevalence of 35.2% of women with sexual dysfunction in their study. Furthermore, it has been found that the high prevalence of sexual dysfunctions increases directly with age for both men and women.[26]

The affected women in this study were female students living in the various hostels of the University of Nigeria, Enugu Campus and Female Staff in the various departments (Library, Medical Center, Student Affairs, Bursary, and The Personnel Offices) of the University. The highest prevalence occurred in the 41-50 years age group, married and living together and subjects with postsecondary education. However, in the study by Raymond *et al.*,[27] age and relationship status were the only significant predictors of sexual pleasure with older women and singles reporting a higher incidence of sexual problems. Educational level, religious affiliation, and employment status were not predictive of sexual dysfunction in their study.

Table 3: Multiple (binary) logistic regression between the total FSFI score (dichotomized as low or normal) and each of the sociodemographic factors

	B	SE	Wald	df	Significant	Exp (B)	Lower CI	Upper CI
Age group	−0.214	0.079	7.820	1	0.007	0.807	0.691	0.943
Educational qualification	0.208	0.184	1.276	1	0.259	1.231	0.858	1.766
Marital status	0.042	0.068	0.375	1	0.540	1.042	0.913	1.190
Religion	0.054	0.077	0.490	1	0.484	1.055	0.908	1.227
Ethnic group	0.120	0.105	1.298	1	0.255	1.128	0.917	1.387

SE=Standard error; CI=Confidence interval; FSFI=Female Sexual Function Index; df=Degree of freedom

The prevalence of sexual dysfunction was also high in single women and those <20 years old. This may be due to dyspareunia, which is higher in younger women (but less prevalent in older women). In the present study, most of the single women were undergraduate students who were in session, and faced with academic responsibilities, so could not have time for enough sexual activity in such a situation and conditions.

The results of the multiple linear regressions between the six different domains, and the continuous values of the total score, revealed that only desire significantly predicted the total score. Furthermore, as the age increases, desire and arousal reduces. In a study by Spector and Carey,[28] desire and arousal phase disorders were among the most common presenting problems in clinical settings. In community studies, orgasm and arousal disorders are equally prevalent. Common sexual problems reported by women in another study include, lack of sexual desire (22%), difficulties becoming sexually aroused or achieving orgasm (14%) and pain during intercourse (7%).[29]

It is essential to note that a woman's sexual function fluctuate over the years. The fluctuations commonly coincide with the beginning or end of a relationship or significant life changes, such as pregnancy, menopause or illness. In Hong Kong, a telephone survey showed a high prevalence of sexual disorders, in women, where 25% of this was due to loss of interest in sex.[30] Other significant predictors of sexual dysfunction were found to be sex-related knowledge, perceived importance of sex, and perceived physical health status.[30] In addition, gender differences and strong cultural influences were apparent. Other studies also found that problems with sexuality were associated with mental health, quality of life indicators and universal life satisfaction.[31,32]

Although, it is common for sexual drive to diminish with the passage of years, the magnitude is highly variable. In contrast to our setting, elderly people often enjoy sex into later life, often beyond the expectations of others.[33] Thus, it is crucial for individuals, clinicians and sexual therapist to concisely understand these general attributes of sexual behaviors to enable stronger family ties and avoid unnecessary marital discord.

Although a study performed on perception of sexual function in normal healthy women has been done, it utilized a nonvalidated 15-item questionnaires developed by the authors.[17]

The present study is about one of the few studies in Nigeria that has explicitly looked at sexual function in apparently healthy female who are in stable monogamous relationships (married or single with regular boyfriend), using the validated 19-item FSFI. However, there are some limitations. Some students were not willing to share their sexual experiences. Furthermore, only sociodemographic factors were used for assessment in this study. The study would have been more robust if other factors such as socioeconomic status, the sexual partner, parity, anxiety, and depression were considered. These factors may be relevant confounding variables that modify sexual function. Further studies will address these issues and also look at the effect of female genital mutilation, a common practice in this environment on sexual, function.

The prevalence of female sexual dysfunction is high in the university community. The highest prevalence occurs in the 41-50 years age group, married and living together and subjects with postsecondary education. Understandably age is significantly related to sexual function, with higher prevalence of sexual dysfunction as age increases. Educational qualification, religion and ethnicity do not seem to significantly predict sexual function in the study population.

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