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Research Article

Evaluation of changes in sexual response and factors influencing sexuality during pregnancy among Nigerian women in Jos, Nigeria

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ABSTRACT

Background: Pregnancy is characterized by physical, hormonal and psychological changes that could influence women's sexuality. The study aimed at ascertaining changes in the women's sexual domains as well as factors affecting their sexual responses.

Methods: A total of 177 healthy heterosexual pregnant Nigerian women at term and in stable marital relationships were included in the study. Authors' designed structured questionnaire featuring socio-demographic and obstetric characteristics as well as assessment of their sexual desire, arousal, orgasm, sexual satisfaction and pain compared to the pre-pregnancy period was used to collect the information. Data was analyzed using SPSS version 16 for windows.

Results: Mean age of the women was 30.9 ± 4.7 years. Majority of them reported decline in sexual desire, arousal, frequency of orgasm and sexual satisfaction compared to the pre-pregnancy period. Reduce sexual desire was marked in the first trimester but sexual desire peaked in second trimester. Women aged ≥ 31 years were four times more likely to experience increase frequency of orgasm (OR 4.0, 95% CI 1.9 – 8.7, $P = 0.02$) while those with tertiary education (OR 2.2, 95% CI 1.1 – 4.2, $P = 0.02$) and unplanned pregnancy (OR 2.4, 95% CI 1.8 – 5.0, $P = 0.04$) were more likely to experience decreased sexual satisfaction compared to the pre-pregnancy period.

Conclusions: Pregnancy is associated with decline in all domains of female sexual response cycle among the women. Older maternal age positively impacts on frequency of attainment of orgasm while tertiary educational level and unplanned pregnancy negatively affect their sexual satisfaction during pregnancy.

Keywords: Pregnancy, Sexual function, Changes in sexuality, Nigeria

INTRODUCTION

Sexual relationship of an expectant mother is of immense emotional and psychological significance as it may be a source factor that can enhance her quality of life or that of the couple. Pregnancy has been defined as a difficult period of life for women punctuated by physical and emotional changes that affect their sexual lives.^{1,2}

Deterioration in pregnant women's sexuality do not only affect their physical and psychological health but the health of the family as a whole. Hormonal changes in pregnancy and non-hormonal influences such as emotional, socio-economic, cultural and religious beliefs are thought to be associated with these changes in sexual behavior among pregnant women.^{1,3}

Pregnant women's sexuality may also be affected as a result of physical complaints they experience including fatigue, backache, frequent urination, heartburn, breast tenderness and headaches.^{4,5} Frequently, there is decrease sexual desire and arousal due to nausea and vomiting in the first trimester, fatigue and physical discomfort in the third trimester as well as psychological factors.^{1,4,6,7} The fact that coital frequency and sexual satisfaction are influenced by sexual desire and arousal makes it reasonable to infer that these two sexual domains may also be affected adversely among pregnant women.^{8,9}

Duration of intercourse and ability to achieve orgasm has been noted to decrease during second and third trimesters of pregnancy compared to the pre-pregnancy period.¹⁰ Pregnant women usually have unpleasant experiences during sexual intercourse including dyspareunia probably due to changes in vaginal lubrication and difficulties in adopting comfortable coital positions.^{4,5,10-12}

Hence, it seems sexual relationship of expectant mothers is one of the vulnerable areas during pregnancy and they may unavoidably develop changes in their sexual responses as a result of various discomforts and complaints they experience. Women often do not complain about sexual changes during pregnancy as open discussion of sexual issues is often regarded as a taboo topic in most cultures including ours. This study sought to ascertain changes in our women sexuality during pregnancy compared to the pre-pregnancy period as well as factors influencing the various sexual domains in the sexual response cycle among this group of Nigerian women.

METHODS

This was a descriptive cross-sectional study carried out among healthy heterosexual pregnant Nigerian women at term (≥ 37 weeks) between January and June 2015 in the antenatal clinic of Bingham University Teaching Hospital, Jos. The women were approached individually without a third party and in the absence of their spouses and were recruited by convenient sampling method. Pregnant women with fetomaternal complication(s) or any medical morbidity that may affect their sexual relationship were excluded from the study. All eligible women attending antenatal care during the study period and consented to participate in the research were included in the study.

Pre-tested questionnaire designed by the researchers were administered on the women and they were filled anonymously and returned. For the few that could not self-administer the questionnaires, a trained female Nurse administered and filled the questionnaires appropriately. Inquiries were made about their socio-demographic and obstetric features as well as rating of their sexual desire compared to the pre-pregnancy period. Rating was done with selection of options as "same", "decrease", and "increase". Also rated compared to the pre-pregnancy

period were other domains in the female sexual response cycle including sexual arousal, attainment of sexual climax (orgasm), and sexual satisfaction. Pain during sexual intercourse (dyspareunia) and average two weekly coital frequencies were also ascertained. Dyspareunia was assessed as "none", "occasional" and "always".

The information collected from the patients was entered into SPSS version 16 for windows (SPSS Inc., Chicago, IL, USA). Data was analysed as simple percentages and mean \pm standard deviation (SD). Chi square test or Fisher exact test (when expected value was <5) where appropriate was used to ascertain socio-demographic and obstetric factors affecting various domains of the female sexual response cycle. A P value of <0.05 was considered statistically significant. Ethical approval for the study was obtained from the Human Research and Ethics Committee of Bingham University Teaching Hospital, Jos, Nigeria.

RESULTS

Table 1: Socio-demographic and obstetric features of the women.

Features	Frequency (N)	Percentage
Age groups (years)		
≤ 20	2	1.1
21 - 25	18	10.2
26 - 30	70	39.5
31 - 35	58	32.8
36 - 40	25	14.1
≥ 41	4	2.3
Total	177	100.0
Educational status		
Primary	6	3.4
Secondary	48	27.1
Tertiary	123	69.5
Total	177	100.0
Ethnic groups		
Igbo	48	27.1
Yoruba	17	9.6
Berom	12	6.8
Irigwe	10	5.6
Tarok	9	5.1
Ngas	7	4.0
Others **	74	41.8
Total	177	100.0
Gravidity		
1	43	24.3
2 - 4	114	64.4
≥ 5	20	11.3
Total	177	100.0
Parity		
0	48	27.1
1 - 4	126	71.2
≥ 5	3	1.7
Total	177	100.0

** Others include Mwaghavul, Hausa, Eggon, Idoma, Tiv, Mupun, Afizere, Tangale, Ron, Mupun, Rukuba, Igala, Mushere

Table 2: Changes in sexuality during pregnancy compared to pre-pregnancy among the study population.

Sexual domain	Increase N (%)	Decrease N (%)	No change N (%)
Sexual desire	28 (15.8)	100 (56.5)	49 (27.7)
Sexual arousal	34 (19.2)	92 (52.0)	51 (28.8)
Frequency of orgasm	36 (20.3)	84 (47.5)	57 (32.2)
Sexual satisfaction	27 (15.2)	89 (50.3)	61 (34.5)

A total of 177 (91.7%) pregnant women out of 193 from 35 different ethnic groups in Nigeria correctly completed the questionnaires. The mean age of the women was 30.9 ± 4.7 years with a range of 20 – 42 years. The mean gravidity and parity were 2.69 ± 1.48 and 1.44 ± 1.26 respectively with range of parity between 0 – 7. Most of the women [170 (96.0%)] were Christians while 7 (4.0%) were Muslims. Majority of the women had planned pregnancies [128(72.3%)] while 49 (27.7%) admitted that their pregnancies were unplanned. Twenty seven (15.3%) of them were HIV positive while 150 (84.7%) were non-reactive to HIV infection. Table 1 shows the socio-demographic and obstetric features of the study population.

Table 3: Factors influencing changes in sexual desire and arousal among the women.

Sexual domain/Factors	Odds ratio	95% Confidence interval	P-value
Decrease sexual desire			
Maternal age ≥ 31 (years)	0.53	0.23 - 1.24	0.16
Tertiary educational status	1.18	0.62 - 2.24	0.62
Primigravidity	1.64	0.79 - 3.28	0.19
Nulliparity	1.41	0.71 - 2.77	0.33
unplanned pregnancy	0.60	0.30 - 1.19	0.15
Positive HIV status	1.05	0.46 - 2.39	0.92
Increase sexual desire			
Maternal age ≥ 31 (years)	1.21	0.39 - 3.79	1.00 ‡
Tertiary educational status	0.91	0.38 - 2.17	0.84
Primigravidity	1.60	0.66 - 3.87	0.29
NulliParity	1.96	0.84 - 4.56	0.12
unplanned pregnancy	1.93	0.69 - 5.40	0.21
Positive HIV status	0.60	0.22 - 1.67	0.39 ‡
Decrease sexual arousal			
Maternal age ≥ 31 (years)	0.73	0.32 - 1.62	0.44
Tertiary educational status	1.39	0.73 - 2.64	0.32
Primigravidity	1.23	0.62 - 2.45	0.56
Nulliparity	1.13	0.58 - 2.19	0.72
unplanned pregnancy	0.67	0.34 - 1.30	0.24
Positive HIV status	0.84	0.37 - 1.92	0.69
Increase sexual arousal			
Maternal age ≥ 31 (years)	0.83	0.33 - 2.13	0.70
Tertiary educational status	0.60	0.28 - 1.26	0.18
Primigravidity	1.15	0.51 - 2.61	0.74
Nulliparity	1.32	0.60 - 2.89	0.49
Unplanned pregnancy	1.30	0.57 - 3.00	0.54
Positive HIV status	0.74	0.29 - 1.92	0.52

‡ - Fisher exact test

On assessing the women two weekly sexual frequency, about 35.6% (63/177) of them reported that sometimes they don't engage in any sexual intercourse, 45 (25.4%) reported average of one episode, 38 (21.4%) reported 2 episodes, 20 (11.3%) reported average of 3 episodes while 11(6.2%) reported 4 or more episodes. The women were also asked to rate their overall frequency of sexual

intercourse during the pregnancy compared to the pre-pregnancy period. Ninety eight (55.4%) of them reported decrease sexual frequency, 51 (28.8%) reported no change while 28 (15.8%) reported increase frequency of sexual intercourse during pregnancy. Inquiry about painful sexual intercourse (superficial and deep dyspareunia) experienced during the pregnancy was also

done. Seventy two (40.7%) reported no episode, 97 (54.8%) reported occasional episodes while 8 (4.5%) of them reported that they always had dyspareunia.

Rating of the different domains of the female sexual response cycle was ascertained among the women. The results revealed overall decrease in the various sexual domains during pregnancy compared to the pre-pregnancy period (Table 2). Rating of the women's sexual desire as "lowest", "medium", and "highest" according to trimesters of pregnancy showed that most of

them experienced highest state of sexual desire in the second trimester. Majority [114 (64.4%)] reported that sexual desire was lowest during the first trimester, 33 (18.6%) rated as medium while 30 (17.0%) rated it as highest. During the second trimester, 37 (20.9%) rated their sexual desire as lowest, 59 (33.3%) indicated that it was medium while 81 (45.8%) reported highest state of sexual desire. In the third trimester, 56 (31.6%) revealed lowest level of sexual desire, 72 (40.7%) indicated as medium while 49 (27.7%) reported highest state of sexual desire compared to other trimesters.

Table 4: Factors influencing changes in orgasm and sexual satisfaction among the women.

Sexual domain	Odds ratio	95% Confidence interval	P-value
Decrease frequency of orgasm			
Maternal age \geq 31 (years)	1.35	0.75 - 2.44	0.32
Tertiary educational status	1.19	0.63 - 2.26	0.60
Primigravidity	1.08	0.54 - 2.14	0.84
Nulliparity	1.03	0.53 - 1.99	0.94
unplanned pregnancy	0.82	0.43 - 1.59	0.56
Positive HIV status	0.97	0.43 - 2.10	0.94
Increase frequency of orgasm			
Maternal age \geq 31 (years)	4.01	1.90 - 8.70	0.02
Tertiary educational status	0.85	0.39 - 1.85	0.68
Primigravidity	1.50	0.67 - 3.37	0.33
Nulliparity	1.46	0.66 - 3.21	0.35
unplanned pregnancy	0.99	0.44 - 2.25	0.96
Positive HIV status	0.69	0.26 - 1.77	0.44
Decrease sexual satisfaction			
Maternal age \geq 31 (years)	0.98	0.54 - 1.76	0.94
Tertiary educational status	2.17	1.13 - 4.19	0.02
Primigravidity	0.93	0.47 - 1.84	0.83
Nulliparity	0.78	0.40 - 1.52	0.47
unplanned pregnancy	2.41	1.82 - 5.04	0.04
Positive HIV status	0.93	0.41 - 2.11	0.86
Increase sexual satisfaction			
Maternal age \geq 31 (years)	0.74	0.32 - 1.68	0.47
Tertiary educational status	0.41	0.18 - 1.07	0.34
Primigravidity	1.12	0.43 - 2.83	0.73
Nulliparity	1.16	0.47 - 2.85	0.75
unplanned pregnancy	1.11	0.44 - 2.82	0.83
Positive HIV status	0.57	0.21 - 1.58	0.28

Assessment of the impacts of socio-demographic and obstetric factors on the various domains of the female sexual response cycle (sexual desire, sexual arousal, orgasm) as well as sexual satisfaction was done. Women aged \geq 31 years were four times more likely to experience increased episodes of orgasm compared to the pre-pregnancy period (OR 4.0, 95% CI 1.9 – 8.7, P = 0.02) while those with tertiary education (OR 2.2, 95% CI 1.1 – 4.2, P = 0.02) and unplanned pregnancy (OR 2.4, 95% CI 1.8 – 5.0, P = 0.04) were more likely to experience decrease sexual satisfaction during pregnancy. Table 3 and 4 show the outcomes of the influences of socio-

demographic and obstetric factors on the domains of the women's sexual response cycle.

DISCUSSION

Female sexual life, changes and responses during pregnancy are rarely discussed between couples and their midwives and doctors. It is widely acknowledged that pregnancy influences sexual behavior of women including frequency of sexual intercourse and the domains of the female sexual response cycle.^{7,10,13} Hormonal, physical and psychological changes in

pregnancy impact on women's sexuality as they provoke and promote changes in sexual response and activities.¹⁴

This study revealed overall decrease in all domains of the female sexual response cycle in majority of the study population and this has been corroborated by other researchers.^{5,15-17} Sexual relationships during pregnancy can enhance couples' bonding and quality of life and the need to know these potential changes in sexuality during pregnancy by them is crucial so as to avoid marital disharmony. Hence, the importance of health workers involved in the care of pregnant women in any clinical setting in providing counselling regarding sexual aspects of pregnancy including changes that may occur cannot be over-emphasized.

More than half of the women reported decline in sexual desire during pregnancy compared to the pre-pregnancy period while the rest reported either increase or no change in their interest for sexual intercourse. In addition, about two-thirds of the women reported that decline in sexual desire was highest or most marked during the first trimester but peaked in the second trimester. These findings have also been corroborated by other researchers from different antenatal populations.^{14,17-19} The decline in sexual desire especially in the first trimester has been attributed to hormonal alterations leading to morning sickness and its attendant discomforts, breast tenderness as well as diminished clitoral sensation and orgasmic disorders.^{15,20,21} The tendency towards improvement in sexual desire in the second trimester as noted in this study may be due to reduction of the symptoms and physical discomforts in the first trimester. The fact that some women experienced no change or increase sexual desire during pregnancy in this study has also been reported elsewhere.^{22,23} Variations in sexual desire among pregnant women may be a pointer to complex interactions of factors affecting this sexual domain including social and cultural factors.¹⁸ This may explain the finding of our study as the study population was from 35 different ethnic groups spread across Nigeria.

Our research also revealed variable states of sexual arousal among the women compared to the pre-pregnancy period with more than half of them reporting decrease arousal, about 20% disclosed increase while the rest reported no change in sexual arousal. Decrease in sexual arousal and lubrication have been reported among majority of pregnant Taiwanese and Iranian women^{13,17} but contrary to findings elsewhere.^{4,10} In general, there is vaso-congestion of vaginal tissues during pregnancy as a result of increase blood circulation and this leads to increase sexual arousal and lubrication.^{3,18} However, the variable states of sexual arousal among pregnant women may also be attributed to different factors in and around the pregnant woman that may influence her sexuality.

With respect to orgasm among the women, most women reported decrease rate of attainment of orgasm while about one-third disclosed increase frequency of orgasm compared to the pre-pregnancy period. Decrease in rate

of orgasm among pregnant women has been reported by several researchers but it was noted that this improves as gestational age increases.^{10,13,17,24} This may be attributed to increasing pelvic vaso-congestion in the course of pregnancy thereby enhancing vaginal sensation and facilitating attainment of orgasm.

Pregnancy has also been noted as a period of decrease sexual satisfaction among women^{16,25} and this was noted in about 50% of our study population. This may be attributed to decrease in frequency and length of sexual intercourse which occur during pregnancy^{17,22,23,26} with resultant poor achievement of orgasm and sexual satisfaction. Also, the state of emotional relationship with the husband has also been noted to influence sexual satisfaction during pregnancy.²⁷ Reported experience of dyspareunia among this study population may also have contributed to the decrease sexual satisfaction among the women.

Several researchers have also reported negative impact of pregnancy on incidence of painful sexual intercourse.^{16,17,24} This was also noted in this study where most of the women either reported occasional episodes of dyspareunia or dyspareunia at every sexual encounter compared to the pre-pregnancy period. This increase incidence of dyspareunia during pregnancy has been attributed to anatomical changes that occur in pregnancy as well as hypertrophy of pelvic viscera.²⁸

Several socio-demographic and obstetric factors have been reported to have positive or negative influences on sexual function and response of pregnant women. In this study, women aged 31 years and above were most likely to experience increase frequency of attainment of orgasm during pregnancy compared to the pre-pregnancy period but maternal age had no impact on their sexual desire, arousal and sexual satisfaction. The finding of older age group having positive influence on rate of attainment of orgasm is contrary to that reported by other researchers who noted that older aged women reported negative influences on their sexual function during pregnancy.^{1,29,30} However, a study in Turkey demonstrated that age does not influence sexual behavior and responses of pregnant women⁴ as also noted in other sexual domains of the female sexual response cycle in this study. These different findings of the impact of maternal age on female sexuality may be attributed to variations in cultural practices of the women and so its influence on their sexual behavior and response.

Educational level of women is also said to influence their sexual function and response during pregnancy.^{30,31} This study shows that higher level of education negatively impacts on sexual satisfaction among the women but not on other sexual domains. This is however contrary to a report from Egypt that showed women with lower level of education were more likely to experience disturbed sexual function during pregnancy.³² These varied reports may be a reflection of the impacts of diverse factors on female sexuality among different obstetric populations.

Our study also found that gravidity and parity have no impact on the domains of the female sexual response cycle among the women. This finding is corroborated by a study conducted in an Egyptian obstetric population³² but contrary to findings elsewhere indicating that primiparity negatively impacts on the sexual function of pregnant women.^{33,34}

These inconsistent findings by researchers may be attributed to differences in study designs and degree of impacts of social, cultural, psychological and relationship factors on sexuality of pregnant women in the different obstetric populations studied.

Also positive HIV status had no influence on the women's sexuality but unplanned pregnancy has negative influence on their sexual satisfaction. The finding of non-influence of HIV status on the sexual domains of the women may be attributed to the fact that all the HIV positive were on highly active anti-retroviral drugs (HAART) and probably the husbands especially the discordant partners were using barrier method of contraceptive to protect themselves and this will make the couples to be less worried about the disease while engaging in sexual intercourse. Also, possible psychological impact of unplanned pregnancy on the women may be responsible for the decrease sexual satisfaction among them.

This study has some limitations worth stating. Recall bias among the women probably affected the outcomes of the study and the fact that it was conducted in a Teaching Hospital may not be a true representation of what is obtainable in the general society. However, the study for the first time highlighted changes in female sexuality as well as the factors affecting it in this obstetric population.

In conclusion, Pregnancy is associated with decline in the domains of the female sexual response cycle among these Nigerian women. Older maternal age positively impacts on frequency of attainment of orgasm while tertiary educational level and unplanned pregnancy negatively affect their sexual satisfaction. Counselling of couples to be informed about changes in female sexual responses in pregnancy is imperative so as to avoid marital disharmony during the period.

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