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Comparative cross-sectional study on sexual function of couples during pregnancy: Assisted reproductive techniques versus spontaneous conceptions

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Abstract

This study aims to compare the sexual functions of couples undergoing assisted reproductive techniques (ART) with those conceiving spontaneously during pregnancy. A total of 102 couples participated in this cross-sectional study, with 68 couples in the spontaneous conception group and 34 couples in the ART group. Data collection was conducted face-to-face in the antenatal clinic using separate “Descriptive Information Form” for women and men, “Female Sexual Function Index (FSFI)” for women, and “Libido Scoring System (LSS)” for men. Descriptive statistical methods, Chi-square and Fisher exact tests, t-test, and Pearson correlation test were used for data analysis. It was observed that the mean FSFI total scores of women who conceived spontaneously and through ART during pregnancy were at a good level (≥ 30), while the mean LSS scores of their partners were at a moderate level (5-7). No statistically significant distinction existed among the groups. Further research is advisable by adjusting the sample selection criteria, such as gravida, duration of ART treatment, and gestational age. (*Afr J Reprod Health* 2024; 28 [1]: 84-93).

Keywords: Assisted reproductive techniques; pregnancy; partner evaluation; sexual function

Résumé

Cette étude vise à comparer les fonctions sexuelles des couples soumis à des techniques de procréation assistée (ART) avec ceux qui conçoivent spontanément pendant la grossesse. Au total, 102 couples ont participé à cette étude transversale, dont 68 couples dans le groupe conception spontanée et 34 couples dans le groupe ART. La collecte de données a été réalisée en face-à-face dans la clinique prénatale en utilisant un « formulaire d'informations descriptives » distinct pour les femmes et les hommes, un « indice de fonction sexuelle féminine (FSFI) » pour les femmes et un « système de notation de la libido (LSS) » pour les hommes. Des méthodes statistiques descriptives, les tests exacts du chi carré et de Fisher, le test t et le test de corrélation de Pearson ont été utilisés pour l'analyse des données. Il a été observé que les scores totaux moyens FSFI des femmes ayant conçu spontanément et par TAR pendant la grossesse étaient à un bon niveau (≥ 30), tandis que les scores moyens LSS de leurs partenaires étaient à un niveau modéré (5-7). Aucune distinction statistiquement significative n'existait entre les groupes. Des recherches plus approfondies sont recommandées en ajustant les critères de sélection des échantillons, tels que la gravité, la durée du traitement ART et l'âge gestationnel. (*Afr J Reprod Health* 2024; 28 [1]: 84-93).

Mots-clés: Techniques de procréation assistée ; grossesse; évaluation des partenaires; fonction sexuelle

Introduction

Sexuality is a crucial element of human life, not crucial but required for the propagation of the species, commencing from intrauterine life till death. It is affected by multiple factors such as psychological, social, economic, political, cultural, legal, historical, religious, biological, spiritual, and sociocultural aspects throughout one's life^{1,2}. During pregnancy, women can experience significant

physical, emotional, and hormonal changes that may impact their overall quality of life, including their sexual relationships with their partners³⁻⁵. Infertility, defined as the inability to conceive after trying to conceive through unprotected sexual intercourse for at least one year in couples of reproductive age, can also have an adverse effect on couples' sexual lives^{6,7}. Many couples who experience infertility seek treatment in order to have a child. However, pregnancies resulting from assisted reproductive

techniques (ART) are often perceived as valuable, costly and hazardous. Even following successful treatment, mothers may encounter obstacles such as struggling to accept the pregnancy, fear of miscarriage, anxiety, obstetric difficulties (such as nausea, vomiting, and an increased risk of preterm birth) and being of an advanced maternal age. Additionally, these pregnancies carry a greater risk of multiple gestations⁸⁻¹⁰. Studies have indicated an increased frequency of pregnancy complications and losses in ART-conceived pregnancies when compared to those conceived naturally¹¹. Pregnant women and their partners may often experience apprehension and worry over engaging in sexual activity during pregnancy¹². The common factors behind the fear of sexual intercourse during pregnancy include concerns about bleeding, infection, harm to fetal development, initiation of labour, and premature rupture of membranes^{4,13}. The anxiety about harming the woman or the baby may impede men's desire and arousal, subsequently affecting their sexual function¹⁴.

The objective of this cross-sectional analysis is to compare the sexual function of couples based on their method of conception, explicitly differentiating between those who had achieved spontaneous conceptions and those who had conceived through assisted reproductive techniques.

Methods

This cross-sectional study took place at the Antenatal Clinic of Istanbul Medicalpark Goztepe Hospital from January to November 2020. The study's objectives were clearly communicated to the couples, accompanied by information about the informed consent form. The researchers committed to following the Helsinki Declaration principles. Ethical and institutional approvals for the study were obtained from the Ethics Committee of Bahcesehir University School of Medicine (22481095-020-372).

Sample selection

The study population included pregnant women and their partners attending the Antenatal Clinic. Sample size calculation was performed using G Power 3.1. Since no previous study was found in the literature to determine the difference in FSFI and LSS between spontaneous conception and ART groups, a large

effect size of .80 was chosen based on multiple regression analysis¹⁵. To achieve a study power of 80% at a significance level of 5%, a minimum of 28 participants in each group, totalling 56 participants, were required (df:54; t:1.674). Accordingly, during the research period, 102 couples, including the spontaneous conception group (n=68) and the ART group (n=34), were selected as the sample group by including eligible couples who presented to the Antenatal Clinic. The inclusion criteria for the study included being able to communicate in Turkish, having an ongoing sexual life, and voluntary participation of both pregnant women and their partners. The exclusion criteria included experiencing pregnancy complications (threatened miscarriage, infection, third-trimester bleeding, premature rupture of membranes, preterm labour) and having restrictions on sexual life. The selection of gestational weeks was not restricted. It was calculated based on the last menstrual period, first-trimester ultrasound data, and embryo transfer date for in vitro fertilisation (IVF) pregnancies.

Data collection

The data was collected by the researchers using data collection tools (separate descriptive information forms prepared for women and men, Female Sexual Function Index (FSFI), and Libido Scoring System (LSS), while ensuring privacy.

Descriptive information forms: The forms were prepared by the researchers based on the literature^{16,17}. The form for pregnant women includes sociodemographic characteristics (age, education, employment status, income level, occupation), obstetric characteristics (method of conception, gravidity, parity, gestational week, pregnancy-related health problems), general health history (smoking-alcohol use, existing chronic diseases), and sexual history. The form for men includes sociodemographic characteristics (age, education, employment status, income level, occupation) and their sexual history. The pregnant women and their partners completed the questionnaires separately in approximately five minutes.

Female sexual function index (FSFI): Developed by Rosen et al. in 2000, FSFI is a scale designed to assess women's sexual functions in the

past four weeks¹⁸. The Turkish validity-reliability study of the scale was conducted by Aygin and Aslan¹⁹. This scale consists of 6 sub-dimensions and a total of 19 questions. These sub-dimensions include arousal, desire, satisfaction, orgasm, lubrication, and pain. A 6-point scale (0-5) is used to evaluate questions 3-14 and 17-19, while a 5-point scale (1-5) is applied to other questions. The total scale score ranges from 2 to 36, with higher scores indicating better sexual function. An FSFI total score ≥ 30 is considered good sexual function, scores between 23-29 are classified as moderate, and a score <23 is considered insufficient. In our study, this scale was completed by the pregnant women in a 10-minute time frame. The Cronbach's alpha coefficient was calculated as 0.925.

Libido scoring system (LSS): The Libido Scoring System (LSS) was developed by Api et al. and has a Cronbach's alpha coefficient of 0.83²⁰. LSS is a four-question scoring system that includes questions about orgasm, frequency of sexual intercourse, initiation of sexual intercourse, and masturbation. The answers are scored as 0, 1, 2, or 3 points. LSS is evaluated over a total of 12 points. The total score of all the questions in LSS determines the participant's libido score. A total score of less than 3 indicates a loss of libido, scores of 3 and 4 indicate low libido, 5-7 indicate moderate libido, and 8-12 indicate high libido. In our study, the partners of the pregnant women in both groups completed the LSS questionnaire in a five-minute time frame. The Cronbach's alpha coefficient was found to be 0.759.

Data analysis

The data obtained in the study were analysed using the SPSS (Statistical Package for Social Sciences) for Windows 22.0 program. Descriptive statistical methods such as numbers, percentages, means, and standard deviations were used to evaluate the data. Differences in the rates of categorical variables between independent groups were analysed using Chi-square and Fisher exact tests. The t-test was used to compare quantitative continuous variables between the two independent groups. Pearson correlation analysis was applied to examine the correlation between continuous variables in the study.

Results

In our study, a total of 102 couples were included, consisting of the spontaneous conception group (n=68) and the ART group (n=34). The sociodemographic, obstetric, sexual, and descriptive data for the pregnant women and their partners between the groups are presented in Table 1 (Table 1).

In our study, it was observed that in the spontaneous pregnancy group, most participants had a bachelor's degree or higher education (86.8%), and among working pregnant women, 69.1% had a high level of education. In the assisted reproductive technology (ART) pregnancy group, there was a higher percentage of participants with primary education (52.9%) and non-working pregnant women (55.9%). A statistically significant difference exists between the groups ($p<0.05$). The groups had no significant differences regarding other sociodemographic, obstetric, and sexual characteristics ($p>0.05$) (Table 1). Both groups had a higher percentage of pregnant women who regularly used medication (spontaneous=52.9%, ART= 73.5%), and there is a statistically significant difference between the groups ($p<0.05$). There are significant differences between the groups in terms of the prevalence of hypertension (spontaneous=4.4%, ART= 20.6%), anxiety disorders (spontaneous= 4.4%, ART= 32.4%), and thyroid disorders (spontaneous= 2.9%, ART= 23.5%) ($p<0.05$) (Table 1A).

All pregnant women in the spontaneous group were expecting a single baby (100%). In contrast, in the ART group, 20.6% had twin pregnancies, and there is a significant difference in the expected number of babies based on the mode of conception ($p<0,001$). Nearly half of the pregnant women (48.5%) in the spontaneous group were in the third trimester, while in the ART group (44.1%), they were in the first trimester, and there is a significant difference between the trimesters ($p<0.05$). There are statistically significant differences between the groups in terms of the prevalence of pregnancy-related nausea and vomiting (spontaneous=51.5%, ART= 79.4%), urinary tract infections (spontaneous= 13.2%, ART= 38.2%), and pregnancy-induced hypertension

Table 1: Sociodemographic, Obstetric, and Sexual Characteristics of the Groups (n=102)

Table 1A: Sociodemographic Characteristics		Spontaneous (n=68)		ART (n=34)		Total (n=102)		p*
		n	%	n	%	n	%	
Age	18-25 Years	8	11.8%	5	14.7%	13	12.7%	X ² =0.181
	26-35 Years	50	73.5%	24	70.6%	74	72.5%	p=0.914
	Over 35 Years	10	14.7%	5	14.7%	15	14.7%	
Last School Graduated	Primary School	9	13.2%	18	52.9%	27	26.5%	X ² =18.360
	Bachelor's Degree and Above	59	86.8%	16	47.1%	75	73.5%	p<0.001
Employment Status	No	21	30.9%	19	55.9%	40	39.2%	X ² =5.943
	Yes	47	69.1%	15	44.1%	62	60.8%	p=0.013
Smoking Status	Yes	29	42.6%	15	44.1%	44	43.1%	X ² =0.020
	No	39	57.4%	19	55.9%	58	56.9%	p=0.527
Income Level	Income Less Than Expenses	22	32.4%	17	50.0%	39	38.2%	X ² =3.446
	Income Equals Expenses	34	50.0%	11	32.4%	45	44.1%	p=0.179
	Income Greater Than Expenses	12	17.6%	6	17.6%	18	17.6%	
Medication Use	Yes	36	52.9%	25	73.5%	61	59.8%	X ² =3.997
	No	32	47.1%	9	26.5%	41	40.2%	p=0.036
Diseases	Diabetes	2	2.9%	3	8.8%	5	4.9%	X ² =1.682
								p=0.205
	Hypertension	3	4.4%	7	20.6%	10	9.8%	X ² =6.708
								p=0.015
	Depression	2	2.9%	3	8.8%	5	4.9%	X ² =1.682
								p=0.205
	Anxiety	3	4.4%	11	32.4%	14	13.7%	X ² =14.944
								p<0.001
	Asthma	5	7.4%	5	14.7%	10	9.8%	X ² =1.386
								p=0.202
	Goiter	2	2.9%	8	23.5%	10	9.8%	X ² =10.865
								p=0.002
	Other Diseases	10	14.7%	4	11.8%	14	13.7%	X ² =0.166
Table 1B: Obstetric characteristics								p=0.470
Expected Number of Babies	Single Baby	68	100.0%	27	79.4%	95	93.1%	X ² =15.032
	Twins	0	0.0%	7	20.6%	7	6.9%	p<0.001
Gestational Week	First Trimester	10	14.7%	15	44.1%	25	24.5%	X ² =10.686
	Second Trimester	25	36.8%	9	26.5%	34	33.3%	p=0.005
	Third Trimester	33	48.5%	10	29.4%	43	42.2%	
Number of Pregnancies	1	51	75.0%	30	88.2%	81	79.4%	X ² =2.750
	2	15	22.1%	3	8.8%	18	17.6%	p=0.253
	3	2	2.9%	1	2.9%	3	2.9%	
Number of Stillbirths	None	68	100.0%	33	97.1%	101	99.0%	X ² =2.020
	1	0	0.0%	1	2.9%	1	1.0%	p=0.333
Number of Live Births	None	51	75.0%	31	91.2%	82	80.4%	X ² =4.297
	1	15	22.1%	2	5.9%	17	16.7%	p=0.117
	2	2	2.9%	1	2.9%	3	2.9%	
Number of Living Children	None	51	75.0%	29	85.3%	80	78.4%	X ² =1.596
	1	15	22.1%	4	11.8%	19	18.6%	p=0.450
	2	2	2.9%	1	2.9%	3	2.9%	
	Nausea Vomiting	35	51.5%	27	79.4%	62	60.8%	X ² =7.424
								p=0.005

Complaints Related Pregnancy	to	Urinary Tract Infection	9	13.2%	13	38.2%	22	21.6%	$X^2=8.374$ p=0.005
		Hemorrhoids	13	19.1%	7	20.6%	20	19.6%	$X^2=0.031$ p=0.528
		Hypertension	1	1.5%	5	14.7%	6	5.9%	$X^2=7.172$ p=0.015
		Gestational Diabetes	9	13.2%	4	11.8%	13	12.7%	$X^2=0.044$ p=0.552
		Bleeding Spotting	10	14.7%	10	29.4%	20	19.6%	$X^2=3.110$ p=0.069
		Other Complaints	6	8.8%	1	2.9%	7	6.9%	$X^2=1.227$ p=0.254

Table 1C: Characteristics related to sexuality

Frequency Sexual Intercourse Before Pregnancy	of	1-2 Times a Month	10	14.7%	2	5.9%	12	11.8%	$X^2=2.531$
		1-2 Times a Week	42	61.8%	22	64.7%	64	62.7%	p=0.470
		3-4 Times a Week	15	22.1%	10	29.4%	25	24.5%	
		Every Day	1	1.5%	0	0.0%	1	1.0%	
Frequency Sexual Intercourse Current Pregnancy	of	None	18	26.5%	12	35.3%	30	29.4%	$X^2=7.385$
		1-2 Times a Month	31	45.6%	8	23.5%	39	38.2%	p=0.061
		1-2 Times a Week	16	23.5%	14	41.2%	30	29.4%	
		3-4 Times a Week	3	4.4%	0	0.0%	3	2.9%	
Reasons for Not Having Sexual Intercourse During Pregnancy	in	Fear of Harming the Baby	16	88.9%	11	91.7%	27	90.0%	$X^2=0.062$ p=0.653
		Fear of Harming the Partner	6	33.3%	8	66.7%	14	46.7%	$X^2=3.214$ p=0.078
		Feeling of Sin	1	5.6%	1	8.3%	2	6.7%	$X^2=0.089$ p=0.648
		Other Reasons	1	5.6%	0	0.0%	1	3.3%	$X^2=0.690$ p=0.600

Table 1D: Characteristics of pregnant women's partners

Partner's Age		18-25 Years	2	2.9%	0	0.0%	2	2.0%	$X^2=2.520$
		26-35 Years	52	76.5%	23	67.6%	75	73.5%	p=0.284
		Over 35 Years	14	20.6%	11	32.4%	25	24.5%	
Partner's Last Graduated School		Primary School	12	17.6%	13	38.2%	25	24.5%	$X^2=5.193$
		Bachelor's Degree and Higher	56	82.4%	21	61.8%	77	75.5%	p=0.022
Partner's Employment Status		No	3	4.4%	0	0.0%	3	2.9%	$X^2=1.545$
		Yes	65	95.6%	34	100.0%	99	97.1%	p=0.292
Partner's Income Level		Income Less Than Expenses	19	27.9%	16	47.1%	35	34.3%	$X^2=3.802$
		Income Equal to Expenses	35	51.5%	12	35.3%	47	46.1%	p=0.149
		Income More Than Expenses	14	20.6%	6	17.6%	20	19.6%	
Reasons for Not Having Sexual Intercourse During Pregnancy (Partner)		Fear of Harming the Baby	17	94.4%	11	91.7%	28	93.3%	$X^2=0.089$ p=0.648
		Fear of Harming the Partner	6	33.3%	6	50.0%	12	40.0%	$X^2=0.833$ p=0.296
		Feeling of Sin	1	5.6%	1	8.3%	2	6.7%	$X^2=0.089$ p=0.648
		Other Reasons	0	0.0%	1	8.3%	1	3.3%	$X^2=1.552$ p=0.400

*Chi-Squared Test

Table 2: Comparison of FSFI and LSS levels of pregnant women and their partners in the spontaneous and assisted reproductive techniques group

		Spontaneous		ART		Total		p*
		n	%	n	%	n	%	
FSFI Level (pregnant women)	Insufficient	26	38.2%	13	38.2%	39	38.2%	X ² =0.000 p=1.000
	Moderate	10	14.7%	5	14.7%	15	14.7%	
	Good	32	47.1%	16	47.1%	48	47.1%	
LSS Level (partners)	Low Libido	8	11.8%	2	5.9%	10	9.8%	X ² =4.475 p=0.107
	Moderate Libido	31	45.6%	23	67.6%	38	52.9%	
	High Libido	29	45.6%	9	26.5 %	54	37.3%	

*Chi-Squared Test

Table 3: Correlation analysis between FSFI scores of pregnant women and lss scores of their partners

		Spontaneous Group		ART Group	
		Libido Total		Libido Total	
FSFI Total Score	r	-0.026		-0.127	
	p	0.831		0.474	
Sexual Desire	r	0.186		-0.054	
	p	0.128		0.761	
Sexual Arousal	r	-0.049		-0.041	
	p	0.692		0.819	
Lubrication	r	-0.019		-0.061	
	p	0.880		0.730	
Orgasm	r	-0.108		-0.020	
	p	0.379		0.910	
Satisfaction	r	0.008		-0.066	
	p	0.951		0.711	
Pain	r	-0.014		-0.322	
	p	0.910		0.063	

Pearson correlation analysis

Table 4: Comparison of FSFI and LSS in pregnant women and their partners in the spontaneous and assisted reproductive techniques group

	Spontaneous Pregnancy (n=68)		ART Pregnancy (n=34)				
FSFI Subscales	Mean	SD	Mean	SD	t	SD	p
<i>Sexual Desire</i>	3.353	0.881	3.603	1.050	-1.266	100	0.209
<i>Sexual Arousal</i>	1.835	1.488	1.963	1.739	-0.389	100	0.698
<i>Lubrication</i>	1.276	1.162	1.368	1.538	-0.337	100	0.737
<i>Orgasm</i>	1.211	1.175	1.324	1.480	-0.418	100	0.700
<i>Satisfaction</i>	1.054	1.174	1.314	1.321	-1.010	100	0.315
<i>Pain</i>	1.196	1.234	1.265	1.435	-0.251	100	0.803
FSFI Total	29.529	17.315	32.235	19.762	-0.709	100	0.480
	Spontaneous pregnancy group partners (n=68)		ART pregnancy group partners (n=34)				
LSS Total	7.040	1.950	7.650	1.475	-1.588	100	0.085
Independent T-Test							

(spontaneous=1.5%, ART= 14.7%) ($p<0.05$) (Table 1B). In both groups, the majority of husbands had a bachelor's or postgraduate degree (spontaneous=82.4%, ART=61.8%), and there is a significant difference between the groups ($p<0.05$). There were no statistically significant differences between the husbands regarding other sociodemographic and sexual characteristics ($p>0.05$) (Table 1C-1D).

The FSFI level was analysed in three groups: insufficient, moderate, and good. It was revealed that the sexual functions were at a good level in both pregnancy groups, and there was no significant difference between the groups ($p>0.05$). The LSS levels of the partners of pregnant women were analysed in the low, moderate, and high categories. It was found that both groups had moderate levels of libido in their partners, and there was no significant difference between the groups ($p>0.05$) (Table 2). Correlation analysis was conducted between the FSFI total and subdomain scores of the pregnant women and the LSS total scores of their partners. The correlation relationships between the groups were not statistically significant ($p>0.05$) (Table 3).

No meaningful distinction was noted in the FSFI assessment of spontaneous and ART pregnancy groups, encompassing the subdimensions of sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain, along with their total FSFI scores ($p>0.05$). Similarly, there was no meaningful variation in the total LSS scores of the partners of pregnant women from both the spontaneous and ART groups ($p>0.05$) (Table 4).

Discussion

In this study, the sexual functions of couples conceiving spontaneously and through ART during pregnancy were compared. The literature suggests that physiological and psychological changes during pregnancy can impact sexual function. Factors such as societal standards affecting women's sexuality, lack of information, and partners' gender perceptions during pregnancy can play a role²¹. Additionally, increased sensitivity and sexual responses in men during this period may contribute to ongoing sexual dysfunction for couples during and even after pregnancy²².

In our study, nearly half of the women in the spontaneous pregnancy group ($n=33$, 48.5%) were

in the third trimester, while the majority of women in the ART group ($n=15$, 44.1%) were in the first trimester ($p<0.05$). However, there was no significant difference in terms of sexual intercourse frequency between groups based on trimesters ($p=0.061$). A meta-analysis of women's sexual lives during pregnancy indicated that sexual intercourse frequency remains unchanged in the first and second trimesters but significantly decreases in the third trimester²³. Conversely, Erenel *et al.*'s study observed a decrease in sexual intercourse frequency as the trimesters progressed²¹. Our study results may have been influenced by variables such as pregnant women's education and employment status. In the spontaneous group, education levels were higher, and the number of working women was greater. In contrast, the ART group had lower education levels, and fewer women were employed ($p<0.05$). While it is known that the frequency of sexual problems is higher in infertile couples compared to fertile couples, and they tend to avoid sexual intercourse during this period, the differences in study outcomes may be attributed to variations in education levels²⁴. On the other hand, the fact that a large proportion of women in both groups experienced their first pregnancies (spontaneous $n=50$, ART $n=31$) could have influenced their sexual experiences.

In our study, complications commonly observed during pregnancy, such as nausea-vomiting, urinary tract infection, and pregnancy-induced hypertension, were significantly higher in the ART group ($p<0.05$). However, it was observed that these complaints did not affect the frequency of sexual intercourse during pregnancy. Orji *et al.*'s study reported that nausea, vomiting, and physical changes during pregnancy reduced the frequency of sexual intercourse in the first trimester²⁵. In Eryılmaz *et al.*'s study, reasons for the decrease in sexual intercourse frequency during pregnancy were identified as fatigue and tiredness (64%), decreased sexual desire (56%), fear of harming the fetus (50%), fear of miscarriage in the early stages of pregnancy (45%), and fear of premature birth (34%)²⁶. Another study reported concerns that sexual intercourse during pregnancy could harm the fetus (46%) and lead to premature births (52%), while also stating that sexual relations during pregnancy were considered sinful (25%)²².

Among the participants in our study who did not engage in sexual intercourse during pregnancy,

similar reasons were cited by both the spontaneous group (n=10) and the ART group (n=8). These reasons included concerns about harming the baby, harming the spouse, and moral considerations. However, no statistically significant differences were detected between the groups. The presence or absence of active complaints during the study may have influenced this situation, and we can consider it among the study's limitations.

Infertility is known to lead to sexual problems such as loss of sexual desire, decreased frequency of sexual intercourse, pain during sexual intercourse, and difficulty achieving orgasm in women²⁷. In a study comparing infertile and fertile groups, female sexual dysfunction was found to be higher in the infertile group. It is known that female sexual dysfunction in infertile women is associated with age, spouse's age, duration of marriage, duration of infertility, treatment duration, and frequency of sexual intercourse²⁷.

In a study examining changes in sexual functions during pregnancy, it was reported that all FSFI sub-dimensions (sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain) showed a decrease compared to the pre-pregnancy period ($p < 0.05$). Additionally, partners also reported a decrease in sexual desire²⁸. Another study stated that 79.1% of pregnant women experienced significant sexual dysfunction²². In contrast to many studies, our study found that pregnant women in both the spontaneous and ART groups had similar scores in all FSFI sub-dimensions (sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain) and had good levels of sexual function according to the FSFI total score (spontaneous group >29.53 , ART group >32.23), indicating that they did not experience pregnancy-related sexual dysfunction.

The significant number of first pregnancies among our study population and the occurrence of pregnancy in the ART group, even with treatment, may have had a positive impact on sexual function. It is known that engaging in sexual intercourse for reproductive purposes causes significant emotional stress in both partners and threatens the sexual balance of couples²⁹. In Turkish society, infertility has particularly negative social consequences for women, and as the duration of treatment lengthens, hopes of becoming parents diminish²⁷. In this context, the lack of experiences related to sexuality during pregnancy for couples experiencing

pregnancy for the first time (spontaneous= 75%, ART= 88%) and the majority being in the 26-35 age range (spontaneous= 73.5%, ART= 70.6%) may have created a barrier to a negative perception of sexuality.

While the literature reports that sexual dysfunction is most commonly observed in the third trimester of pregnancy, our study found that although nearly half of the women in the spontaneous group were in the third trimester, more than half of the women in the ART group were in the first and second trimesters, which may have positively influenced sexual function^{22,28,30}. Despite many studies reporting that sexual functions are negatively affected during pregnancy and in infertile couples, there are studies similar to our findings suggesting that infertility does not impact the sexuality of infertile women and that sexual desire and satisfaction do not change during pregnancy^{30,31}. In a study by Quattrini *et al.*, it was noted that sexual desire often continued at the same rate (87%) in couples reporting sexual problems³². In our study, the sub-dimension of sexual desire, also part of the FSFI, received above-average ratings in both groups (spontaneous= 3.3, ART= 3.6) on a five-point Likert scale. Hence, even assuming that couples experience problems in sexual function during pregnancy, differences in sub-dimensions of sexual function (sexual desire, sexual arousal, lubrication, orgasm, satisfaction, and pain) can be observed, and research based on pregnancy periods is recommended.

Infertility and pregnancy are believed to have a comprehensive impact on both female and male sexuality. In a study examining the effects of pregnancy on sexuality, the LSS total scores in men decreased from 7.76 in the pre-pregnancy period to 6.60 during pregnancy. While a total LSS scoring between 5-7 is considered a moderate level of libido according to LSS, it is reported that the scores slightly decrease during pregnancy Seyhan *et al.*'s study, on the other hand, revealed that overall LSS scores were not affected during pregnancy, but sexual intercourse frequency decreased in the last trimester^{33,34}. In our study, the pre-pregnancy LSS scoring is unknown; however, it was observed that the LSS total scores of partners in both groups were at a moderate level (spontaneous=7.040, ART=7.650). These results may be attributed to the fact that, like the pregnant women, their partners were mostly expecting a baby for the first time, had

no negative experiences from the past that could develop a negative attitude, and were predominantly in the first and second trimesters. As the pregnancy progresses, it is a known fact that clitoral sensitivity, sexual response, ability to experience orgasm, and orgasm incidence, as well as the pleasure derived from sexual desire and sexual intercourse, decrease³⁵.

In our study, correlation analysis was conducted between the FSFI of pregnant women and the LSS levels of their partners to see the relationship between the sexual functions of couples. However, no statistical difference was found between the groups (Table 2). Studies report that the presence of sexual problems negatively affects the sexual functions of couples^{36,37}. In this regard, it is expected that the sexual functions of couples in our study would be similar. However, current objective data do not allow a clear understanding of whether participation in sexual activity occurs as a result of a woman's desire or because she feels obligated to satisfy her partner's desire²³. In Turkish society, sexuality remains a topic limited to certain areas and is often responded to with hesitation or biased attitudes, particularly when women answer questions. However, a study on sexual attitudes during pregnancy in our society shows that a significant majority of men (91%) express that sexuality and sexual intercourse can occur during pregnancy and that this situation does not harm the baby³⁸.

It has been reported in the literature that couples who experience sexual problems before pregnancy also experience problems during pregnancy²¹. In our study, pregnant women in both groups did not report any problems with sexual intercourse before pregnancy (Table 1). This situation can be seen as a positive basis for maintaining sexual function during pregnancy.

Conclusion

The objective of this study was to compare the sexual functions of women and men, depending on whether pregnancy arose spontaneously or through ART. Our findings indicate that the occurrence of pregnancy through either spontaneous or ART means did not result in a significant difference in terms of sexual functionality for women and men. However, given the characteristics of our sample

group, few risk factors are known to significantly affect couples' sexual relations, including the length of infertility treatment, advanced maternal age, multiple pregnancies, high-risk pregnancies, and psychological issues³⁹, we recommend conducting further studies on the subject, taking into account these factors, for a more comprehensive understanding.

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