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Effects of contraception methods on female sexual function and quality of life

Kontrasepsiyon yöntemlerinin kadın cinsel fonksiyonu ve yaşam kalitesi üzerindeki etkisi

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Abstract

Aim: Many women of reproductive age who use contraceptive methods have sexual dysfunction and reduced quality of life. This study aimed to evaluate the effects of various contraceptive methods on female sexual function index (FSFI) and quality of life scale (SF-12).

Methods: This prospective observational study was conducted on the patients admitted to the Gynecology and Obstetrics outpatient clinic between August and October 2020. FSFI total score and FSFI sub-domains (desire, arousal, lubrication, orgasm, satisfaction, and pain) and SF- 12 were used to compare the differences between the groups using various contraceptive methods (Mirena, Copper RIA, tubal ligation, condom, and oral contraceptive pill). The demographic characteristics of the patients, the FSFI, and SF-12 data were collected by the researchers face to face.

Results: A total of 228 subjects with a mean age of 30.32 years participated in the study. FSFI scores of the patients using and not using contraceptive methods were significantly different (P<0.001), while PCS-12 (P=0.122) and MCS-12 (P=0.122) scores were similar. The mean total FSFI score was 23.36.

Conclusion: The study concluded that women using contraceptive methods had lower total FSFI scores than those who did not, and statistically significant differences were found between the two groups in terms of lubrication, desire, and pain subdomains. We found that contraception methods significantly affected the sexual function of women, but not their quality of life.

Keywords: Female sexual dysfunction, Quality of life, Contraception, Female sexual function index

Öz

Amaç: Bu çalışmamızda, kontrasepsiyon yöntemlerinin kadın cinsel fonksiyonuna ve yaşam kalitesine etkisinin, Kadın Cinsel Fonksiyon Ölçeği (KCFÖ) ve Yaşam Kalitesi Ölçeği (SF-12) doğrultusunda ölçülmesi amaçlandı.

Yöntemler: Bu prospektif gözlemsel araştırmaya, Ağustos-Ekim 2020 tarihleri arasında Kadın hastalıkları ve doğum polikliniğimize başvuran hastalar dahil edildi. KCFÖ ve alt grupları skorları (arzu, uyarılma, lubrikasyon, orgasm, memnuniyet ve ağrı) ile SF-12 skorları korunma yöntemleri (Mirena, Bakır RIA, tüp ligasyonu, kondom, ve oral kontraseptif hap) kullananlar ile kullanmayanların cinsel işlevleri ve yaşam kaliteleri açısından farklılık olup olmadığını araştırmak amacıyla kullanıldı. Hastaların demografik özellikleri, KCFÖ ve SF-12 skorları araştırmacılar tarafından yüz yüze toplandı.

Bulgular: Çalışmaya 228 kişi dahil edildi, çalışmaya katılan kadınların ortalama yaşı 30,32 saptandı. Toplam KCFÖ skoru bakımından, gruplar arasında istatistiksel olarak anlamlı bir fark söz konusudur (P<0,001). Ortalama toplam KCFÖ skoru 23.36 olarak ölçüldü. PCS-12 (P=0,122) ve MCS-12 (P=0,122) arasında istatistiksel olarak anlamlı bir fark tespit edilmedi.

Sonuç: Kontrasepsiyon yöntemi kullanan kadınların, kontrasepsiyon yöntemi kullanmayan kadınlara göre daha düşük toplam KCFÖ skorlarına sahip olduğu ve her iki grubun da arzu, lubrikasyon ve ağrı alt gruplarında istatistiksel olarak anlamlı bir fark bulunduğu gösterildi. Kontrasepsiyon yöntemleri kadın cinsel fonksiyon bozukluğu üzerinde önemli bir etkiye sahipken, kadınların yaşam kalitesi kontrasepsiyon yöntemlerinden etkilenmemektedir.

Anahtar kelimeler: Kadın cinsel fonksiyon bozukluğu, Yaşam kalitesi, Doğum kontrolü, Kadın cinsel fonksiyon ölçeği

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Introduction

One of the major components of quality of life and health is satisfactory sexual life [1], and factors affecting the individual's health may also negatively affect their sexual life [2]. Several health problems, which include hormonal, biological, and psychological factors, cause sexual dysfunction among women [3]. FSD describes various sexual problems such as difficulty or inability to achieve orgasm, reduced desire, low arousal, and dyspareunia [4]. Female sexual dysfunction is a progressive, age-related, and widespread problem from which 30-50% of women suffer [5-7].

World Health Organization (WHO) declared sexual health to be an essential human right for women. In the recent reports, sexual disorders have been shown to cause morbidity and reduced QOL [8].

FSD is divided into subcategories such as reduced sexual feelings of interest, thoughts, and fantasies, the difficulty of arousal, lubrication, or orgasm despite being adequately aroused, or feeling of pain resulting from intercourse [9].

One of the main factors affecting sexual life is family planning. There are several contraceptive methods including implants, intrauterine devices (IUD), oral contraceptive pills (OCPs), tubal ligation (TL), contraceptive injections, and female sterilization [10], but some studies have reported undesirable effects of TL on women's QOL and sexual life [11-13]. Today, one of the important components of quality of life and health is satisfactory sexual habits, but unfortunately, sexual problems are reported in a minimum of 43% of women [14].

In our study, the Female Sexual Function Index (FSFI) was used as a valid survey method for evaluating the effects of contraception methods (Mirena, Copper RIA, tubal ligation, condom, and oral contraceptive pill) on female sexual life and QOL.

The FSFI as a valid and reliable questionnaire with six domains including desire, satisfaction, subjective arousal, orgasm, pain, and lubrication and 19 questions for measuring female sexual function [15]. A maximum and minimum score is assigned to each domain and all domains are measured to determine sexual function total score. A score ≤ 26.5 is regarded as FSD [16] meaning that the higher individual domain score or total score, the better sexual functioning. The reliable and valid version for the Turkish population is the Turkish version of the FSFI [17]. The SF-12 is a subset of the SF-36 with 12 items containing two summary measures, including scores of Mental (MCS-12) and Physical (PCS-12) Component Summary [18]. Higher scores show better health.

The aim of the current study was to evaluate whether contraceptive methods affect female sexual functions and their quality of life and compare it with the normal population.

Materials and methods

This prospective cross-sectional observational study was performed in Adana City Research Hospital, Gynecology and Obstetrics outpatient clinic. Permission was obtained from Research Ethics Committee of Adana City Research Hospital (Permission granted /CAAE number: 12.08.2020, Decision no: 1039). All procedures in studies involving human participants were performed in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or comparable ethical standards. A total of 228 patients who were admitted to Gynecology & Obstetrics outpatient clinic between August 2020 and October 2020 were included in this study. Patients were classified based on the contraceptive methods they were using, namely, Mirena, Copper RIA, Tubal ligation, Condom, Oral contraceptive, and no contraception groups. Informed consents were obtained from all participants before enrolling in this study. Patients aged 18 - 40 years who were in a heterosexual relationship for the last year were included in this study. Pregnant women, those with systemic and gynecological diseases, patients undergoing hormone therapy, using vitamins or oral contraceptives, those who had gynecological surgery, mental disorders, and premenstrual syndrome or endometriosis were excluded from the study.

FSFI total score, FSFI sub-domains (desire, lubrication, arousal, satisfaction, orgasm, and pain) and QOL scale (SF- 12) were used to compare the groups in terms of female sexual function and quality of life. The researchers collected the demographic characteristics of the patients, the FSFI, and SF-12 data face to face.

Statistical analysis

Statistical Package for Social Sciences (SPSS) version 26.0 (SPSS Inc., Chicago, IL, USA) was used to conduct statistical analyses. The normal distribution of data was evaluated by the Kolmogorov-Smirnov test. Chi-square test was used to analyze the categorical data. Kruskal-Wallis and one-way ANOVA tests were used for evaluating the differences between groups for non-normally and normally distributed data, respectively. *P*-value <0.05 was considered statistically significant.

Results

A total of 228 subjects with a mean age of 30.32 years were included in the study. A significant difference was found between patients using and not using contraceptive methods in terms of age ($P<0.001$). The mean BMI of the subjects was 26.02 kg/m^2, which were similar between the two groups ($P=0.716$). The number of births ($P<0.001$), method of birth ($P<0.001$), and education levels ($P<0.001$) of the groups were significantly different. Among all, 33.3% of the subjects had given one birth, 49.1%, two births and 8.3%, three births. Around 62.5% of Copper RIA users and, 89.18% of women who underwent TL had given two births, and 12.6% of those who used Mirena had given three births. Of patients who used no contraceptive methods, 47.72% had given one birth, 45.45% had given two births, and 6.83% had three given births. The rates of birth by caesarian section, normal birth and no births were 59.6%, 31.1%, and 9.2%, respectively. Around 65.2% of condom users had never given birth, 91.89% of those who underwent Tubal ligation had given birth by Cesarean section, 50% of patients with copper RIAs had undergone normal vaginal delivery, and among those who did not use any contraceptive methods, 50% gave birth via caesarian section while the other 50% delivered vaginally. The rates of those who received primary, secondary, and tertiary levels of education were 8.8%,

61.5%, and 29.8%, respectively. Among oral contraceptive users, 57.15% had received tertiary education, while that rate was 15.91% for those who used no contraceptive methods. The number of marriages were significantly different between the groups (P<0.001), 92.5% of the subjects had one marriage. The mean duration of marriage was 5.63 years.

The groups showed statistically significant differences in duration of marriage (P<0.001) while they were similar in terms of working status (P=0.73). Table 1 shows the patients' clinical and demographic variables.

Table 1: Demographic and clinical variables of the patients

		Mirena (n=48)	Copper RIA (n=32)	Tubal ligation (n=37)	Condom (n=32)	Oral contraceptive (n=35)	No contraception (n=44)	*P*-value
Age (Women)		32 (3)	28.50 (8)	31 (3)	26 (4)	31 (6)	29 (7)	<0.001**
BMI (Kg/m2)		25.60 (3)	25.25 (3.6)	26.10 (1.8)	25.30 (3.7)	26 (5.2)	25.95 (3.2)	0.716**
Number of births n (%)	No birth	-	-	-	21 (65.62)	-	-	<0.001*
	One	20 (41.6)	20 (62.5)	-	11 (34.38)	4 (11.42)	21 (47.72)	
	Two	22 (45.8)	10 (31.25)	33 (89.18)	-	27 (77.16)	20 (45.45)	
	Three	6 (12.6)	2 (6.25)	4 (10.82)	-	4 (11.42)	3 (6.83)	
Method of birth n (%)	No birth	-	-	-	21 (65.62)	-	-	<0.001*
	Cesarean	28 (58.33)	16 (50)	34 (91.89)	10 (31.25)	26 (74.28)	22 (50)	
	Normal	20 (41.67)	16 (50)	3 (8.11)	1 (3.13)	9 (25.72)	22 (50)	
Education level n (%)	Elementary school	9 (18.75)	2 (6.25)	-	-	-	9 (20.45)	<0.001*
	High school	23 (47.91)	23 (71.87)	25 (67.56)	26 (81.25)	15 (42.85)	28 (63.64)	
	University	16 (33.34)	7 (21.88)	12 (32.44)	6 (18.75)	20 (57.15)	7 (15.91)	
Number of marriages n (%)	One	39 (81.25)	26 (81.25)	37 (100)	32 (100)	35 (100)	42 (95.45)	<0.001*
	Two	9 (18.75)	6 (18.75)	-	-	-	2 (4.55)	
Marriage period (Year)		6 (2)	6 (4)	6 (2)	2 (2)	6 (2)	6 (3)	<0.001**
Working status n (%)	Working	27 (56.25)	18 (56.25)	24 (64.86)	25 (78.12)	26 (74.28)	35 (79.54)	0.73*
	Not working	21 (43.75)	14 (43.75)	13 (35.14)	7 (21.88)	9 (25.72)	9 (20.46)	

As shown by Table 2, there is a statistically significant difference among the groups in terms of desire (P=0.001), lubrication (P<0.001), and pain (P=0.011) while arousal (P=0.051), orgasm (P=0.108), and satisfaction (0.826) were similar.

The groups were significantly different in terms of total FSFI score (P<0.001), and similar in terms of PCS-12 and MCS-12 scores (P=0.122 for both). The mean FSFI score was 23.36.

Table 2: Questionnaire parameters

Parameters	Mirena (n=48)	Copper RIA (n=32)	Tubal ligation (n=37)	Condom (n=32)	Oral contraceptive (n=35)	No contraception (n=44)	*P*-value
FSFI desire score	4.2 (1.2)	4.2 (1.2)	4.2 (1.5)	5.4 (1.8)	4.2 (0.6)	4.2 (0.6)	0.001*
FSFI arousal score	4.2 (0.9)	4.5 (1.7)	3.9 (0.9)	4.5 (1.8)	4.2 (2.1)	4.5 (1.8)	0.051*
FSFI lubrication score	3.6 (1.1)	4.2 (2.1)	3.3 (2.2)	4.65 (2.4)	2.7 (1.2)	4.2 (2.1)	<0.001*
FSFI orgasm score	3.4 (1.6)	3.2 (1.2)	3.2 (0.8)	3.6 (1.9)	3.6 (1.2)	3.6 (1.6)	0.108*
FSFI satisfaction score	3.6 (2)	3.6 (1.5)	3.6 (1.4)	3.6 (2.3)	3.2 (2)	3.6 (2.2)	0.826*
FSFI pain score	4.4 (1.9)	4.4 (2)	3.6 (2.2)	4.8 (2.1)	4.4 (2.6)	4.8 (1.8)	0.011*
Total FSFI score	23.10 (2.66)	23.40 (2.20)	21.66 (2.93)	25.66 (2.85)	21.89 (3.27)	24.53 (2.38)	<0.001**
PCS-12	46.15 (7.3)	47.45 (7.8)	47.1 (5)	45.5 (6.8)	46.9 (6.8)	44.3 (7.8)	0.122*
MCS-12	45.13 (4.56)	46.22 (4.03)	45.41 (4.22)	46.60 (5.51)	45.82 (4.51)	45.93 (4.43s)	0.762**

* Kruskal-Wallis test, **One-way ANOVA test, Normally distributed data are expressed as mean (SD) and non-normal distributed data are expressed as median (interquartile range). FSFI indicates female sexual function index; PCS-12, physical component summary-12, MCS-12, mental component summary-12.

Discussion

In the present research, the effect of contraceptive methods on women's sexual function and quality of life were evaluated with FSFI and SF-12. The subjects were divided into Mirena, Copper RIA, tubal ligation, condom, and oral contraceptive pill and no contraception groups. The results showed no statistically significant differences between the groups in terms of BMI and working status, while the number of births, method of birth and education level, number of marriages, marriage duration significantly differed. We also determined that the education levels of women using contraceptive methods were higher than those who did not use them. Our study found a statistically significant difference between the groups in terms of FSFI desire score, FSFI lubrication score, FSFI pain score and Total FSFI score, while the groups were similar in FSFI arousal score, FSFI orgasm score, and FSFI satisfaction score.

PCS-12 and MCS-12 scores did not significantly differ between the groups, meaning that contraceptive use did not significantly affect the quality of life of the studied groups.

Desire, lubrication, and pain scores were the highest in women who used condoms. Total FSFI score was the highest (25.66) among subjects using condoms, meaning that they had the highest sexual function. The findings show that the method of contraception affect the sexual functions of individuals.

FSD is associated with physiological, psychological, social, interpersonal, medical, and cultural factors [3]. The epidemiological studies show at least one sexual dysfunction in 40% of women [14].

The results of the research by Safarinejad [19] and Koseoglu et al. [20] found no significant differences between women who did and did not use contraceptive methods in terms of sexual function, which contradict our findings.

In their study on QOL, Sadatmahalleh [11] revealed that FSD was prevalent in women who underwent TL compared to those who did not (44% vs. 20%), which was consistent with the studies of Bolourian and Ganjloo [21], and Gulum et al. [22], who found that the female sexual desire and satisfaction were significantly reduced, and dyspareunia was caused by surgery to female sexual organs, such as TL, among the Iranian women. The study result of Oksuz et al. [23], which found that contraceptive methods did not significantly affect the quality of lives of the studied women, contradicted our study.

A study conducted at a family planning center in Italy found improved quality of life, reduced coital pain and improved sexual desire with contraceptive use, based on the data obtained from the Female Sexual Function Index questionnaires and EuroQuality of Life-5D [24], which were not comparable to our results.

A research by Skrzypulec et al. [13] on the sexual functions of women using contraceptive methods, determined the effect of levonorgestrel with intrauterine devices and found statistically significant differences between the groups in arousal, orgasm, sexual desire, dyspareunia, and satisfaction, showing that women with Mirena had higher sexual functions. In our study, the Total FSFI score in the subjects using Mirena was lower than those who did not use contraceptive methods.

In their study, Sakinci et al. (2016) found an increase in sexual pain among the women using Cu-IUD compared to those

who used no contraception, possibly reducing sexual arousal, lubrication, and orgasm among these women [25], while our study did not find any significant differences between the groups in terms of arousal. However, desire, lubrication and pain were significantly different among the groups.

In a study conducted on women using LNG IUD or oral contraceptives, Suhonen et al. [26] found that LNG IUD positively affected the quality of life and observed no differences in women's sexual functions between the two groups. Gomez and Clark [27] also found that IUD users stated that the contraceptive method does not interfere with sexual pleasure, which does not support our study findings. Some studies found significant differences between the contraceptive methods and sexual life [28,29] while others [30-32] did not find any significant differences.

Bahri et al. [33] found that women who underwent tubal ligation had worse 'physical functions' and their quality of life was affected by the contraception methods which they used, while in our study, patients who underwent tubal ligation were found to have lower sexual function than those who did not use contraception, but their quality of life was not affected significantly.

Williams et al. [34] found better mental quality of life in those who used contraceptives than those who did not and observed better mental and physical quality of life among the women who received injections, compared to those using combined hormonal methods. Our study finding is not consistent with those of Zhao et al. [31] and Leon et al. [35], which stated that women had significantly increased quality of life after using contraceptive methods.

Oksuz et al. [36] found that FSD was highly prevalent in women with TL, and that TL had a significant effect on QOL, which contradicted with our findings.

In their research on groups of women using progestogen injections, IUDs, and oral contraceptives, Li et al. [10] found that their quality of life and sexual function did not significantly change, and no significant difference was found in each of the three subscale scores of Derogatis Sexual Functioning Inventory in the IUD groups.

In their study on the effect of contraceptive methods among women, Umran et al. [37] did not find any differences between various contraceptive methods. They concluded that sexual life among the studied women is partly negatively affected by some modern contraceptive methods, and women who used the modern contraceptive methods had higher education levels than those who did not use them, all of which were consistent with our study results.

Ertekin et al. [38] stated that the contraception methods used did not affect their quality of life, which was comparable to our results, except for the part where they stated that the contraception method did not affect sexual life.

Bastianelli et al. [24] found the positive and negative effect of contraceptives on women's sexuality extending beyond sexual functioning alone. Most women who reported positive sexual changes reported the highest control over pregnancy which is consistent with our study finding.

Limitations

The small sample size was the primary limitation of this study. Also, contraceptive counseling could help women avoid impairment of sexuality and QoL, unintended pregnancies in future and risk of abortion.

Conclusion

In the present study, women using and not using contraception were significantly different in terms of age, number of births, method of birth, education level, number of marriages, marriage period, and turban status. Women using all contraceptives (Mirena, Copper RIA, tubal ligation, and oral contraceptive pill), but condoms, had lower total FSFI score than those who did not use any contraceptives. The groups were significantly different in desire, lubrication, and pain subdomains. The contraception methods used by the women in our research significantly affected sexual life but did not affect their quality of life.

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