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Sexual life changes in pregnant women during COVID-19 outbreak

Süleyman Eserdağ [1], Mehtap Yücedağ [2], Ali Doğukan Anğın [3], Özgür Yımaz [2], Lokman Ertekin [4], Pınar Anğın [5]

[1] Clinic of Obstetrics and Gynecology, Hera Clinic, İstanbul, Turkey
[2] Department of Obstetrics and Gynecology, Manisa City Hospital, Manisa, Turkey
[3] Clinic of Obstetrics and Gynecology, Viveste Clinic, İstanbul, Turkey
[4] Department of Obstetrics and Gynecology, Kartal Training and Research Hospital, İstanbul, Turkey
[5] Department of Obstetrics and Gynecology, Ümraniye Training and Research Hospital, İstanbul, Turkey

ORCID ID of the author(s)

SE: 0000-0001-6540-0230
MY: 0000-0002-4382-3192
ADA: 0000-0003-1954-8546
ÖY: 0000-0002-6248-1060
LE: 0000-0002-7092-1097
PA: 0000-0001-9471-268X

Corresponding Author
Ali Doğukan Anğın
Viveste Clinic, Ayşe Çavuş sok. Bağdat Caddesi, Rama Apt. No1/2, Kadıköy, İstanbul, Turkey
E-mail: dralidogukan@gmail.com

Ethics Committee Approval
This study was approved by the Ethics Committee of Kartal Dr Lütfi Kırdar Training and Research Hospital (No: 2020/514/179/6).
All procedures in this study involving human participants were performed in accordance with the 1964 Helsinki Declaration and its later amendments.

Conflict of Interest
No conflict of interest was declared by the authors.

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Abstract

Background/Aim: Restrictions imposed after the COVID-19 outbreak have had some negative effects on the society and individuals. There are few reports on the effects of the COVID-19 pandemic, which causes stress on individuals, on sexual activity. The aim of this study is to evaluate the sexual activities of pregnant women during these restrictions.
Methods: A total of 294 pregnant women between the ages of 18-45 years and their spouses who visited the Gynecology and Obstetrics Clinic between June 2020, and August 2020 were included in this cross-sectional study. The sexual activities of pregnant women and their spouses were evaluated with the Arizona Sexual Experiences Scale (ASEX).
Results: One third of the pregnant women were in their first pregnancy, and 78.2% of those who gave birth before had a vaginal delivery. 38.8% of the pregnant women were in their second trimester. The mean ASEX scores of pregnant women and their partners during the pandemic period were significantly increased compared to the pre-pandemic period (13.47 (3.58) versus 17.01 (5.78), P=0.001, 12.14 (2.98) versus 14.49 (5.02), P=0.001, respectively). Before the pandemic, 64.62% (n=190) of the pregnant women and 51.7% (n=152) of their spouses had a sexual disorder. During the pandemic, this ratio increased in both genders and rose to 80.27% (n=136) in pregnant women and 63.60% (n=187) in their spouses.
Conclusion: We observed an increase in sexual dysfunction in both pregnant women and their partners during the COVID-19 pandemic.

Keywords: COVID-19, Pregnant women, Arizona Sexual Experiences Scale, Sexual disorder

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Introduction

Coronavirus-2019 (COVID-19), which was first seen at the end of 2019 in Wuhan, a city in Hubei Province of China, and then spread rapidly all over the world, is now a pandemic [1]. SARS-CoV-2, a beta-coronavirus that can be transmitted to humans via intermediate hosts such as bats, is the biggest global challenge we have faced since World War II [2]. COVID-19 continued to spread aggressively, and on March 11, restrictions and social distancing measures were implemented in our country (Turkey). With these restrictions, the goals were to wear a mask and ensure social distancing between people to reduce and prevent the spread of the virus. Most commercial activities, especially those operating in the service sector, were closed down, and the social distance between individuals in even open areas was set to be at least 1.5 meters [3].

Measures taken after the COVID-19 outbreak have had some negative effects on society and individuals [4]. Concern about both one's own health and the health of loved ones are the first reactions to the pandemic. In addition, there was anger and boredom due to the uncertainty of how far the epidemic would progress, how it would affect life, and when life would return to "normal". High stress situations and loneliness are known to cause symptoms of depression or post-traumatic stress disorder in some people [5]. It is well known that stress has negative effects on sexual function, but the mechanisms in this relationship have not been adequately discussed. Psychologically, stress can interfere with an individual's focus on sexuality through both emotional and cognitive changes [2].

There are few reports on the effects of the COVID-19 pandemic on sexual activity [2, 6]. The sexual health of individuals who are already facing more health problems globally could be affected by COVID-19. Many people face economic and psychological pressures for fear of losing their jobs. On the other hand, it may increase the risk of experiencing adverse sexual health consequences due to the lack of access to comprehensive health services [6]. Sexual activity during pregnancy, an important aspect of quality of life, should be evaluated together with pregnant women and their spouses. Studies show that sexual activity decreases during pregnancy [7, 8]. Many factors, such as maternal age, gestational age, duration of marriage, parity, employment status, and education level have been reported to affect sexual activity during pregnancy [7]. Various scales are used to measure sexual function, such as the Arizona Sexual Experiences Scale (ASEX), the Female Sexual Function Index (FSFI), the Sexual Interaction Inventory, and the Sexual Satisfaction Questionnaire [9]. There is no study evaluating sexual activity in pregnant women during the COVID-19 pandemic. Therefore, in this study, we aimed to investigate how the COVID-19 pandemic affects sexual activity in pregnant women using the ASEX scale.

Materials and methods

This prospective cross-sectional study was approved by the institutional human study Ethics committee of the Kartal Dr Lütfi Kırdar Training and Research Hospital (No: 2020/514/179/6). This study was conducted in accordance with the tenets of the Declaration of Helsinki, and written informed consent was obtained from all participants. A total of 294 pregnant women between the ages of 18-45 years who visited the Gynecology and Obstetrics Clinic of a Training and Research Hospital between June 2020 and August 2020 were included. Pregnant women who visited at any time during their pregnancy and their spouses were asked to fill in ASEX voluntarily, and their demographic information were recorded. ASEX was completed two times, reflecting their sexual lives before and during the pandemic (March 11, 2020).

Inclusion criteria in the study were being between the ages of 18-45, literate, willing to participate in the survey, having a singleton pregnancy, no obstetric conditions in which sexual intercourse is prohibited (placenta previa, detachment, preterm birth threat, presence of sexually transmitted disease, cervical insufficiency), not having an anomaly detected in the fetus, and not receiving any psychological treatment that may affect sexual life. Exclusion criteria were as follows: Being younger than 18 years and or older than 45 years of age, fetal anomaly detected during pregnancy follow-up, multiple pregnancy, lack of sexual partners, illiteracy, any psychological treatment that would affect sexual life, and presence of obstetric conditions for which sexual intercourse was not recommended. The demographic characteristics and ASEX results of the pregnant women and their spouses were evaluated.

Arizona Sexual Experiences Scale (ASEX)

ASEX, developed by McGahuey et al. [10], was applied to evaluate the sexual activity of the couples. The Turkish version, of which validity and reliability studies were conducted by Soykan [11], was used. The score ranges between 5 and 30, and a higher total score indicates sexual dysfunction. In this study, scores ≥11 were considered the cut-off, as suggested by Soykan.

Statistical analysis

SPPS 25 (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY: IBM Corp.) statistical package program was used to evaluate the data. Variables were presented as mean (standard deviation), median (maximum-minimum), percentage, and frequency values. In addition, the homogeneity of variances, which is one of the prerequisites of parametric tests, was checked with the Levene test. Normality assumption was analyzed using the Shapiro–Wilk test. When the differences between two groups were evaluated, Student's t-test was used in cases where the parametric test met the prerequisites, otherwise, the Mann–Whitney U test was used. For comparison of three or more groups, one-way analysis of variance and Tukey's HSD test, Kruskal–Wallis, and Bonferroni–Dunn test from multiple comparison tests were used. While performing categorical data analysis, McNemar–Bowker Test, Fisher's Exact Test, Chi-Square Test, sensitivity and selectivity calculations, positive expected value, and negative expected value were calculated. In cases where the expected cells were less than 20%, the values were determined with the Monte Carlo Simulation Method to include these cells in the analysis. In the case that the relationship between two variables did not meet the parametric test prerequisites, it was evaluated with the Kendall rank correlation coefficient. Statistical significance level was $P < 0.05$.

Results

Demographic information of pregnant women and their spouses included in the study is shown in Table 1. The mean age of the pregnant women and their spouses were 27.15 (5.14) years, and 30.68 (5.74) years, respectively. Among all, 41.8% of the pregnant women had normal BMI and 36.1% were overweight. One third of the pregnant women were in their first pregnancy, and 78.2% of those who had given birth before had had a vaginal delivery. 38.8% of the pregnant women included in the study were in the second trimester.

Table 1: Demographic characteristics of pregnant women and their spouses.

	n	Mean (SD)
Age (Years)	294	27.15 (5.14)
Height (Cm)	294	162.05 (5.90)
Weight (Kg)	294	69.05 (13.06)
Spouse Age (Years)	294	30.68 (5.74)
	n	%
BMI		
Weak	4	1.4
Normal	123	41.8
Overweight	106	36.1
Stage 1 Obesity	46	15.6
Stage 2 Obesity	14	4.8
Morbid Obesity	1	0.3
Gravida		
1	97	33.0
2	81	27.6
3	72	24.5
4	29	9.9
5	11	3.7
6	1	0.3
7	2	0.7
12	1	0.3
Parity		
0	102	34.7
1	90	30.6
2	69	23.5
3	22	7.5
4	8	2.7
5	2	0.7
9	1	0.3
Form Of Birth		
Vaginal Birth	230	78.2
Cesarean Delivery	64	21.8
Pregnancy Week		
1st Trimester	88	29.9
2nd Trimester	114	38.8
3rd Trimester	92	31.3
Past Operations		
No	222	75.5
Yes	72	24.5
Comorbidity		
No	271	92.2
Yes	23	7.8
Drug Use		
No	275	93.5
Yes	19	6.5
Smoking Status		
No	275	93.5
Yes	19	6.5
Profession		
No	269	91.5
Yes	25	8.5
Education Level		
Primary School	44	15.0
Middle School	47	16.0
High School	173	58.8
University	30	10.2
Income Status (Turkish Lira)		
0-2500	32	10.8
2500-5000	220	74.8
5000-7500	32	10.9
>7500	10	3.4
Spouse Comorbidity		
No	281	95.6
Yes	13	4.4
Spouse Smoking Status		
No	149	50.7
Yes	145	49.3
Spouse Profession		
Worker	193	65.6
Officer	32	10.9
Self-Employment	65	22.1
Soldier	4	1.4
Spouse Education Level		
No Literacy	1	0.3
Primary School	31	10.5
Middle School	27	9.2
High School	197	67.0
University	38	12.9
Total	294	100.0

Before the pandemic, the mean ASEX score of pregnant women was 13.47 (3.58), and the average ASEX score of their spouses was 12.14 (2.98) (Table 2). During the pandemic, ASEX average scores of the pregnant women and their spouses significantly increased to 17.01 (5.78), and 14.49 (5.02), respectively (P=0.001 for both). The ASEX scores of the pregnant women before and after the pandemic were higher than those of their spouses.

The distribution of ≥11 ASEX scores of pregnant women and their spouses are shown in Table 3. Before the pandemic, 64.62% (n=190) of pregnant women and 51.7% (n=152) of their spouses had sexual disorders. During the pandemic, this ratio increased in both genders and rose to 80.27% (n=136) in pregnant women and 63.60% (n=187) in their spouses.

Table 2: Comparison of the Arizona Sexual Experiences Scale (ASEX) scores of pregnant women and their spouses before and during the pandemic

	Before pandemic	During pandemic	Test statistic	P-value
Pregnant ASEX	13.47 (3.58)	17.01 (5.78)	-11.118	0.001^{t*}
Spouse ASEX	12.14 (2.98)	14.49 (5.02)	-8.712	0.001^{t*}

* P<0.05, t Wilcoxon Test

Table 3: Comparison of the Arizona Sexual Experiences Scale (ASEX) ≥11 scores of pregnant women and their spouses before and during the pandemic

	Before pandemic ASEX ≥11		During pandemic ASEX ≥11		P-value
	n	%	n	%	
Pregnant	190	64.62%	236	80.27%	0.026
Spouse	152	51.7%	187	63.60%	0.083

The effects of demographic characteristics of pregnant women and their spouses on ASEX scores before and during the pandemic are shown in Table 4. The scores of those who had a previous cesarean section were higher than those who gave vaginal birth, and the scores in the third trimester were higher than other weeks of gestation. ASEX scores of those who delivered by cesarean section (P=0.001), normal deliveries (P=0.041), pregnant women in their second trimester (P=0.049), and pregnant women in their third trimesters (P=0.01) during the pandemic were higher than scores before the pandemic. There was no significant difference in terms of other demographic characteristics of pregnant women and their spouses (P>0.05 for all).

Table 4: Comparison of the demographic characteristics of pregnant women and their spouses with Arizona Sexual Experiences Scale (ASEX) scores before and after the pandemic

Variables	Before the Pandemic ASEX	During the Pandemic ASEX	*P*-value
Form Of Birth			
Vaginal Delivery (n=230)	13.20 (3.43)	16.78 (5.72)	0.041*
Cesarean Delivery (n=64)	14.43 (3.94)	17.82 (5.96)	0.001*
Test Statistics	-2.290	-1.024	
P-value	0.022€*	0.306 €	
Pregnancy Trimester			
1st Trimester	12.87 (3.07)	15.92 (5.76)	0.282
2nd Trimester	13.71 (3.43)	17.04 (5.54)	0.049*
3rd Trimester	13.75 (3.60)	18.01 (5.96)	0.01*
Test Statistics	6.189	5.356	
P-value	0.045 Ψ *	0.069 Ψ	
Education Status			
Primary School (n = 44)	13.54 (3.57)	17.45 (6.05)	0.663
Secondary School (n = 47)	13.31 (3.41)	18.48 (5.61)	0.111
High School (n = 173)	13.52 (3.65)	16.39 (5.72)	0.464
University (n = 30)	13.33 (3.57)	17.56 (5.75)	0.635
Test Statistics	0.292	5.732	
P-value	0.961 Ψ	0.125 Ψ	
Income Status (Turkish Lira)			
<2500	13.06 (2.75)	17.15 (5.54)	0.228
2500-5000	13.37 (3.62)	17.01 (5.85)	0.269
5000-7500	14.12 (3.84)	17.18 (5.70)	0.528
>7500	14.90 (3.92)	15.90 (5.97)	0.345
Test Statistics	2.372	0.499	
P-value	0.710 Ψ	0.871Ψ	
Spouse Profession			
Worker (n = 193)	12.13 (3.10)	14.28 (5.00)	0.329
Civil Servant (n = 32)	12.65 (2.81)	15.50 (5.25)	0.964
Self-Employment (n = 65)	11.87 (2.55)	14.43 (4.86)	0.596
Soldier (n = 4)	13.25 (5.05)	17.75 (6.44)	0.64
Test Statistics	1.616	3.675	
P-value	0.656 Ψ	0.299Ψ	
Spouse Education			
Primary School (n = 38)	12.32 (3.08)	13.58 (4.03)	0.185
Secondary School (n = 27)	11.88 (2.06)	13.25 (4.87)	0.584
High School (n = 197)	12.04 (3.13)	14.52 (5.05)	0.964
University (n = 38)	12.81 (2.65)	16.05 (5.44)	0.484
Test Statistics	5.590	7.564	
P-value	0.232 Ψ	0.109 Ψ	
Spouse Smoking Status			
No (n = 149)	12.10 (3.0)	14.26 (4.78)	0.115
Yes (n = 145)	12.19 (2.97)	14.73 (5.26)	0.184
Test Statistics	-0.286	-0.174	
P-value	0.775€	0.862€	
Comparison Of Pairs			
Pregnant (n = 294)	13.47 (3.58)	17.01 (5.78)	0.001
Spouse (n = 294)	12.14 (2.98)	14.49 (5.02)	0.001
Test Statistics	-4.632	-5.532	
P-value	0.001*€	0.001*€	

*$P<0.05$, ¥ Independent Two Group t-test (Student's t test), € Mann–Whitney U test, Δ One-way analysis of variance (ANOVA), ψ Kruskal–Wallis Test

Discussion

In this worldwide alarming atmosphere, changes in lifestyle are inevitable, which may affect people's quality of life and sexual function due to social constraints and uncertainties about the future [12]. It has been reported that the psychological effect is caused by high stress, depression, anxiety, and dissatisfaction [13]. In the first phase of the COVID-19 outbreak in China, female gender, being a student, and having certain physical symptoms were associated with higher stress, anxiety, and depression [14]. It is known that a stressful lifestyle affects a woman's sexual desire and frequency of sexual intercourse. Decreased sexual desire and frequency of sexual intercourse have been reported with high levels of chronic stress and after earthquakes [15, 16]. In contrast, it has been shown that sexual activity increases among women during stressful times [17].

After restrictions were announced in most countries with the COVID-19 pandemic, studies on how sexual life was affected were published. In a study conducted in Poland, they found a decrease in all areas of FSFI scores during the pandemic. They observed the greatest decrease in FSFI scores in women who had never worked [9]. In a study conducted in Turkey during the pandemic, despite an increase in the average weekly frequency of sexual intercourse (1.9 vs. 2.4), decreases in the FSFI scores (17.56 against 20.52) were found. They reported that the field scores for arousal, orgasm, and satisfaction from the FSFI subfields were significantly higher before the pandemic. Also, although the use of contraception during the pandemic decreased (24 participants versus 10), they found a decrease in the number of women who were thinking of becoming pregnant (19 versus 3) [18]. In a study conducted in Italy, it was determined that there was a decrease in sexual function and quality of life in women within the social restriction period during the COVID-19 pandemic [2]. They found that, compared to before the pandemic, the number of women who had sexual intercourse four times a month dropped from 89 to 52. They also reported lower FSFI scores in women with higher education levels, those with parity ≥ 1, and women living with their partner [2]. In a study conducted in the UK, they determined that 60.1% of 868 people participating in the study were not sexually active during the pandemic. They reported that being male, younger, married, and consuming alcohol were associated with more sexual activity [19]. Li et al. found that both sexual activity and sexual satisfaction of young men and women decreased during the peak of the COVID-19 outbreak in China [4]. Similarly, in another study of 967 participants in China, 22% (n=212) of the participants reported a decrease in sexual desire, and 41% (n=396) reported a decrease in the frequency of intercourse [6].

Pregnancy can be defined as an important stress that changes the pre-pregnancy lifestyle and quality of life of both partners, including sexual activity. The main factors that can lead to sexual dysfunction during pregnancy stem from physical, hormonal, and psychological factors [20]. It is known that sexual activity usually decreases during pregnancy. Aslan et al. reported that orgasmic activity, sexual interest, and frequency of sexual intercourse among pregnant women gradually decreased [8]. The prevalence of female sexual disorder (FSD) among pregnant women was reported as 50-80% [7, 21]. Studies conducted in Turkey revealed FSD rates during pregnancy as high as 80-90% [22]. Although it is well known that sexual activity decreases in pregnant women and the previously mentioned studies show decreased sexual activity during the pandemic among non-pregnant individuals, there are no studies regarding sexual activity during the pregnancy period during the pandemic. Ours is the first study evaluating sexual activity in pregnant women during the pandemic period. As a result of the survey conducted in our study, we determined that 64.62% of pregnant women before the pandemic and 51.7% of their spouses had sexual disorders. After the pandemic, this ratio increased in both genders and rose to 80.27% in pregnant women and 63.60% in their spouses. Angin et al. [23] compared the sexual activities of pregnant women and their spouses before pregnancy. In their study, they determined that the pre-pregnancy spouses' ASEX scores increased from 23.2% to 55.6%. The 51.7% ASEX in our study is similar to the results of this study. However, the results of pregnant women and their spouses evaluated in our study are consistent with the increased FSD results after COVID-19 in other countries.

In a study conducted on 220 women, they reported that younger age, shorter duration of marriage, and multiparity were positively associated with female sexuality [24]. In studies from Turkey, age, parity, and duration of marriage do not affect the sexual activity of women; however, it was found that nulliparous women had higher sexual desire and satisfaction scores [21, 25]. In our study, pre-pandemic ASEX scores of pregnant women in the third trimester were significantly higher compared to other weeks of gestation, and those who had previous cesarean section had scores that were significantly higher than those who had vaginal birth. In addition, ASEX scores of pregnant women in the second and third trimester were higher than before the pandemic. We can say that pregnant women with a further week of gestation are more affected by the COVID-19 pandemic. Corbacıoglu-Esmer et al. [21] reported that sexual dysfunction in third trimester in which FSFI scores were significantly lower compared to the first two trimesters. Similarly, Aslan et al. [8] found a decrease in all domains of FSFI in the last trimester. In our study, the high ASEX scores and FSD rate in the third trimester are consistent with the literature.

Limitations

This is the first study to investigate sexual activity in pregnant women during COVID-19 self-isolation/social distancing. However, our study has some limitations. First, participants were asked to potentially introduce a self-report bias to the findings, as they were asked to self-assess their sexual activity. Another limitation is that we did not evaluate the pre-pregnancy period. If ASEX were evaluated before pregnancy, we could have had more clear information about the effect of COVID-19. This study can serve as an example for further research.

Conclusion

In this first study evaluating sexual activity in pregnant women due to the COVID-19 epidemic, we observed a decrease in sexual activity in pregnant women and their partners during the pandemic period. Being in the third trimester of pregnancy and having a previous cesarean section were associated with increased ASEX scores before the pandemic. We can say that pregnant women with a further week of gestation are more affected by the COVID-19 pandemic. Larger studies are needed on the subject.

References

1. Wang C, Horby PW, Hayden FG, Gao GF. A novel coronavirus outbreak of global health concern. Lancet. 2020;395(10223):470-3. doi: 10.1016/S0140-6736(20)30185-9. Epub 2020 Jan 24. Erratum in: Lancet. 2020 Jan 29. PMID: 31986257; PMCID: PMC7135038.
2. Schiavi MC, Spina V, Zullo MA, Colagiovanni V, Luffarelli P, Rago R, et al. Love in the Time of COVID-19:Sexual Function and Quality of Life Analysis During the Social Distancing Measures in a Group of Italian Reproductive-Age Women. J Sex Med. 2020;17:1407-13.
3. Nicoli F, Gasparetto A. Italy in a Time of Emergency and Scarce Resources:The Need for Embedding Ethical Reflection in Social and Clinical Settings. J Clin Ethics. 2020;31(1):92-4. PMID: 32213700.
4. Li W, Li G, Xin C, Wang Y, Yang S. Challenges in the Practice of Sexual Medicine in the Time of COVID-19 in China. J Sex Med. 2020;17:1225-8.
5. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the COVID-19 epidemic on college students in China. Psychiatry Res. 2020;287:112934. doi: 10.1016/j.psychres.2020.112934. Epub 2020 Mar 20. PMID: 32229390; PMCID: PMC7102633.
6. Li G, Tang D, Song B, Wang C, Qunshan S, Xu C, et al. Impact of the COVID-19 Pandemic on Partner Relationships and Sexual and Reproductive Health:Cross-Sectional, Online Survey Study. J Med Internet Res. 2020;22 (8):e20961.
7. Ahmed MR, Madny EH, Sayed Ahmed WA. Prevalence of female sexual dysfunction during pregnancy among Egyptian women. J Obstet Gynaecol Res. 2014;40(4):1023-9. doi: 10.1111/jog.12313. Epub 2014 Mar 10. PMID: 24612115.a
8. Aslan G, Aslan D, Kizilyar A, Ispahi C, Esen A. A prospective analysis of sexual functions during pregnancy. Int J Impot Res. 2005;17(2):154-7. doi: 10.1038/sj.ijir.3901288. PMID: 15538394.
9. Fuchs A, Czech I, Sikora J, Fuchs P, Lorek M, Skrzypulec-Plinta V, et al. Sexual Functioning in Pregnant Women. Int J Environ Res Public Health. 2019;16(21):4216. doi: 10.3390/ijerph16214216. PMID: 31671702; PMCID: PMC6862185.
10. McGahuey CA, Gelenberg AJ, Laukes CA, Moreno FA, Delgado PL, McKnight KM, Manber R. The Arizona Sexual Experience Scale (ASEX): reliability and validity. J Sex Marital Ther. 2000;26(1):25-40. doi: 10.1080/009262300278623. PMID: 10693114.
11. Soykan A. The reliability and validity of Arizona sexual experiences scale in Turkish ESRD patients undergoing hemodialysis. Int J Impot Res. 2004;16:531-4.
12. Lima CKT, Carvalho PMM, Lima IAAS, Nunes JVAO, Saraiva JS, de Souza RI, et al. The emotional impact of Coronavirus 2019-nCoV (new Coronavirus disease). Psychiatry Res. 2020;287:112915. doi: 10.1016/j.psychres.2020.112915. Epub 2020 Mar 12. PMID: 32199182; PMCID: PMC7195292.
13. Li Z, Ge J, Yang M, Feng J, Qiao M, Jiang R, et al. Vicarious traumatization in the general public, members, and non-members of medical teams aiding in COVID-19 control. Brain Behav Immun. 2020;88:916-919. doi: 10.1016/j.bbi.2020.03.007. Epub 2020 Mar 10. PMID: 32169498; PMCID: PMC7102670.
14. Duan L, Zhu G. Psychological interventions for people affected by the COVID-19 epidemic. Lancet Psychiatry. 2020;7(4):300-2. doi: 10.1016/S2215-0366(20)30073-0. Epub 2020 Feb 19. PMID: 32085840; PMCID: PMC7128328.
15. Hamilton LD, Meston CM. Chronic stress and sexual function in women. J Sex Med. 2013;10(10):2443-54. doi: 10.1111/jsm.12249. Epub 2013 Jul 10. PMID: 23841462; PMCID: PMC4199300.
16. Liu S, Han J, Xiao D, Ma C, Chen B. A report on the reproductive health of women after the massive 2008 Wenchuan earthquake. Int J Gynaecol Obstet. 2010 Feb;108(2):161-4. doi: 10.1016/j.ijgo.2009.08.030. Epub 2009 Nov 4. PMID: 19892335.
17. Hall KS, Kusunoki Y, Gatny H, Barber J. Stress symptoms and frequency of sexual intercourse among young women. J Sex Med. 2014;11(8):1982-90. doi: 10.1111/jsm.12607. Epub 2014 Jun 3. PMID: 24894425; PMCID: PMC4115031.
18. Yuksel B, Ozgor F. Effect of the COVID-19 pandemic on female sexual behavior. Int J Gynaecol Obstet. 2020;150:98-102.
19. Jacob L, Smith L, Butler L, Barnett Y, Grabovac I, McDermott D, et al. Challenges in the Practice of Sexual Medicine in the Time of COVID-19 in the United Kingdom. J Sex Med. 2020;17(7):1229-36. doi: 10.1016/j.jsxm.2020.05.001. Epub 2020 May 14. PMID: 32411271; PMCID: PMC7221385.
20. Erol B, Sanli O, Korkmaz D, Seyhan A, Akman T, Kadioglu A. A cross-sectional study of female sexual function and dysfunction during pregnancy. J Sex Med. 2007;4(5):1381-7. doi: 10.1111/j.1743-6109.2007.00559.x. Epub 2007 Jul 25. PMID: 17651387.
21. Corbacioglu Esmer A, Akca A, Akbayir O, Goksedef BP, Bakir VL. Female sexual function and associated factors during pregnancy. J Obstet Gynaecol Res. 2013;39:1165-72.
22. Aydin M, Cayonu N, Kadihasanoglu M, Irkilata L, Atilla MK, Kendirci M. Comparison of Sexual Functions in Pregnant and Non-Pregnant Women. Urol J. 2015;12(5):2339-44. PMID: 26571317.
23. Ağın AD, Özkaya E, Çetin M, Gün I, Sakin O, Ertekin LT, et al. Comparison of female sexual function and sexual function of their partners between groups of pregnant and non-pregnant women. Ginekol Pol. 2020;91(5):235-239. doi: 10.5603/GP.2020.0062. PMID: 32495927.
24. al Bustan MA, el Tomi NF, Faiwalla MF, Manav V. Maternal sexuality during pregnancy and after childbirth in Muslim Kuwaiti women. Arch Sex Behav. 1995;24(2):207-15. doi: 10.1007/BF01541581. PMID: 7794108.
25. Küçükdurmaz F, Efe E, Malkoç Ö, Kolus E, Amasyalı AS, Resim S. Prevalence and correlates of female sexual dysfunction among Turkish pregnant women. Turk J Urol. 2016;42(3):178-83. doi: 10.5152/tud.2016.49207. PMID: 27635293; PMCID: PMC5012445.

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