

Is There Any Impact of Copper Intrauterine Device on Female Sexual Functioning?

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ABSTRACT

Introduction: Intrauterine Device (IUD) is the most preferred modern contraceptive method in Turkey. Female Sexual Dysfunction (FSD) is defined as lack of one or more of the components in the sexual response cycle which includes sexual desire, impaired arousal and inability achieving an orgasm or pain with intercourse. FSD has multi-factorial aetiology. Advanced age and menopause, fatigue and stress, psychiatric and neurologic disease, childbirth, pelvic floor or bladder dysfunction, endometriosis, uterine fibroids, hypertension obesity, medication and substances, hormonal contraceptives, relationship factors are known risk factors for FSD.

Aim: To investigate if IUD has any impact on female sexual functioning.

Materials and Methods: In this cross-sectional study subjects were divided into two groups. Study group consisted of 92 IUD-

users (mean 5.1±1.2 years) and the control group consisted of 83 women with no contraception. Female Sexual Function Index (FSFI) questionnaire was performed to both two groups. Women with a total score lower than 26.5 were considered as having sexual dysfunction.

Results: The prevalence of FSD was 57.1% among participants. IUD users had a lower total FSFI score comparing to control group but the difference was not statistically different (p=0.983). A positive correlation was found between total FSFI score and duration of IUD (p=0.003).

Conclusion: No difference was found in terms of sexual dysfunction between IUD users and women with no contraception. The prevalence of FSD was very high in both groups which may be attributed to the socio-cultural factors such as embarrassment of women due to conservatism.

Keywords: Arousal, Orgasm, Sexual dysfunction

INTRODUCTION

Female Sexual Dysfunction (FSD) is defined as lack of one or more of the components in the sexual response cycle which includes sexual desire, impaired arousal, inability achieving an orgasm or pain with intercourse [1]. Attention to this topic first began in the 21st century. Although the exact incidence of FSD is difficult to determine, it is reported by approximately 40% of women worldwide and 43-48% in Turkey [2-4]. FSD has multifactorial aetiology which includes psychological problems such as prior physical or sexual abuse, medications and physical problems [5]. It is one of the quality of life issues [2]. The best and modern way of evaluating FSD is to use validated surveys and symptom scores. The Female Sexual Function Index (FSFI) is the gold standard method to determine female sexual functioning. FSFI was developed by Rosen et al., it includes six domains (desire, arousal, lubrication, orgasm, satisfaction, pain) with 19 questions [3]. IUD has been used widely since 1909. It is the most preferred modern contraceptive method in Turkey [4]. The present study was conducted with the aim to investigate whether IUD has any impact on female sexual functioning.

MATERIALS AND METHODS

This cross-sectional study was conducted between June 2015 and January 2016 at Mugla Sitki Kocman University, Department of Obstetrics and Gynaecology Unit. University ethics committee approved the study. Informed consent was obtained from all patients before starting the study. A total of 175 patients aged 25-45 years attending the department of gynaecology clinic were recruited to the study. Patients were divided into two groups. The study group consisted of 92 women with copper IUD and the control group consisted of 83 patients with no contraception within the same period. All the IUDs were copper TCu380A type.

Patients' age, parity, duration of marriage, income, educational level, body mass index, smoking, menstrual history, duration of IUD, contraceptive method, previous pelvic surgery, chronic illness were recorded. Exclusion criteria's were those with a history of systemic disease, including psychiatric disease or on psychiatric medication, pelvic organ prolapse, pelvic surgery, premature menopause, oral contraceptive users, pregnant and obese women. Study was explained, privacy assured and voluntary participation emphasized and then patients were asked to fill the FSFI [3]. FSFI questionnaire were in Turkish and the validated questionnaire was used [5]. The questionnaire assessed sexual function for previous 4 weeks. First two questions were to assess desire, 4 questions were related to arousal, 4 questions were for lubrication, 3 questions were for orgasm and 3 were for pain. Each question was scored on a scale of 0-5. The total score was determined from all domains. A total score between 1.2 and 36 was obtained from each patient and was recorded. A total score less than 26.5 was considered as FSD. Higher scores indicated better sexual function. Scores less than 4.28 for desire, less than 5 for arousal, less than 5.4 for lubrication, less than 5 for orgasm, less than 5 for satisfaction less than 5.5 for pain were considered as disordered of per individual domain [3,6].

The clinical features of both groups were compared with the Statistical Package for Social Sciences (SPSS) for Windows, version 17.0 program. Normality of data distribution was tested with Kolmogorov-Smirnov test. The differences between the means of the variables were tested with two independent samples t-test if the distribution of the variables were normal. Mann-Whitney U was used if the distribution of the variables were not normal. Pearson's correlation analysis was used to test the correlation between duration of IUD, parity and total FSFI score. The level of significance was set at p<0.05.

RESULTS

This study was performed in state hospital and the mean age, body mass index and duration of marriage and income of patient's participants were similar between groups. Patients with IUD had higher parity and longer menstrual periods. Total FSFI mean score and score of each domain were lower in IUD users, but these differences were not significant [Table/Fig-1]. The sexual dysfunction rate was 58.6% in IUD users group and 55% in the control group. Among all the participants, 57.1% of patients had sexual dysfunction [Table/Fig-2]. A positive correlation was found between total FSFI score and duration of IUD ($p=0.003$), ($r=0.229$). Improvement in sexual function score was determined with longer duration of IUD. There was no correlation between parity and FSFI score ($p>0.005$).

Characteristics	IUD users (n=92)	Control (n=83)	p-value
Age (years) *	35.3±6.8	35.0±7.1	0.813
BMI (kg/m ²)*	26.2±3.7	25.1±3.9	0.939
Menstruation (days)* *	7 (2-13)	5 (1-10)	0.001
Parity**	2 (1-6)	2 (0-4)	0.023
Desire**	3.6 (1.2-6)	3.6 (1.2-5.4)	0.643
Arousal*	3.5±1.1	3.6±1.1	0.766
Lubrication*	3.0±0.7	3.1±0.8	0.746
Orgasm*	3.2±0.9	3.3±1.0	0.940
Satisfaction*	4.0±1.3	4.1±1.3	0.423
Pain*	3.9±1.3	4.0±1.3	0.460
Total score*	20.9±5.0	21.4±5.1	0.983

[Table/Fig-1]: Clinical Characteristics, total FSFI score and score of each domain of the patients among groups.

*Values are mean± standard deviation

**Values are median (minimum-maximum)

BMI: Body mass index, IUD: Intrauterine device

	IUD users (n=92)	Control (n=83)	p-value
Number of women with score ≥ 26.5	38	37	NS
Number of women with score < 26.5	54	46	NS
Rates of women with FSD (%)	58.6	55	NS
Desire dysfunction, n (%)	44 (47.8)	40 (48.1)	NS
Arousal dysfunction, n (%)	61 (66.3)	53 (63.8)	NS
Lubrication dysfunction, n (%)	57 (61.9)	53 (63.8)	NS
Orgasm dysfunction, n (%)	45 (48.9)	38 (45.7)	NS
Satisfaction dysfunction, n (%)	41 (44.5)	36 (43.3)	NS
Pain dysfunction, n (%)	51 (55.4)	45 (54.2)	NS

[Table/Fig-2]: Rates of FSD and each domain's dysfunction among groups.

NS: Not significant, IUD: Intrauterine device

DISCUSSION

In the present study the prevalence of FSD was 60% among the participants, which is much higher than previous by reported publications [5,7-9]. Women with a score lower than cut-off were considered as having FSD. In the current study 64% of IUD users and 55% of the control group had low FSFI score and determined as having FSD. FSD has multi-factorial aetiology. Biological, social, psychological, economic, political, ethnical and religious factors affect sexuality [10]. In a recent study, sexual function was found lower in infertile women compared to fertile women; thus, infertile women were not included into the study [11]. Advanced age and menopause, fatigue and stress, psychiatric and neurologic disease, childbirth, pelvic floor or bladder dysfunction, endometriosis, uterine fibroids, hypertension obesity, medication and substances, hormonal contraceptives, relationship factors are known risk factors for FSD [7,8,12-14]. Patients having any of these risk factors were excluded from our study. Approximately 14% of women worldwide use IUD as contraceptive method. Among women who use a contraceptive method, 27% from Asia and 17% from Europe prefer

IUD [15]. It is the most preferred modern contraceptive method in Turkey with a prevalence of 16.9% [4]. In this study, our aim was to investigate whether Copper-IUD has any impact on female sexual function and not to discuss the factors that may play role in the aetiology of FSD. We picked our patients meticulously in order for both groups to have similar characteristics such as patients' age, duration of marriage, income, educational level and BMI, so that we tried to eliminate confounding factors. Although all patients with IUD had higher parity, we found no correlation between parity and FSFI score. Contrast to our study, a study from Turkey showed that the women with secondary infertility have higher prevalence of sexual dysfunction compared with primary infertile women [16].

There is limited number of studies on this topic in the literature. In a recent study from Turkey, Sakinci et al., reported that Cu-IUD users had increased sexual pain and they concluded this finding as Cu-IUD could adversely affect female sexual function [9]. In contrast to this, we did not find increased pain in IUD users. Moreover no decreased sexual arousal, lubrication, satisfaction or orgasm was detected among IUD users comparing to the control group. We could mark an improvement in sexual function score with longer duration of IUD. It could be related to adaptation of IUD. In another study from Thailand the prevalence of FSD was found 50.9% among IUD users. The authors indicated that BMI was the main associating factor for FSD [17]. Studies about the effect of contraceptive methods on sexual functioning have shown that, estrogen-progestin contraceptives have inconclusive results [18-20]. Progestin-only contraceptive methods have no significant changes on FSD [21-25]. Negative clinical effects on sexual function were found after tubal ligation in a study from Ireland [26].

LIMITATION

Relatively small sample size, single center experience, is the important limitations of our study.

CONCLUSION

The prevalence of FSD is very high in our population. Embarrassment, an essential part of most conservative societies such as ours, may be an important factor for high rate of FSD. IUD does not have any negative effect on FSD. Factors which may play role for FSD need to be determined in further studies with a larger sample size.

REFERENCES

- [1] Diagnostic and statistical manual of mental disorders : DSM-5: American Psychiatric Association; 2013.
- [2] Jaafarpour M, Khani A, Khajavikhan J, Suhrabi Z. Female sexual dysfunction: prevalence and risk factors. *J Clin Diagn Res.* 2013;7(12):2877-80.
- [3] Rosen R, Brown C, Heiman J, Leiblum S, Meston C, Shabsigh R, et al. The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *J Sex Marital Ther.* 2000;26(2):191-208.
- [4] Ministry of Health and Hacettepe University Institute of Population Studies. Ankara 2008.
- [5] Cayan S, Akbay E, Bozlu M, Canpolat B, Acar D, Ulusoy E. The prevalence of female sexual dysfunction and potential risk factors that may impair sexual function in Turkish women. *Urol Int.* 2004;72(1):52-27.
- [6] Wiegel M, Meston C, Rosen R. The female sexual function index (FSFI): cross-validation and development of clinical cutoff scores. *J Sex Marital Ther.* 2005;31(1):1-20.
- [7] Oksuz E, Malhan S. Prevalence and risk factors for female sexual dysfunction in Turkish women. *J Urol.* 2006;175(2):654-58.
- [8] Aslan E, Beji NK, Gungor I, Kadioglu A, Dikencik BK. Prevalence and risk factors for low sexual function in women: a study of 1,009 women in an outpatient clinic of a university hospital in Istanbul. *J Sex Med.* 2008;5(9):2044-52.
- [9] Sakinci M, Ercan CM, Olgan S, Coksuer H, Karasahin KE, Kuru O. Comparative analysis of copper intrauterine device impact on female sexual dysfunction subtypes. *Taiwan J Obstet Gynaecol.* 2016;55(1):30-34.
- [10] Defining Sexual Health: Report of a Technical Consultation on Sexual Health. Geneva: World Health Organization (WHO). 2006.
- [11] Ashraf DM, Ali D, Azadeh DM. Effect of infertility on sexual function: a cross-sectional study. *J Clin Diagn Res.* 2015;9(5):QC01-03.
- [12] Laumann EO, Paik A, Rosen RC. Sexual dysfunction in the United States: prevalence and predictors. *Jama.* 1999;281(6):537-44.

- [13] Salonia A, Zanni G, Nappi RE, Briganti A, Deho F, Fabbri F, et al. Sexual dysfunction is common in women with lower urinary tract symptoms and urinary incontinence: results of a cross-sectional study. *Eur Urol*. 2004;45(5):642-48.
- [14] Handa VL, Harvey L, Cundiff GW, Siddique SA, Kjerulff KH. Sexual function among women with urinary incontinence and pelvic organ prolapse. *Am J Obstet Gynaecol*. 2004;191(3):751-56.
- [15] Buhling KJ, Zite NB, Lotke P, Black K. Worldwide use of intrauterine contraception: a review. *Contraception*. 2014;89(3):162-73.
- [16] Keskin U, Coksuer H, Gungor S, Ercan CM, Karasahin KE, Baser I. Differences in prevalence of sexual dysfunction between primary and secondary infertile women. *Fertil Steril*. 2011;96(5):1213-17.
- [17] Panchalee T, Wongwananuruk T, Augsuwatana S, Sirimai K, Tammakunto M, Neangton C, et al. Prevalence and associating factors of sexual dysfunction in women who use intrauterine device (IUD) for contraception. *J Med Assoc Thai*. 2014;97(1):20-7.
- [18] Sirakov M, Tomova E. Oral contraceptives and mood/sexual disorders in women. *Akush Ginekol*. 2015;54(5):34-40.
- [19] Graham CA, Sherwin BB. The relationship between mood and sexuality in women using an oral contraceptive as a treatment for premenstrual symptoms. *Psychoneuroendocrinology*. 1993;18(4):273-81.
- [20] Greco T, Graham CA, Bancroft J, Tanner A, Doll HA. The effects of oral contraceptives on androgen levels and their relevance to premenstrual mood and sexual interest: a comparison of two triphasic formulations containing norgestimate and either 35 or 25 microg of ethinyl estradiol. *Contraception*. 2007;76(1):8-17.
- [21] Schaffir J. Hormonal contraception and sexual desire: a critical review. *J Sex Marital Ther*. 2006;32(4):305-14.
- [22] Graham CA, Ramos R, Bancroft J, Maglaya C, Farley TM. The effects of steroidal contraceptives on the well-being and sexuality of women: a double-blind, placebo-controlled, two-centre study of combined and progestogen-only methods. *Contraception*. 1995;52(6):363-69.
- [23] Hurskainen R, Teperi J, Rissanen P, Aalto AM, Grenman S, Kivela A, et al. Clinical outcomes and costs with the levonorgestrel-releasing intrauterine system or hysterectomy for treatment of menorrhagia: randomized trial 5-year follow-up. *Jama*. 2004;291(12):1456-63.
- [24] Skrzypulec V, Drosdzol A. Evaluation of quality of life and sexual functioning of women using levonorgestrel-releasing intrauterine contraceptive system--Mirena. *Coll Antropol*. 2008;32(4):1059-68.
- [25] Li RH, Lo SS, Teh DK, Tong NC, Tsui MH, Cheung KB, et al. Impact of common contraceptive methods on quality of life and sexual function in Hong Kong Chinese women. *Contraception*. 2004;70(6):474-82.
- [26] Sadatmahalleh Sh J, Ziaei S, Kazemnejad A, Mohamadi E. Evaluation of sexual function and quality of life in Iranian women with tubal ligation: a historical cohort study. *Int J Impot Res*. 2015;27(5):173-77.

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