

Comparison of sexual function scale scores in women according to the contraception method used as part of family planning strategy in Turkey

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Background: Continuation of sexuality is essential for a healthy partnership. However, the contraceptive method used by women of reproductive age may affect their sexual function. **Aim:** This study was aimed to compare sexual function scale scores in women according to the contraception method used as part of family planning strategy in Turkey. **Methods:** We surveyed sexually active women who used any contraceptive method served as family planning services in Turkey (ethinylestradiol/levonorgestrel pills, copper intrauterine device, condoms) and also tubal sterilisation, or coitus interruptus. Women completed an online questionnaire which asked for information on sociodemographic factors and sexual intercourse characteristics, including items from the Female Sexual Function Index (FSFI). A total FSFI score less than 26.55 was considered to indicate sexual dysfunction. **Results:** The questionnaire was completed by 242 women between the ages of 18 and 40 years. Condoms (34.7%) were the most frequent and tubal sterilisation (8.3%) was the least frequent contraception method among the women. The lowest total FSFI domain score was observed in the coitus interruptus group (24.31 ± 6.92), and scores for arousal, lubrication, orgasm, and pain subgroups were at the lowest levels in this group. Female sexual dysfunction (FSD) was mostly seen in women whose partner used the coitus interruptus method ($P = 0.038$). **Conclusion:** Women who used coitus interruptus had the highest rates of sexual dysfunction compared to all other women. The prevalence of FSD was very high in this traditional contraception method group, which may be attributed to the fear of getting pregnant. We conclude that counselling on modern contraception methods as part of family planning strategy in Turkey is an excellent way to enhance female sexuality.

Keywords

Contraception; Female sexual dysfunction; Female sexual function index; Sexuality

1. Introduction

Contraceptive methods are techniques for preventing pregnancy after sexual intercourse. Traditional contraceptive methods include periodic abstinence or the calendar

method (rhythm), lactational amenorrhea, vaginal douching and coitus interruptus (withdrawal). Modern contraceptive methods include intrauterine devices (IUDs), oral contraceptives, barrier methods, injectable contraceptives, implants and sterilisation methods (female or male sterilisation) [1]. Incorrect or non-use of contraception can lead to unintended pregnancies in women of reproductive age. However, contraception use may affect female sexual function both positively and negatively [2]. Additionally, sexual dissatisfaction may cause discontinuation of contraceptive use [3].

Sexual function is an essential component of wellbeing and determines the quality of life of women [4]. Female sexual dysfunction (FSD) is defined as the absence of at least one component of the sexual response cycle (desire, arousal, lubrication, orgasm, satisfaction, and pain) that prevents women from enjoying sexual activity [5]. It is estimated that at least 40% of women worldwide and 43–48% of women in Turkey have one or more sexual problems [6,7]. Menopause, childbirth, bladder dysfunction, endometriosis, uterine fibroids and polycystic ovary syndrome are known risk factors for FSD [8,9]. The possible effects of a contraceptive method on women's sexual function may influence their choice of method [10,11]. If the effects of these contraceptives methods on sexual function are identified, clinicians and health care providers could better counsel patients regarding the selection of a suitable contraception method or switch patients to another one [12].

The best and most up-to-date method to assess FSD is using validated questionnaires and symptom scores. The female sexual function index (FSFI) is the gold standard practice for determining a woman's sexual function [13]. There is limited data in the literature regarding the effects of contraception methods on problems with sexual function. For this reason, we have conducted this study to mitigate the lack of information available in the current literature. Our objective was to

examine the sexual function scale scores in women according to the contraception method used which serves by family planning service of Health Ministry in Turkey.

2. Materials and methods

This cross-sectional study was designed to evaluate sexual function in women who use contraception to prevent pregnancy. An online survey platform, Google Forms, was used to deliver the survey from September 1 to 30, 2020. A total of 242 women from the west and mid-Black Sea region of Turkey who were aged 18–40 years, having sexually active life and suggested to use any contraceptive method after normal pelvic examination by a gynaecologist recently, voluntarily completed the on-line questionnaire. Verbal informed consent was recorded during the interview. The study was performed in accordance with the Declaration of Helsinki. Ethical approval for the study was granted by Bulent Ecevit University's Non-invasive Ethics Committee (decision no. 2020-16).

The inclusion criteria were as follows: at least a primary school education, married, not wanting to be pregnant, not breastfeeding, not pregnant, not diagnosed as having any psychiatric disorder, not using psychotropic medicine, agreement to participate in the questionnaire, and did not abandon the survey while responding to the questionnaire. Exclusion criteria were women in the menopausal period and those applying natural family planning or abstinence techniques. Women with a history of major gynaecological surgery (hysterectomy, oophorectomy, or mastectomy), gynaecologic pathology (myoma uteri, endometriosis, uterine anomalies, pelvic organ prolapse), or premature menopause were excluded from the study. Women who used drugs that affect sexual function (antipsychotics, antihypertensives, antidepressants, antihistamines, benzodiazepines) were also excluded.

The questionnaire had two main parts. The first part consisted of eight general questions about age, height, and weight (for calculation of body mass index [BMI]), level of education, current work status (yes/no), birth delivery route, smoker (yes/no), frequency of sexual intercourse, and type of contraception used (levonorgestrel/ethinylestradiol (LNG/EE) pills, copper IUD (Cu-IUD), condoms, tubal sterilisation, or coitus interruptus). All LNG/EE pills contained 0.15 mg levonorgestrel and 0.03 mg ethinylestradiol. All the Cu-IUDs were copper TCu380A type. All contraceptive methods had been used for at least 6 months.

The second part contained the validated Turkish translation of the FSFI [14], a 19-item, multidimensional self-reporting tool that evaluates six subdimensions of female sexual function with regard to participants' sexual experiences during the previous 4 weeks: desire (questions 1 and 2), arousal (questions 3, 4, 5 and 6), lubrication (questions 7, 8, 9 and 10), orgasm (questions 11, 12 and 13), satisfaction (questions 14, 15 and 16), and pain (questions 17, 18 and 19). The scoring of the FSFI questionnaire was as follows: items 1 and

2 have a 1 to 5 response format, whereas all other items are rated from 0 to 5. The domain factors were 0.6 for desire, 0.3 for arousal and lubrication, and 0.4 for orgasm, satisfaction, and pain. The total scale score range was between 2 and 36. A total score < 26.55 identifies respondents at risk of FSD [15].

All statistical analyses were performed using Statistical Package for the Social Sciences (SPSS, version 23.0 software for Windows; IBM Corporation, Armonk, NY, USA). The distribution of the data was evaluated with the Kolmogorov-Smirnov test. The Kruskal-Wallis test was used for multiple group comparisons and the Mann-Whitney U test was used for pairwise group comparisons of non-normally distributed parameters. Pearson's chi-square test was used to compare categorical variables. The data were expressed as mean \pm standard deviation (SD), median (IQR) or n (%) as appropriate. A *P*-value of < 0.05 was considered to be indicative of statistical significance.

3. Results

Questionnaires were completed by 300 women. However, 46 women were not using any contraceptive method and 12 women were using contraceptive pills that did not contain levonorgestrel and ethinylestradiol, so these participants were excluded, leaving a total of 242 individuals that were included in the analyses. The contraceptive methods used among women, listed from most to least frequent, were condoms 84 (34.7%), coitus interruptus 68 (28.1%), LNG/EE pills 37 (15.3%), Cu-IUD 33 (13.6%), and tubal sterilisation 20 (8.3%). No participants used a levonorgestrel-releasing intrauterine device (LNG-IUD), subcutaneous implant, vaginal ring, or diaphragm (Fig. 1).

Participant demographics according to contraceptive method are presented in Table 1. Tubal sterilisation was more frequent in women of advanced ages than LNG/EE pills and condoms ($P = 0.003$ and $P = 0.008$, respectively). In younger women, LNG/EE pills were more frequent than Cu-IUD and tubal sterilisation ($P = 0.009$ and $P = 0.003$, respectively). In the condom group, the mean BMI was the lowest ($P = 0.005$). There was no relationship between the contraceptive method and the level of education, working situation, route of delivery, or smoker status ($P = 0.223$, $P = 0.367$, $P = 0.057$, and $P = 0.525$, respectively). The frequency of sexual intercourse in a week was not different between the groups ($P = 0.370$).

The total and subdivided FSFI domain scores according to the contraceptive method used are presented in Table 2. The lowest total FSFI score was observed in the coitus interruptus group (24.31 ± 6.92), which also presented the lowest scores for arousal (3.80 ± 1.47), lubrication (4.26 ± 1.25), orgasm (3.97 ± 1.54), and pain (4.27 ± 1.46). The highest desire score was detected in women whose preferred contraceptive was LNG/EE pills; however, this difference did not reach statistical significance ($P = 0.189$). FSD was mostly observed in women whose partner used the coitus interruptus

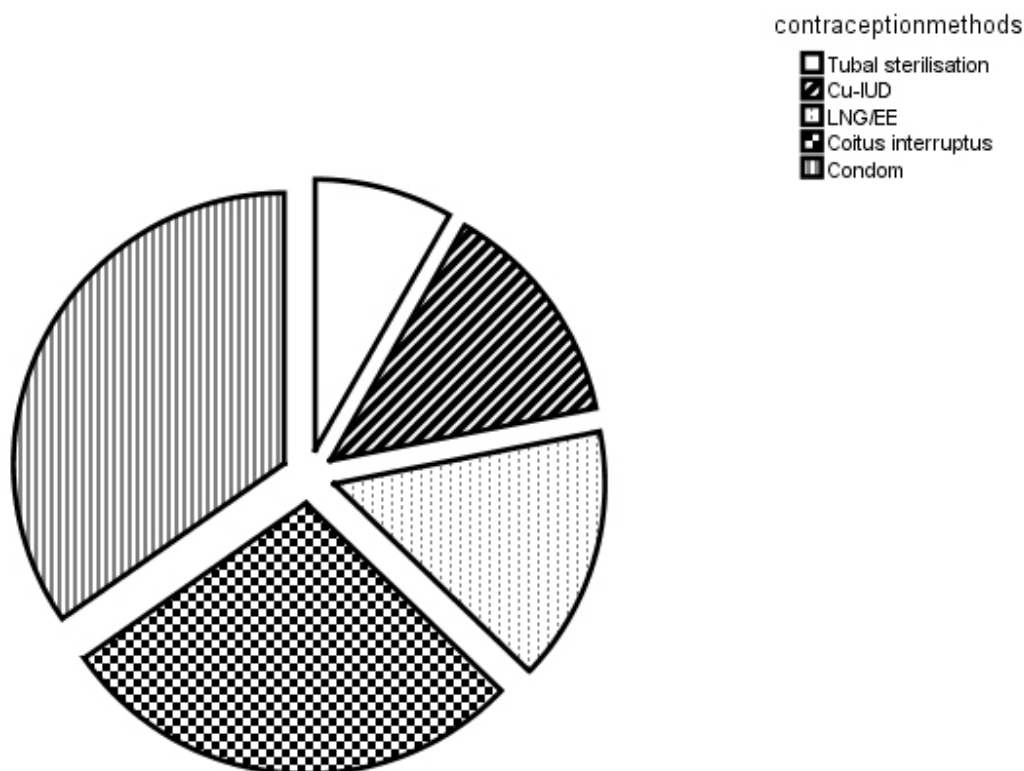


Fig. 1. Preferred contraception methods of women.

method ($P = 0.038$). Among women with tubal sterilisation, 65% did not have FSD.

4. Discussion

We observed that older women mostly preferred tubal sterilisation, those with a relatively lower body weight preferred condoms, and women who delivered vaginally preferred condoms. Women whose partner used the coitus interruptus method had the lowest FSFI score, with low scores in the arousal, lubrication, orgasm, and pain subgroups. Moreover, FSD was mostly seen in women who used coitus interruptus. The group with the lowest rate of FSD was women who had undergone tubal sterilisation.

Sexual problems are common and estimated to affect 22–43% of women globally [16]. In a Turkish study, decreased sexual function was reported in 43.4% of women, with desire and arousal domains being most commonly affected, followed by orgasm and pain issues [17]. Contraception may affect female sexual function both positively and negatively. The use of no contraception method is often associated with a higher rate of FSD than the use of any method of contraception [18]. On the other hand, it has been argued that using contraception may also cause sexual dysfunction. Perception of decreased sexual function related to contraception may lead to women avoiding the use of any effective contraception, or conversely, non-use of contraception may itself be a factor in sexual dysfunction, perhaps owing to concerns about unwanted pregnancies [19].

Condoms were the most commonly used contraception method in our study group, owing to its availability, low cost and protection from infection. The acceptability of condoms in terms of the first sexual experience is controversial [20]. Some users reported that sexual intercourse can be longer in duration due to positive feelings of cleanliness and sexual hygiene [21]. However, others declared that condoms can decrease sexual pleasure and arousal, reduce vaginal lubrication and cause discomfort and pain [22]. Our results showed that younger, thinner women and those who delivered vaginally often preferred their partners to use condoms. Total FSFI scores were higher in women whose partners used condoms than those whose partners used coitus interruptus. Moreover, the lubrication subgroup score was the highest in women whose partners used condoms, although this result was not statistically significant. This result is controversial in the literature, we believe the female partner feels comfortable situation before the sexual intercourse.

Coitus interruptus, a traditional method of contraception, is considered to be one of the most preferred methods because it is the easiest and most cost-effective method to be applied for contraception purposes [23]. In the latest research, the percentage of women who preferred the coitus interruptus method was found to be 42.8% in Turkey [24]. However, the rate of unwanted pregnancies and failure of this method were reported to be quite high [25]. The use of coitus interruptus came in after condom use in our study. Coitus interruptus users had the lowest total FSFI scores, as well as the lowest

Table 1. Participant demographics according to contraception method.

	LNG/EE pills	Cu-IUD	Condom	Tubal sterilisation	Coitus interruptus	P value
Age (years)	32 (28.5–36.5) ^a	37 (32.0–40.0) ^b	34 (27.2–38.0) ^a	37.5 (35.0–39.5) ^{b,c}	34.5 (31.0–38.0) ^{a,b}	0.005*
BMI (kg/m ²)	24.1 (22.4–28.4) ^a	25.3 (22.0–29.5) ^a	23.5 (21.3–25.2) ^b	24.8 (23.3–28.4) ^a	25.2 (22.2–27.6) ^a	0.005*
University education	32 (86.5)	26 (78.8)	74 (88.1)	15 (75)	51 (75)	0.223
Employer	27 (73)	26 (78.8)	59 (70.2)	13 (65)	41 (60.3)	0.367
Vaginal Delivery	17 (45.9)	12 (36.4)	41 (50)	6 (30)	19 (27.9)	0.057
Smoker	9 (24.3)	7 (21.2)	22 (26.2)	5 (25)	10 (14.7)	0.525
Frequency of sexual intercourse in a week	< 1	4 (10.8)	8 (24.2)	23 (27.4)	5 (25)	24 (35.3)
	1	9 (24.3)	9 (27.3)	17 (20.2)	5 (25)	11 (16.2)
	> 1	24 (64.9)	16 (48.5)	44 (52.4)	10 (50)	33 (48.5)

Results are presented as median (IQR) or n (%). Kruskal Wallis Test, Mann Whitney U Test and Chi Square Test were applied. a,b,c: There is no difference between groups labeled under the same letter. * < 0.05.

Table 2. Female Sexual Function Index (FSFI) domain scores according to contraception method.

	LNG/EE pills	Cu-IUD	Condom	Tubal sterilisation	Coitus interruptus	P value
Total	28.8 (23.9–32.4) ^a	26.6 (18.9–31.0) ^{b,c}	28.1 (24.6–31.1) ^{a,b}	28.1 (25.8–31.0) ^{a,b}	25.4 (17.2–30.4) ^c	0.009*
Desire	3.6 (3.6–4.5)	3.6 (2.4–4.2)	3.6 (3.0–4.2)	3.6 (3.1–4.5)	3.6 (3.0–4.8)	0.185
Arousal	4.8 (3.9–5.5) ^a	4.2 (2.8–5.4) ^{a,b}	4.5 (3.9–5.1) ^a	4.5 (4.2–5.4) ^a	3.9 (3.0–5.1) ^b	0.007*
Lubrication	5.1 (4.0–6.0) ^a	4.5 (3.7–5.7) ^{a,b}	5.1 (4.2–6.0) ^a	5.5 (3.9–6.0) ^a	4.5 (3.6–5.4) ^b	0.003*
Orgasm	5.2 (4.2–5.6) ^a	4.8 (3.2–5.6) ^{a,b}	4.8 (4.0–5.6) ^a	5 (4.4–5.6) ^a	4.4 (2.4–5.2) ^b	0.013*
Satisfaction	5.2 (4.2–6.0) ^a	4.8 (2.8–5.6) ^{b,c}	4.8 (4.4–6.0) ^{a,b}	5.6 (4.8–6.0) ^a	4.8 (3.2–5.5) ^c	0.013*
Pain	6 (3.8–6.0) ^{a,b}	4.4 (3.4–6.0) ^{a,c}	5.6 (4.0–6.0) ^b	5.2 (4.4–6.0) ^{a,b}	4.6 (2.8–6.0) ^c	0.011*
FSD (+)	12 (32.4) ^a	16 (48.5) ^{a,b}	32 (38.1) ^a	7 (35) ^a	40 (58.8) ^b	0.038*

Results are presented as median (IQR) or n (%). Kruskal Wallis Test, Mann Whitney U Test and Chi Square Test were applied. a,b,c: There is no difference between groups labeled under the same letter. * < 0.05.

arousal, lubrication, orgasm, and pain subgroup scores. The scoring of the pain parameter, which is a subgroup of sexual dysfunction, is calculated reversely. Having the lowest score in the pain subgroup actually means that there is having high problems related to high levels of pain during sexual intercourse in women using coitus interruptus. We believe that the women in our study certainly knew the lack of safety and inconsistency of this method, and as a result, it had a negative effect on sexual function. Women using the coitus interruptus method, which currently has a high rate of use, can be informed about the advantages of other methods and can be switched to another method of contraception.

Combined oral contraceptives are accepted as one of the most popular forms of reversible contraception to prevent unintended pregnancies in women worldwide [26]. It is known that combined oral contraceptives (COCs) can cause sexual dysfunction in women due to variations in the plasma levels of sexual hormones, with inhibition of the sex hormone binding protein (decreased circulating androgen, estradiol, and progesterone levels) [27]. Sexual desire, autoeroticism, and sexual fantasies in women are particularly dependent on androgen levels [28]. COCs may help to eliminate the fear of getting pregnant, as well as provide a more relaxed and enjoyable sexual experience [29]. In our study, the second highest mean total FSFI score was observed in women who chose LNG/EE pills for contraception. Moreover, the highest desire and arousal subgroup scores were detected in

women whose preference was LNG/EE pills. We believe that the progesterone in COCs, levonorgestrel is the most androgenic progesterone, may explain the high FSFI scores. However, Ciaplinskiene *et al.* found evidence that women taking COCs for 3 months may experience worsening of sexual function, as measured by the FSFI, due to COCs containing antiandrogenic progestogen [30]. In a review, the authors suggested that COC-related sexual dysfunction should be managed initially, such as by switching the COC currently in use to a newer generation COC or to another form of contraception [31].

Intrauterine contraceptives, including Cu-IUD and LNG-IUD, are safe, cost-effective, and a common and preferred method for women of all reproductive ages. However, they may present some side effects that might affect the general health of women, such as their quality of life and sexual health [32]. In this study, the FSFI scores were lower in women who used Cu-IUDs. The IUD can cause fluctuations in the menstrual pattern and pelvic discomfort, which may be the reason why women who used Cu-IUD had low FSFI scores [33]. However, another study found no evidence to suggest that the Cu-IUD is associated with an altered libido [34].

The effect of sterilisation on sexual function extends beyond a simple hormonal effect into the psychological aspects of permanent pregnancy prevention, which may be positive (relief and comfort in the knowledge that sexual activity will not result in pregnancy) or negative (regret that pregnancy is

no longer possible) [35]. Kunkeri *et al.* observed that FSFI values decreased after the operation in their study comparing the sexual function of women before and after tubal sterilisation [36]. In our study, women with tubal sterilisation had the highest FSFI score (28.48). Women who had undergone tubal sterilisation ranked first among all women in the orgasm, satisfaction, and pain subgroups. In our tubal sterilisation group, we could not separate women who were in the postpartum period and breastfeeding, and also excluded women aged over 40 years.

Our pilot study had some weaknesses. Due to the low number of cases, vaginal, injectable, or subcutaneous forms were not included in the compared contraception methods. The greatest limitation of the study is its cross-sectional design. Basically we do not know whether a given type of contraceptive was selected by a particular type of woman. The results can be explained by the fact that women with a lower sexuality choose coitus interrupts and IUD and those with higher sexuality choose the other methods, without any effect of the contraceptive used on sexuality. More comprehensive studies can be carried out with the participation of these groups in the future.

In conclusion, women whose partners use the coitus interruptus method have the highest risk of sexual dysfunction compared to all other women using contraception which serves by family planning strategy of Health Ministry. This traditional method was associated with the lowest FSFI scores in the arousal, lubrication, orgasm, and pain subgroups. This may be associated with negative emotions regarding sexual activity due to the fear of getting pregnant. We conclude that appropriate modern contraceptive counselling is an excellent way to improve female sexuality.

Author contributions

BŞ and GS designed the research study. BŞ performed the research. BŞ analyzed the data. BŞ and ŞH wrote the manuscript. All authors contributed to editorial changes in the manuscript. All authors read and approved the final manuscript.

Ethics approval and consent to participate

All procedures followed were in accordance with the ethical standards of Bulent Ecevit University's Non-invasive Ethics Committee (approval number: 2020-16) and with the Helsinki Declaration of 1964 and its later amendments.

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Conflict of interest

The authors declare no conflict of interest.

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