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A prospective analysis of sexual functions during pregnancy

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The aim of the study was to evaluate the sexual functions during pregnancy using the Female Sexual Function Index (FSFI) questionnaire. Pregnancies were recorded in a prospective cohort study comprising 40 healthy pregnant women. Pregnant women who had a stable relationship with their partner were enrolled in the study when were first diagnosed to be pregnant. During their antenatal visits, subjects were asked to complete the FSFI questionnaire and other information about their sexual life in each trimester. Each FSFI domain score was calculated and mean scores in each domain were compared according to the trimesters of pregnancy. Data of 37 subjects for the first, 36 for the second and 34 for the third trimesters of pregnancy were eligible for the analysis. The mean age was 25.5±4.5 y; mean parity was 0.4±0.7 and mean gravity was 1.6±0.9. The frequency of intercourse attempts during the last 4 weeks was 8.6±3 before pregnancy, and 6.9±2.5, 5.4±2.6 and 2.5±1.4 in the first, second and third trimesters of pregnancy, respectively. In all domains of FSFI, significant decline in domain scores was determined during pregnancy. The comparison of satisfaction and pain domain scores between first and second trimesters showed significant differences. All of the domain scores significantly decreased in the third trimester of pregnancy. Our results showed that sexual functions are significantly decreased during pregnancy and worsen as the pregnancy progresses. Childbearing couples should be given information about the sexual problems and fluctuations in the patterns of sexuality during pregnancy.
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Introduction

Female sexual dysfunction is an age-related and common problem, affecting 20–50% of women.[1] A combination of biological and psychological risk factors has been suggested in the etiology of sexual dysfunction.[2] Problems with sexual function have also been reported to occur commonly in pregnant women.[3–9] An overall decline in sexual activities with increasing gestation has been shown.[3–10] Several factors have been suggested to contribute to a decline in sexual activity during pregnancy, including physical discomfort, fear of injury to baby, loss of interest, physical awkwardness, painful coitus and perceived lack of attractiveness.[5,9–12]

The association between pregnancy and sexual dysfunction has been shown in the literature; however, most of these studies are of cross-sectional or retrospective rather than prospective study design.[9] Results from different studies may not be directly comparable, because different methods and definitions were used to evaluate sexual functions in pregnancy. It is also difficult to quantify the severity of symptoms. More quantitative measurements are needed on this issue.

Studies that assess the key dimensions of sexual function during pregnancy using multidimensional instruments are lacking. In this perspective, we used the Female Sexual Function Index (FSFI) questionnaire[13] to evaluate sexual function in this longitudinal cohort study in a group of healthy pregnant women undergoing routine antenatal visits.

Materials and methods

The institutional review board approval was taken before the initiation of this study and all subjects

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provided written consent. Pregnancies were recorded in a prospective cohort study comprising 40 healthy pregnant women. Pregnant women who had a stable relationship with their partner were included in this study. Patients were enrolled in the study when were first diagnosed to be pregnant. At this initial admission and during each antenatal visit, the patients were asked to complete the FSFI questionnaire and other information about their sexual life in each trimester. Routine antenatal follow-up was performed throughout the pregnancy.

Women with fetal–maternal complications or any comorbid conditions occurring during the pregnancy such that they should refrain from sexual activities were excluded from the study. Gestational age was determined from the last menstrual cycle and was verified with ultrasound scan measurements.

All subjects were asked to complete FSFI questionnaire forms during the visits in the outpatient rooms, alone. FSFI is a validated and reliable measure for female sexual function.[13] It has 19 questions, which assess the six domains of sexual function including desire, arousal, lubrication, orgasm, satisfaction and pain.[13] Score ranges for items 3–14 and 1–19 are 0–5 and for items 1, 2, 15 and 16 are 1–5.[13] The composite score is determined by the sum of the domains multiplied by the domain factor. The full-scale score range is from 2 to 36 with higher scores associated with a lesser degree of sexual dysfunction.

Subjects were also asked to report their frequency of intercourse by responding to the following question: how often did you experience sexual intercourse attempt during the last month?

Individual responses were tabulated onto a computer database. Each FSFI domain score was calculated and mean scores in each domain were compared according to the trimesters of pregnancy. Data were represented as mean $\pm$ standard deviation. For comparison of mean scores in pregnant women, the Friedman test was used. The comparison of scores between the first, second and third trimesters of pregnancy was performed using Wilcoxon's signed-rank test. Differences were considered statistically significant at $P<0.05$.

Results

The initial study sample consisted of 40 convenient samples of gravid women recruited for this prospective study. Three women in the first trimester, one woman in the second trimester and two women in the third trimester were excluded from the study due to maternal–fetal comorbid conditions occurring through the pregnancy. Thus, data of 37 subjects for the first, 36 for the second and 34 for the third trimesters of pregnancy were eligible for the analysis.

All of the participants were Caucasian. The mean age was 25.5 ± 4.5 y; mean parity was 0.4 ± 0.7 and mean gravity was 1.6 ± 0.9. A total of 28 women were null parity.

The frequency of intercourse attempts during the last 4 weeks was 8.6 ± 3 before pregnancy, and 6.9 ± 2.5, 5.4 ± 2.6 and 2.5 ± 1.4 in first, second and third trimesters of pregnancy, respectively. The frequency of intercourse attempts was significantly decreased with the increasing gestational age (Figure 1).

Domain scores of FSFI before pregnancy and according to the trimesters of pregnancy are shown in Table 1. Lower scores were observed as the gestational age increased. In all domains of FSFI, significant decreases in domain scores were determined during pregnancy.

When the domain scores were compared according to each trimester of pregnancy, significant differences were determined in all domains of FSFI except for desire, arousal, lubrication and orgasm, which were not significantly different between the first and second trimesters of pregnancy.

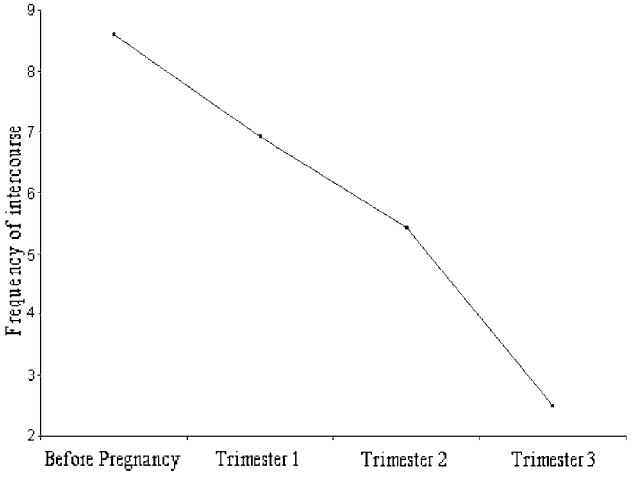

Figure 1 Frequency of intercourse before and during pregnancy.

Table 1 Domain scores before and during the trimesters of pregnancy (mean $\pm$ s.d.)

FSFI domain	*Before pregnancy* n = *40*	*Trimester 1* n = *37*	*Trimester 2* n = *36*	*Trimester 3* n = *34*	P*
Desire	4.6 ± 0.9	4.0 ± 0.9	3.8 ± 0.6	3 ± 0.8	
Arousal	4.9 ± 1	4.4 ± 1.1	4.1 ± 0.9	3 ± 1.2	
Lubrication	5.6 ± 0.6	5.1 ± 0.9	4.8 ± 0.9	3.6 ± 1.4	
Orgasm	5.4 ± 0.8	4.8 ± 1.2	4.6 ± 1	3.5 ± 1.4	
Satisfaction	5.7 ± 0.5	5.3 ± 0.8	5 ± 0.9	4.1 ± 1	
Pain	5.2 ± 1	4.8 ± 1.1	4.1 ± 1.3	3.2 ± 1.6	
Total	31.4 ± 4	28.4 ± 5	26.3 ± 4.4	20.6 ± 6.2	

*$P<0.000$ for all domains in the Friedman test.

Discussion

It is widely accepted that pregnancy has some influences on the sexual behavior of women. A decline in sexual activity is reported during pregnancy.[6,9,10,14] The physiologic and psychological changes that occur during pregnancy may affect sexual function and satisfaction as well. Sexuality and sexual activity among pregnant women have been extensively studied in the literature. However, prospective studies assessing the sexual function during pregnancy are limited. In our study, we have designed a prospective cohort study to evaluate sexual function during pregnancy and we have found significant changes in sexual functions of pregnant women.

Previous studies on sexual function in pregnant women have been limited by lack of a specific and validated questionnaire to measure sexual function in this population. Since the definition of female sexual dysfunction has evolved over the recent years, reflecting the evolving concept that the normal female sexual cycle is composed of a variety of domains, multidimensional instruments are needed to assess each domain.[15] In our study we used FSFI, which is a validated and reliable measure for female sexual function and has domains including the phases of female sex response cycle and pain.[13] Using FSFI, to our knowledge, our prospective study is the first to show the influence of pregnancy on female sexual functions.

In this study, significant decline in the frequency of intercourse has been determined through the trimesters of pregnancy. A considerable number of pregnant women were reported to abstain coitus during pregnancy.[3,5,9,11] In a study by Onah *et al*,[14] the frequency of coitus was reported to be decreased from 3.2 per week before pregnancy to 1.8 per week during pregnancy. Our results are in agreement with these previous reports showing that the coital activity diminished once the pregnancy was confirmed.

In the present study, we have found significant changes in all domains of FSFI during the pregnancy. Lower scores were observed as the pregnancy progressed. A number of reports exist in the literature to correlate with our findings.[3,6–9,11,14] Sexual interest was reported to be unchanged or slightly decreased in the first trimester, variable in the second trimester and decreased sharply at the end of the third trimester.[3,5,6,9] Lubrication is intensified during pregnancy, whereas orgasm is variable.[8–10,16] In our study, the changes of domain scores of desire, arousal, lubrication and orgasm were found to be insignificant between the first and second trimesters of pregnancy. There are some reports in the literature that show decrement in sexual satisfaction with intercourse, as shown in our study.[3–5] Dysparenia is reported to be experienced by 22–50% of the pregnant women.[9] In the present study, pain was determined to rise as the gestation increased. Our results are in agreement with these reports showing general decline in sexual functions during pregnancy. However, it should be stressed that since different definitions and methods are used in most of these studies, our results may not be directly comparable. Normative data on the sexual functions of pregnant women are scarce. Prospective studies evaluating pregnant women with quantitative and valid instruments to establish normative data on sexual function in this population are needed.

Our results have shown that sexual functions determined by FSFI were affected by pregnancy. In this study, male assessment was not included. The decrement in sexual functions may occur not only in the pregnant women but also in their partners. The decreased sexual domain scores of pregnant women may be associated with partner-related factors. Pregnant women's attractiveness as perceived by themselves and by their partner may have an influence on coital activity and sexual enjoyment. The discomfort due to pregnancy can affect the satisfaction of both male and female partners. Additionally, both the woman and her partner may have concerns regarding complications in the pregnancy as a result of sexual activity. Further studies evaluating the perceived changes in intimacy and sexuality in pregnant couples are needed.

Hormonal evaluation was not performed in our study. In this study, our primary aim was to ascertain the sexual functions using a validated and reliable measure for female sexual function. Female sexual dysfunction is believed to be closely related to hormonal situations. The association between hormones and sexuality is multidimensional, as several hormones are important in regulation of sexual behavior. It is well known that hormone levels are influenced during pregnancy. Differences between prepregnancy and various trimester periods might have influenced sexual function in these women.

Our results showed that sexual functions significantly decreased during pregnancy and worsened as the pregnancy progressed. Because of the arising need for reproducible and validated data, our study with FSFI may afford a quantitative baseline in the understanding of sexual functions during pregnancy. Sexual problems during pregnancy may have a negative effect on marital bonds and may be an obstacle for the adaptation of women to this transient phase. Physicians who provide health care for childbearing couples should give information about the sexual problems and fluctuations in the patterns of sexuality during pregnancy.

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