



# Prevalence and correlates of female sexual dysfunction among Turkish pregnant women

## *Hamile kadınlarda cinsel disfonksiyon sıklığı ve eşlik eden risk faktörleri*

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### ABSTRACT

**Objective:** The aim of the present study was to determine the prevalence and associated factors of female sexual dysfunction together with the concerns of women about sexuality during pregnancy.

**Material and methods:** A total of 207 healthy, sexually active pregnant women were enrolled in the study. Demographic data of all participants were noted and sexual functions were evaluated by Female Sexual Function Index (FSFI). Each FSFI domain score was calculated and mean scores were noted. Concerns of women about sexuality were also investigated.

**Results:** Mean age of participant women was 27.0±5.9 (range 15–44) years. Prevalence of sexual dysfunction was found to be 87% in study population. Mean FSFI score was 18.6±1.21. The rate of sexual dysfunction was higher in the first (87%) and third (92.6%) trimesters when compared to the second (80.6%) trimester (p=0.243). Among demographic variables, education levels of partners and preconceptional sexual dysfunction were found to be significantly related to FSD. The most common concerns of women about sexual relationship have been reported as the fear of having pain (35%), risk of abortion (21.3%) and religious factors (10%).

**Conclusion:** Prevalence of sexual dysfunction is relatively high among pregnant women. Educational levels and preconceptional sexual functions were found to have an impact on this high rate. Accurate counseling of partners about sexuality during pregnancy may help to reduce misbeliefs, concerns and, thereby, decrease this high rate of female sexual dysfunction.

**Keywords:** Education; female sexual function index; pregnancy; sexual dysfunction; trimester.

### ÖZ

**Amaç:** Çalışmanın amacı hamile kadınlarda cinsel disfonksiyon sıklığı ve eşlik eden risk faktörlerinin yanı sıra kadınların gebelik sırasında cinsellikle ilgili kaygılarının da belirlenmesidir.

**Gereç ve yöntemler:** Toplam 207, sağlıklı ve cinsel aktif hamile kadın çalışmaya dahil edilmiştir. Tüm katılımcıların demografik bilgileri kaydedilmiş ve seksüel fonksiyonlar kadın cinsel fonksiyon indeksi (FSFI) ile değerlendirilmiştir. Her alandaki indeks soruları için ortalama değerler hesaplanmıştır. Ek olarak kadınların hamilelik sırasında cinsellikle ilgili kaygıları da değerlendirmeye alınmıştır.

**Bulgular:** Katılımcıların ortalama yaşı 27,0±5,9 (15–44) idi. Hamile kadınlarda cinsel disfonksiyon oranı %87 olarak bulundu. Ortalama FSFI skoru 18,6±1,21 idi. cinsel disfonksiyon oranı ilk (%87) ve 3. (%92,6) trimesterde ikinci trimestere (%80,6) oranla yüksek saptandı (p=0,243). Demografik verilerden yalnızca partnerlerin eğitim durumu ve gebelik öncesi cinsel disfonksiyon varlığı gebelikteki cinsel disfonksiyon ile ilişkili bulunmuştur. Kadınların cinsellikle ilgili kaygıları değerlendirildiğinde ilk sırada ilişki sırasında ağrı gelişme korkusu (%35), düşük riski (%21,3) ve dini sebepler (%10) yer almaktadır.

**Sonuç:** Gebe kadınlarda cinsel disfonksiyon oranı oldukça yüksektir. Eğitim düzeyleri ve gebelik öncesi cinsel disfonksiyon varlığı bu yüksek oranın ortaya çıkmasında etkin bulunmuştur. Gebelik sırasında çiftlerin cinsellikle ilgili bilgilendirilmeleri yanlış inanışları azaltarak cinsellikle ilgili kaygıların ve dolayısıyla cinsel disfonksiyonların azalmasına katkı sağlayabilir.

**Anahtar Kelimeler:** Eğitim; kadın cinsel fonksiyon indeksi; gebelik; trimester; cinsel disfonksiyon.

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## Introduction

Female sexual dysfunction (FSD) is described as disturbances of libido, arousal and orgasm that may lead to negative impact on women's quality of life.<sup>[1]</sup> FSD is generally associated with low self-esteem and emotional distress. Although the rates may vary, nearly half of the women may experience FSD during their lifetime.<sup>[2,3]</sup> In Turkey, the prevalence of sexual dysfunction in women has been reported to range between 46.9% and 48.3%.<sup>[4,5]</sup> Various studies demonstrated that FSD was found to be associated with age, parity, smoking, menopause, educational level and sociocultural factors.<sup>[6-8]</sup>

Pregnancy is a complex period in which various anatomic and physiological changes in conjunction with psychological and cultural factors may have an impact on the sexuality of partners. Sexual function during pregnancy is an important aspect of quality of life and should be discussed with all pregnant women and their partners.<sup>[9]</sup> Most of the studies have demonstrated that sexual activity declines throughout pregnancy, however, a slight increase during second trimester has also been reported.<sup>[10-12]</sup> Factors which may thought to affect sexuality during pregnancy were reported as maternal age, parity, educational level, employment status, gestational age and duration of marriage.<sup>[12-14]</sup> Additionally, sexual functions of women before pregnancy were also important to predict sexual changes during pregnancy.<sup>[12-15]</sup>

Although the number of epidemiological studies increased in this field, data regarding the prevalence of sexual dysfunction and concerns about sexuality in pregnant Turkish women are still limited. Therefore, the aim of the present study was to evaluate the changes in sexual function during pregnancy by using a validated questionnaire in Turkish pregnant women. Besides, we aimed to examine whether certain demographic variables, preconceptional sexual functions and concerns of women about sexual intercourse were of importance, as some of these have been shown to be associated with changes in sexual activity during pregnancy.

## Material and methods

This cross-sectional study was conducted in one outpatient antenatal clinic of an obstetric department in a university hospital and three basic health clinics at different regions of the city with a total of 207 pregnant women. The study design was approved by the ethics committee of Kahramanmaraş Sütçü İmam University Clinical Studies.

Healthy pregnant women who were sexually active and still living with their partners at least for the previous six months were included in this study. Patients who had systemic illnesses such as diabetes mellitus, hypertension, hyperlipidemia and thyroid dysfunction or those conceived by any assisted reproduction techniques were also excluded from the study.

Gestational age was calculated according to the last date of the menstrual cycle and confirmed by ultrasonography. Women in their first 12 weeks were accepted as the first, 12-24 weeks as second and over 24 weeks as 3<sup>rd</sup> trimester.

The protocol and the objectives of the study were explained to pregnant women and informed consent was received from all participants before the onset of the study. Pregnant women were asked to complete the sexual function questionnaire in a separate room to provide prerequisites for privacy. Women included in the study were asked whether they have experienced any sexual disorder such as low sexual desire, arousal and lubrication disorders and pain during intercourse before pregnancy to evaluate the prepregnancy sexual function which may serve as baseline data for further comparison of each woman.

All women were assessed with a detailed medical and sexual history. Basic demographic data including age, educational level of partners, employment status, duration of marriage and parity were collected and a comprehensive physical examination was also performed for each women.

Sexual dysfunction of the study population was evaluated by using Turkish version of a validated 19-item, self-administered questionnaire investigating six domains as sexual desire (questions 1-2), sexual arousal (questions 3-6), lubrication (questions 7-10), orgasm (questions 11-13), satisfaction (questions 14-16) and pain (questions 17-19).<sup>[16]</sup> The score for each domain ranges from 0 to 5 except for the questions 1, 2, 15, 16 in which scores range between 1 and 5 points. The composite score is the total of the answers to each question of a specific domain multiplied by a factor. The cut-off value of total FSFI score for sexual dysfunction was accepted as <26.55, according to the literature.<sup>[17]</sup>

## Statistical analysis

All data were analyzed using Statistical Package for Social Science 15.0 (SPSS Inc; Chicago, IL, USA) for Windows. Data were statistically described as mean, standard deviation, frequencies (number of participants) and percentages. Quantitative variables were analyzed by Student's t-test and one-way ANOVA, and analysis of categorical data was performed by Scheffe test. A *p*-value of <0.05 was accepted as statistically significant.

## Results

Table 1 represents the demographic features of the pregnant women. The mean age of 207 participants was  $27.0 \pm 5.9$  (range 15-44) years. The demographic features of the pregnant women were found to be homogenous when investigated with respect to the trimesters. By using an established cut-off score of 26.55, 180 out of 207 pregnant women were reported to have female sexual dysfunction. Mean FSFI score of the participants was found to be  $18.6 \pm 1.21$ . Mean FSFI scores of women in the first, second and third trimesters were  $19.1 \pm 0.8$ ,  $19.9 \pm 1.4$  and  $17.2 \pm 1.63$ , respectively.

Table 2 shows the scores for each domain and total FSFI score of the study population.

The prevalence of FSD with respect to demographic variables was presented in Table 3. Among them, only the educational level was found to be significantly related to FSD. Additionally, we investigated the educational level of male partners and found out that 9 of them were illiterate, while the patients were educated for less ( $n=111$ ) or more than 8 years ( $n=87$ ). Educational level of male was found to have a significant, inverse relationship with FSD ( $p=0.001$ ).

Prevalence of FSD was lower in the second trimester (80.6%) and highest in third trimester (92.6%). Retrospectively, women were also asked about their sexual functions in the preconceptional period. Table 4 shows the rate of FSD among pregnant women according to the presence of preconceptional sexual disorder. The most common sexual disorder before pregnancy was reported as low sexual desire (39.5%).

Participant women were also evaluated according to the approval for sexual intercourse during pregnancy. More than 1/3 of women were reported that they did not approve sexual intercourse during pregnancy. The most common reasons for denial were found as the fear of pain (35%), abortion risk (21.3%) and fear of committing a sin (10%). The rate of approval was higher among pregnant women who have been in their 2<sup>nd</sup> trimesters.

When each domain of FSFI was correlated with demographic variables of pregnant women, it was found out that nulliparous women had higher desire and satisfaction scores than parous women ( $p=0.021$ ,  $p=0.031$ ).

## Discussion

Pregnancy is accepted as an important life stress which may disturb the previous life styles of both partners including sexual functions. Main factors which may lead to sexual dysfunction during pregnancy are physical and hormonal changes that may cause perceived loss of attractiveness, diminished self-esteem

**Table 1. Demographic properties of the pregnant women**

Mean age (years)	$27.0 \pm 5.9$ (Range 15-44 years)		
Trimester (n/%)	1 <sup>st</sup>	54	26.1
	2 <sup>nd</sup>	72	34.8
	3 <sup>rd</sup>	81	39.1
Parity (n/%)	Nullipara	65	31.4
	Primipara	57	27.5
	Multipara	85	41.1
Educational level (n/%)	Illiterate	23	11.1
	<8 years	146	70.5
	>8 years	38	18.4
Duration of marriage (n/%)	≤5 years	114	55
	6-10 years	51	24.6
	>10 years	42	20.4

**Table 2. FSFI scores of the pregnant women**

FSFI score	Mean±SD
Desire	$2.91 \pm 1.07$
Arousal	$2.92 \pm 1.22$
Lubrication	$2.88 \pm 1.17$
Orgasm	$3.30 \pm 1.49$
Satisfaction	$3.70 \pm 1.55$
Dyspareunia	$3.34 \pm 1.75$
Total score	$18.6 \pm 1.21$
FSFI: female sexual function index	

due to low body image and other psychological factors.<sup>[18]</sup> The prevalence of FSD among pregnant women was reported between 50-80% in the literature.<sup>[9,12,15,19]</sup> In Turkey, epidemiological studies revealed a much higher rate of FSD during pregnancy as 80-90%.<sup>[14,20]</sup> The rate of FSD in our study population was found to be 87% which was similar to those studies.

Sexual functions generally decline throughout the pregnancy. Early studies by Solberg<sup>[21]</sup> and Kenny<sup>[22]</sup> and more recently Aslan et al.<sup>[10]</sup> reported that coital frequency, orgasmic activity and sexual interest declined progressively once pregnancy is discovered. In contrary, some studies demonstrated a relative increase in sexual functions during second trimester when compared to the first and third trimesters.<sup>[11,12,18]</sup> The reasons of

**Table 3. Prevalence of FSD according to trimester, parity, educational level among the pregnant women**

	Women with FSD	Women without FSD	p
<b>Age (years)</b>	<b>n (%)</b>		
<20 years	25 (86.2)	4 (13.8)	0.184
21-30 years	110 (90.9)	11 (9.1)	
>30 years	45 (78.9)	12 (21.1)	
<b>Trimester</b>			
First	47 (87)	7 (13)	0.243
Second	58 (80.6)	14 (19.4)	
Third	75 (92.6)	6 (7.4)	
<b>Parity</b>			
Nullipara	54 (83.1)	11 (16.9)	0.110
Primipara	53 (93.0)	4 (7)	
Multipara	73 (85.9)	12 (14.1)	
<b>Education</b>			
Illiterate	20 (87)	3 (13)	0.001*
<8 years	134 (91.8)	12 (8.2)	
>8 years	26 (68.4)	12 (31.6)	

\*Statistically significant difference (one-way ANOVA analysis). FSD: female sexual dysfunction

**Table 4. Prevalence of FSD in pregnant women with respect to presence of preconceptional sexual disorders**

Preconceptional sexual disorder	Women with FSD	Women without FSD	p
Present: n (%)	100 (78.7)	27 (21.3)	<0.0001*
Absent: n (%)	80 (100)	0	

\*statistically significant difference (one-way ANOVA analysis). FSD: female sexual dysfunction

increased sexual dysfunction in the first trimester were related to increased fatigue due to nausea, vomiting and inability to comply with this new period.<sup>[13]</sup> Cessation of those complaints, less fear of miscarriage and increased vascular congestion may contribute to decreased rate of FSD in the second trimester.<sup>[18,23-25]</sup> Increased abdominal volume, postural changes with subsequent lumbar pain and fear of preterm labor were counted as the reasons of more intense sexual dysfunction in third trimester.<sup>[26]</sup>

Our data also revealed that the rate of pregnant women with FSD was higher in the first and third trimesters than the second trimester. However, this difference was not significant.

Many demographic factors such as age, educational level, parity and duration of marriage were suggested to affect sexuality during pregnancy. Although some studies demonstrated significant correlation between age and FSD, others failed to show this relationship.<sup>[12-15]</sup> A study with 220 muslim women reported that younger age, multiparity and lesser duration of marriage were positively correlated with female sexuality.<sup>[27]</sup> However, studies from Turkey did not reveal any correlation between parity, duration of marriage and FSD.<sup>[15,20]</sup> Present study also failed to demonstrate any effect of age and duration of marriage on female sexual functions. However, we found that nulliparous women had significantly higher sexual desire and satisfaction scores than parous ones. This finding may be related to previous bad memories about pregnancy. Increased concerns in women who suffered from nausea, vomiting and risk of premature labor in their previous pregnancies may result in reduced sexual desire and satisfaction.

The relationship between educational level and sexual functions was also found to be controversial.<sup>[20,25-28]</sup> Studies about sexuality of women during pregnancy stated that a woman gets major part of her information from other women fellows, and all sorts of misconceptions may be delivered. Educated women were thought to have a tendency to search other information sources about sexuality and by this way, prevent themselves from misbeliefs which were found to be the reasons of sexual dysfunction during pregnancy. Laumann et al. stated that the relationship between low educational level and sexual dysfunction may be explained by a more emotionally and physically stressful life style and by the fact that in general these people were less healthy.<sup>[29]</sup> Besides, some authors reported that low educational level was also related to the increased number of pregnant in adolescent period.<sup>[30,31]</sup> Those adolescents begin their sexual life early, carry a risk of unplanned pregnancy as a result of lack of opportunities of access to information about sexuality, in addition to search for pleasure, absence of guidance, and advice of families, natural curiosity, and need for self-affirmation. Present study exhibited significant association between FSD and low educational level. This difference was more significant between illiterate and high school educated women. Besides, the education level of male partner was also suggested to be related with female sexual functions.<sup>[32]</sup> Similar to that study, we found out a significant relationship between male education level and FSD which means that the higher the male educational level the lower the rate of FSD. Couples with high educational level may be aware of risks and encourage themselves about counseling their sexual life to a professional before or during pregnancy and, therefore, decrease the risk of developing sexual dysfunction during pregnancy period.

Studies about female sexual functions have generally disregarded the concerns of women about sexuality during pregnancy. In a meta-analysis, von Sydow<sup>[33]</sup> reported that 68% of women did not discuss the sexuality during pregnancy, while remaining received limited information, namely they were prescribed a certain time of coital abstinence before birth. Corbacioglu Esmer et al.<sup>[15]</sup> reported that 135 out of 348 women worried that sexual intercourse might harm the pregnancy, however, they did not mention the reasons of this thought. Other studies reported that bleeding, infection and the fear of initiating preterm labor and abortion were noted as the common concerns of women about sexual intercourse during pregnancy.<sup>[18,20,25,34]</sup> In the present study, 80 women (38.6%) reported that they had concerns about sexual intercourse such as fear of pain and risk of abortion during pregnancy. Interestingly, 10% of pregnant women regarded sexual activity as a sin. A similar result was published in an Iranian study where this rate was 25%.<sup>[25]</sup> It can be hypothesized that religious factors together with the social and cultural features may have impact on the perceptions of women about sexuality during pregnancy.

This study also determined that the presence of sexual disorders experienced in the preconceptional period was directly related to the sexuality during pregnancy. Those women may have an impaired basal sexual function due either to psychosocial or physiological factors and addition of concerns about pregnancy may result in a much worsened sexual dysfunction. Similar to our data, Ahmed et al.<sup>[12]</sup> and Yildiz<sup>[35]</sup> reported that FSFI scores during pregnancy were strongly correlated with prepregnancy sexual functions.<sup>[35]</sup> Another study stated that personal beliefs may affect sexuality and reduce the frequency of sexual intercourse during pregnancy when compared to prepregnancy period.<sup>[36]</sup>

According to our data, it can be speculated that partners with low educational level and women who experienced preconceptional sexual disorders have a higher risk of suffering from sexual dysfunction during pregnancy. Therefore, counseling these population about sexuality may help to improve sexual functions by correcting the misbeliefs on this issue.

Major limitations of our study included the lack of prospective study design and absence of an age-matched, non-pregnant control group. Additionally, we could not evaluate the opinions and concerns of male partners about sexuality and male sexual dysfunction which may develop secondary to female sexual dysfunction during pregnancy, because majority of men did not consult to clinics with their partners. It should be kept in mind that male sexual dysfunction was among the reasons of FSD. When high prevalence of erectile dysfunction in Turkey taken into consideration,<sup>[37]</sup> assessment of male sexual dysfunction may add valuable information about FSD in future studies.

In conclusion, sexual dysfunction is common among pregnant women. Especially, educational levels of partners and presence of preconceptional sexual disorders in women were strongly related to FSD. The concerns of women about sexuality include increased risk of abortions, pain during sexual intercourse and religious matters. It can be concluded that giving adequate information about sexual life to couples during pregnancy may reduce the concerns and misbeliefs and, by this way, decrease the rate of sexual dysfunction.

**Ethics Committee Approval:** Ethics committee approval was received for this study from the ethics committee of Kahramanmaraş Sütçü İmam University School of Medicine.

**Informed Consent:** Written informed consent was obtained from patient who participated in this study.

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