



FEMALE SEXUAL FUNCTION DURING PREGNANCY: A COMPARATIVE CROSS SECTIONAL STUDY IN SAUDI ARABIA

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ABSTRACT

Background: Sexual relationships among couples change frequently during pregnancy. Studies that were conducted to evaluate those changes showed conflicting results. Some studies described a positive effect while others reported negative ones.

Objectives: This study aimed to assess the effect of pregnancy on the sexual functioning of Saudi women in comparison to the non-pregnant.

Subjects and methods: This comparative cross-sectional study was conducted at King Abdulaziz University Hospital (KAUH) in Jeddah, Saudi Arabia between January 2017 to March 2018. The study utilized the multidimensional Female Sexual Function Index (FSFI) questionnaire to assess the pregnant woman's sexual functioning in all six domains; desire, arousal, lubrication, orgasm, satisfaction and pain. The data was collected and entered on the computer. Statistical analysis was done using Statistical Package of Social Science (SPSS) Version 16. Significance was considered at a p-value less than 0.05

Results: During the study period, the response rate was 70% and 75.6% among pregnant and non-pregnant women respectively. There was a significantly lower score for desire, arousal, orgasm and satisfaction among pregnant females compared non-pregnant one, while that of lubrication and pain was lower in pregnant women. A significant inverse correlation was observed between sexual desire and maternal age, gestational age, gravidity, number of spontaneous vaginal deliveries (SVD) and abortions.

Conclusion: A significant reduction in sexual functioning was experienced by the pregnant Saudi women in this study. Sexual physiological changes throughout pregnancy should be discussed with the couples during antenatal care in order to avoid the negative impact of such problems on the marital relationship.

KEYWORDS : Pregnancy, Index, Saudi, Pregnant

Introduction

Pregnancy is considered a valued period in every woman's life. However, It can impact on body, emotion and cognition of both partners and might affect the relationship quality (1&2). Following the biopsychosocial approach, The physical and psychological changes in combination with the cultural, social, religious factors might influence the sexual activities of couples during pregnancy (3).

Although many researches in the literature have reported changes in relationship quality during pregnancy, many of these results were conflicting. Some of these studies described an increase in relationship quality during pregnancy. This was attributed to increased emotional intimacy as the couple prepares for the arrival of their first baby which is considered a happy event (4&5). On the other hand, other studies reported a decrease in the quality of couples' relationships and had attributed this to changes associated with pregnancy (6&7). This inconsistency in results calls for conducting further rigorous research of high quality.

Women specifically experience various physical and emotional changes including fatigue, nausea, increasing abdominal size, pain during the sexual activity, and fears about the fetus might affect women's sexuality and the types of sexual activities in which couples engage into(8). So, it was reported that pregnancy is commonly associated with disturbed sexual functions which increased as the pregnancy proceed (9,10). It is well known that hormone levels are influenced during pregnancy. The association between hormones and sexuality is multidimensional, as several hormones are important in the regulation of sexual behaviour (11).

Corbacioglu Esmer et al. reported that the couples fears about sexual activity during pregnancy and the lack of a reliable source of

information regarding sexuality during pregnancy may have influences on female sexual function (3). In previous studies, it was stated that "23.4–82.9% of women and 55–84.9% of men had concerns in regards to causing some sort of obstetric complication" (10-13).

Although the effect of pregnancy on the sexual function has been previously described in some studies, most of these studies lacked the control arm to compare sexual functioning in healthy non-pregnant and pregnant women. Discussing sexual activity and behaviour with Saudi women can be challenging and was not frequently tackled in previous studies. The aim of this study was to assess the effect of pregnancy on the sexual function of Saudi women and compare it to that of the non-pregnant ones.

Subjects and methods

This study was approved by the biomedical research ethics committee at the Faculty of Medicine, King Abdulaziz University (KAU) in Jeddah, Saudi Arabia. It was a comparative cross-sectional study. Female Sexual Function Index (FSFI) questionnaire which is a validated and reliable tool was utilized to measure the pregnant woman sexual function, plus some demographic information was added(14). It was a self-administered questionnaire recruited from women attending the KAUH obstetrics and gynecology clinics waiting area. Participants (response rate 78%) completed surveys were submitted for data entry.

The tool of the study:

The FSFI questionnaire includes 19 items that evaluate six domains of sexual functioning including desire, arousal, lubrication, orgasm, satisfaction and pain. The score of the domains was calculated as described by (11).

This study was conducted at the King Abdulaziz University Hospital (KAUH), Jeddah, Saudi Arabia between January 2017 to March 2018.

Inclusion and exclusion characters:

The target population was pregnant women attending the antenatal care clinic at the KAUH. Only women with low-risk pregnancy were included in this study. Those with previous complications or comorbidities during pregnancy were excluded. After getting their consent, women who participated were asked to anonymously fill the FSFI questionnaire during their antenatal care visits.

Statistical analysis :

The data was collected and entered to the computer. Statistical analysis was conducted using the Statistical Package of Social Science (SPSS) Version 16 (Chicago, USA), IL 60606-6307. The quantitative data was presented in the form of mean and standard deviation (SD). Student t-test was used for quantitative data analysis. Spearman rank correlation was done to determine the correlation between items. The qualitative data was presented in the form of number and percentages. Chi-square test was used for the comparison of qualitative data. Statistical significance was considered at a p-value less than 0.05. The reliability analysis was done by using alpha Cronbach. It was found that the reliability of each domain item and the whole domain items were above 0.81. (See Table 1).

Results :

A total of 500 pregnant women and 250 non-pregnant participated in the study. Only 350 pregnant and 186 non-pregnant women completed the questionnaire with a response rate of 70% and 75.6% respectively. In this study, the mean age of study participants was (29.86±5.73) and their ages ranged from 16 to 48 years, while that of the non-pregnant was (30.34±5.95) and their ages ranged from 21 to 40 years. About 85% pregnant women and 81% non-pregnant were Saudi. The majority (about 66%) from the two study groups received higher education and more than 70 % of them were housewives. (See Table 2).

The FSFI questionnaire utilized in this study is composed of six domains; desire, arousal, lubrication, orgasm, satisfaction and pain. The scores of these domains in both pregnant and non-pregnant women are shown in Table (3).

The correlation analysis between the domains of the FSFI showed a significant correlation between all domains of the score in pregnant women except for satisfaction where there was no significant correlation. There was a significant correlation among non-pregnant women between all domains of the FSFI except for pain, arousal and lubrication. Table (4)

The score of each item under each domain was compared between pregnant and non-pregnant women. Results showed a significantly lower score among pregnant women in desire, arousal, orgasm and satisfaction domains compared to the non-pregnant ones, while lubrication and pain domains were not significantly lower in the pregnant women. (See Table 5).

Spearman rank correlation between domains of FSFI and the demographic factors of the women included in the study was done. We observed a significant inverse correlation between sexual desire and maternal age, gestational age, gravidity, number of spontaneous vaginal delivery (SVD) and abortions (Table 6).

Discussion

Female sexual response cycle includes a variety of domains which can be affected negatively by multiple factors, for that reason there was a need to develop a valid, reliable and multidimensional instrument to measure each of these domains (15). Our aim in this study is to assess the effect of pregnancy on the sexual functioning of Saudi women and compare it to that of non-pregnant ones. The study revealed a significantly lower score in desire, arousal, orgasm

and satisfaction domain of the FSFI in pregnant women compared to the non-pregnant, while there was no significant decrease in lubrication and pain domains of the sexual function. The study revealed also a significant inverse correlation between sexual desire and age, gravidity, number of spontaneous vaginal delivery (SVD), abortion and gestational age.

In the literature, many previous researches from diverse cultures had described a linear decline in sexual activity as well as the frequency with advancing pregnancy (11,16-18).

von Sydow 1999, reported in his study that a considerable number of pregnant women withheld intercourse during pregnancy (2). Onah et al, 2002 recorded a reduction in coitus frequency from "3.2 per week prior to pregnancy to 1.8 per week during pregnancy" (19). In a more recent study conducted by Corbacioglu Esmer et al., 2013, the percentages of sexual avoidance among Turkish pregnant women were about 12%, 8.5% and 37% in the first, second and third trimester, respectively (3). These findings were concordant to what this study has revealed. This study showed that the sexual activity of a considerable number of Saudi Muslim pregnant women showed a significant reduction in the scores of most of FSFI sexual activity domains compared to the control group (non-pregnant women). This comparison arm added a strength to this study over the previous ones. Many causes were identified in previous studies to justify the decline in sexual activity during pregnancy such as fear of harming the baby, physical awkwardness, loss of interest, painful coitus and loss of attractiveness as perceived by the pregnant woman and her partner (2,11&20).

In our study, a significantly lower score in sexual desire was recorded among the pregnant women compared to the non-pregnant ones. This finding was in agreement with the findings of Glazener, 1997 on pregnant women (21) They stated that "fatigue and weakness were commonly reported by women as reasons for loss of sexual desire during late pregnancy and postpartum". Not only that, hormonal and mood changes, backache, and breast sensitivity might be behind the discomfort during sexual activity which subsequently reduced women's interest in sexual intercourse. von Sydow 1999 and Bartellas et al., 2000 had described the mode of changes in sexual interest occurring during pregnancy. They reported that the sexual interest remains unchanged or slightly reduced during the first trimester, variable during the second trimester and declined sharply at the end of the third trimester. They added that both the woman and her partner may have concerns regarding complications affecting desire and satisfaction. Initiation of intercourse might be an indicator of an increase in sexual desire (2&10). Adinma 1995 conducted a study on the sexual activity of pregnant Nigerian women and reported that men initiated sexual intercourse more frequently than women before and during pregnancy (22). It was stated that "both partners usually initiated intercourse before pregnancy but the male partner was more likely to begin sexual activity during pregnancy which indicated reduced sexual desire and interest during pregnancy (3,18&23).

Our study also showed a significantly lower score in orgasm and satisfaction among the pregnant women compared to the non-pregnant. These findings were in accordance with those of Gokyildiz and Beji 2005 who interviewed 150 pregnant females and found "a significant increase in the inability to experience (18).

orgasm and dyspareunia, and a decrease in satisfaction particularly during the third trimester". A decrement in sexual satisfaction with intercourse was also reported by (11&24). On the other hand, 33% of participating women in the study conducted by Connolly et al., 2005 reported to have experienced orgasm during the third trimester as similar to that prior to pregnancy or improved (32). In line with these findings, some previous studies reported an increase in sexual satisfaction during the second trimester when compared with the first and third trimesters (25). A possible explanation for that is the recovery from nausea and fatigue experienced by pregnant women during the first trimester (26). So this increase in

sexual satisfaction represented a return to the pre-pregnancy levels rather than an actual increase (27).

In this study, there was a non-significant decrease in lubrication and pain domain reported by the pregnant women compared to the non-pregnant. This might be attributed to the fact the lubrication is intensified during pregnancy (28)(Lee 2002). von Sydow 1999 stated that "dyspareunia is reported by 22–50% of the pregnant women they included in this study(2). Aslan et al., 2005 added that pain during intercourse was reported to rise as the gestation increased (11). Murtagh 2010 attributed pain and discomfort experienced by females during pregnancy to physical aches and limitations which become more frequent during the third trimester making usual sexual activities more difficult and infrequent(29).

It was observed that there was a significant inverse correlation between sexual desire during pregnancy and independent factors including age, gravidity, number of SVD, abortion and gestational age. This supports what was described in a previous study conducted by Al Bustan et al. 1995 on pregnant Kuwaiti females (30). They reported that a younger age, multiparity, low-level of education and lesser duration of marriage affects sexuality positively during pregnancy. Gestational age, marked weight increase and urinary incontinence was reported to be significantly associated with FSFI scores (31). On the other hand, trimester of gestation and employment status were the only independent factors associated with a decline in sexual intercourse frequency during pregnancy according to. (3&32)

In was unexpectedly noticed that the response rate to the FSFI questionnaire among pregnant women in this study was only 70%. It is uncommon to discuss sexuality during pregnancy during antenatal care, especially in Arabic Muslim countries. In his meta-analysis study conducted on 59 studies, von Sydow stated that "68% of women did not discuss sexual functioning during pregnancy, while 27% of those who did, received restrictive advice, namely were prescribed a certain time of coital abstinence before birth(2). Only about 26 % of the Turkish pregnant women who participated in the study conducted by Corbacioglu Esmer et al., 2013 were asked about sexuality during pregnancy which indicated that discussing these issue during pregnancy is uncommon(3) in the clinical setting in Turkey. Not only in Turkey but also in China as only 9.4% were inquired about their sexuality in pregnancy (12). Corbacioglu Esmer et al., 2013 highlighted the importance of sexuality in pregnancy and recommended that conversations should take place about this topic with the patient(3)

Sexual problems during pregnancy could induce a bad influence on the marital bond and may hinder the adaptation of the pregnant woman to this transitory period (11). von Sydow 1999 said that "if both partners were satisfied with their sexuality during pregnancy, their relationship was better at four months postpartum and more stable 3 years later. Therefore, discussing the expected changes in sexuality during pregnancy should be regularly done by the health professional. It was reported that "if any of the obstetric complications such as bleeding, rupture of membranes, premature dilatation of cervix or heightened risk of premature labour was not present during the pregnancy, the couples should be reassured that sexual intercourse does not cause complication and be motivated to enjoy sexual activity during pregnancy"(23)

This study was a cross-sectional one which did not allow to follow the pregnant women through the three trimesters in order to study the pattern of changes happening in sexual activity across the whole pregnancy, and this is one of the study limitations. On the other hand, the study has a control arm which allows for comparison between sexuality in pregnant and non-pregnant women with a relatively large sample size. In addition, it is considered among the few studies that tackled this critical issue in an Arabic Muslim culture.

In conclusion, a significant reduction in sexual functioning was

experienced by the pregnant women in this study. Sexual changes throughout pregnancy should be discussed with couples during antenatal care in order to avoid the negative impact of such problems on the marital relationship.

Table (1) Reliability analysis of each domain items and the whole questionnaire items

Domain	Item number	Correlation	
		r	p
Desire	2	0.819	0.001***
Arousal	4	0.903	0.001***
Lubrication	4	0.899	0.001***
Orgasm	3	0.852	0.001***
Satisfaction	3	0.899	0.001***
Pain	3	0.828	0.001***
Domains	6	0.905	0.001***
Total	19	0.962	0.001***

***Extremely significant, p<0.001

Table (2) Demographic characters of the studied groups

Age	Mean±SD 29.86±5.73 (16-48)	30.34±5.95 (21-40)	T=0.86 P=0.352
Nationality	n % Saudi 298 (85.1) Others 52 (14.9)	n % 165 (83.3) 33 (16.7)	Chi-square =0.31 P =0.32
Education	n % Illiterate 6 (1.7) Elementary 8 (2.3) Intermediate 20 (5.7) Secondary 82 (23.4) University 234 (66.9)	n % 0 (0) 0 (0) 21 (10.6) 57 (28.8) 120 (60.6)	Chi-square =0.042 P =0.83
Occupation	n % Housewife 259 (74) 91 (26)	n % 140 (70.7) 58 (29.3)	Chi-square =0.69 P =0.231
Income	n % < 5000 104 (29.7) 5000-10000 159 (45.4) More 1000 87 (24.9)	n % 47 (23.7) 100 (86) 51 (52.8)	Chi-square =35.41 P =0.32
Gravidity	Median 3 Range (1-9)	2 (0-8)	P=0.41
Parity	Median 2 Range (1-9)	2 (0-6)	P=0.49
SVD	n % No 169 (48.3) 1 68 (19.4) More than 1 113 (32.3)	n % 88 (44.4) 33 (16.7) 77 (38.9)	Chi-square =2.13 P =0.144
CS	n % No 250 (71.4) 1 57 (16.3) More than 1 43 (12.3)	n % 180 (80.8) 13 (6.6) 25 (12.6)	Chi-square =1.86 P =0.199
Gestational age	Mean±SD 35.54±7.57 Range (6-42)	36.14±5.95 (8-42)	T= 1.80 P=0.09

Table (3) Domain score of the female sexual function index (FSFI) questionnaire of the pregnant and non-pregnant females

Domain	Mean	SD	Minimum	maximum
Desire				
Pregnant	4.96	1.73	2	10
Non pregnant	5.3	1.06	3	10
Arousal				
Pregnant	10.06	4.8	0	20
Non pregnant	14.06	3.29	2	20
Lubrication				
Pregnant	11.89	5.72	0	20

Non pregnant	11.8	6.68	1	20
Orgasm				
Pregnant	8.56	4.39	0	15
Non pregnant	11.62	4.64	1	15
Satisfaction				
Pregnant	10.25	3.59	2	15
Non pregnant	12.97	3.58	2	15
Pain				
Pregnant	7.8	4.28	0	15
Non pregnant	7.62	4.19	1	15

Table (4) Spearman rank correlation between the domains of the female sexual function index (FSFI).

	Desire	Arousal	Lubrication	Orgasm	Satisfaction
Desire					
Pregnant					
Non pregnant					
Arousal					
Pregnant	0.28*				
Non pregnant	0.84***				
Lubrication					
Pregnant	0.81***	0.76***			
Non pregnant	0.77***	0.85***			
Orgasm					
Pregnant	0.25*	0.11	0.21*		
Non pregnant	0.94***	0.75***	0.76***		
Satisfaction					
Pregnant	0.101	0.112	0.102	0.09	
Non pregnant	0.56***	0.67***	0.83***	0.71***	
Pain					
Pregnant	0.82***	0.72***	0.55***	0.41**	-0.23*
Non pregnant	0.25*	0.120	0.110	0.19*	-0.75***

* significant, p<0.05

***highly significant, p<0.01

***Extremely significant, p<0.001

Table (5) Comparison between scores of the Female sexual function index (FSFI) of pregnant and non-pregnant females.

Score	Pregnant Mean±SD	Non-pregnant Mean±SD	Test of significance
Desire total	4.96±1.23	5.3±1.06	T=2.5 P=0.005**
Feeling of sexual desire or interest	2.51±0.98	2.7±0.78	T=2.39 P=0.017*
Rate of the level of sexual desire or interest.	4.96±1.23	5.3±1.06	T=2.43 P=0.015*
Arousal total	10.06±4.84	14.06±3.29	T=10.21 P<0.001***
Feeling sexually aroused ("turned on") during sexual activity or intercourse.	2.63±1.45	3.4±1.33	T=6.1 P<0.001***
Rate of level of sexual arousal during sexual activity or intercourse?	2.41±1.23	5.63±1.22	T=10.9 P=0.001***
Confidence about becoming sexually aroused during sexual activity	2.39±1.22	3.67±1.44	T=5.41 P<0.001***
Satisfaction with arousal during sexual activity	2.65±1.44	5.37±1.55	T=5.89 P=0.001***
Lubrication	11.89±5.72	11.8±6.58	T=0.71 P=0.86
Lubrication ("wet") during sexual activity	2.77±1.57	2.84±1.84	T=.46 P=.64
Difficulty to become lubricated during sexual activity	2.38±1.64	3.43±1.87	T=.30 P=0.54
Maintenance of lubrication until completion of sexual activity	2.47±1.41	2.21±1.48	T=.41 P=0.52

Difficulty to maintain lubrication until completion of sexual activity	3.28±1.69	3.33±1.84	T=0.41 P=.74
Orgasm	8.56±4.39	11.62±4.64	T=7.46 P<0.001***
When having sexual stimulation or intercourse, how often orgasm (climax) is reached?	2.45±1.49	3.38±1.49	T=6.83 P<0.001***
When having sexual stimulation or intercourse, how difficult orgasm is reached.	3.28±1.67	4.37±1.56	T=5.9 P<0.001***
Satisfaction with the ability to reach orgasm during sexual activity.	3.2±1.71	4.87±1.65	T=4.21 P<0.001***
Satisfaction	10.25±3.59	12.97±3.58	T=5.01 P<0.001***
Satisfaction with the amount of emotional closeness during sexual activity with the partner	3.2±1.71	4.11±1.83	T=2.9 P=0.009**
Satisfaction with sexual relationship with the partner.	3.45±1.26	4.48±1.19	T=3.2 P=0.002**
Satisfaction with overall sexual life.	3.6±1.22	4.39±1.13	T=3.0 P=0.005**
Pain	7.86±4.26	7.62±4.19	T=0.43 P=0.66
Experience of discomfort or pain during vaginal penetration.	2.51±1.52	2.44±1.77	T=0.12 P=0.85
Experience of discomfort or pain following vaginal penetration	2.57±1.38	2.59±1.75	T=0.13 P=0.89
Rating of the level (degree) of discomfort or pain during or following vaginal penetration.	2.73±1.52	3.60±1.53	T=0.96 P=0.33

* significant, p<0.05

***highly significant, p<0.01

***Extremely significant, p<0.001

Table (6) Spearman rank correlation between domain of female sexual function index and some demographic factors

Variables	Desire	
	r	p
Age	-0.125	0.025*
Gravidity	-0.135	0.012*
Income	-0.053	0.320
Number of SVD	-0.120	0.025*
Number of CS	0.046	0.381
Number of abortion	-0.060	0.262
Gestational age	-0.134	0.012*

* significant, p<0.05

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