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# Effect of Contraceptive Methods on Female Sexual Function

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## ABSTRACT

**Background**: Female sexual function is the ability to achieve sexual arousal, lubrication, orgasm, and satisfaction, which results in a state of wellness and a life with good quality. Some women experience sexual dysfunction (SD), which is an important public health problem.

**Objective:** To study the effect of commonly used contraceptive methods on female sexual function.

**Patients and methods:** A cross sectional-controlled study on 314 female divided into two groups, study group of 164 females taking one of the common contraceptive methods and a control group of 150 females were not on any method. Each one answered the questions of the female sexual function index questionnaire (FSFI) and a female sexual dysfunction (FSD) was diagnosed when the FSFI total score was< 26.55.

**Results**: There was a statistically significant difference between FSFI scores of the study group (28.40±5.92) with that of the control group (31.34±4.83) in each domain except pain. And a significant lower FSFI scores among depomedroxy progesterone acetate (DMPA) and progestin only pills (POP) subgroups in comparison to controls and other subgroups. However, no significant difference was found between FSFI scores of the combined oral contraceptive (COC) subgroup and control group in each domain except for satisfaction, also no difference was found between the intrauterine contraceptive device (IUCD) subgroup scores and control group in each domain. Moreover, large percent of impaired sexual function (40%, 16.9%) was in DMPA and POP group. 53% of good sexual function cases had not any contraception and 15% were on IUCD. **Conclusion**: Progestin only contraceptives were associated with impairment of FSF; the injectable was worse than the POP while neither IUDs users nor participants on combined oral pills (COP) suffered from impaired sexual function.

**Keywords:** Contraceptive methods, Female Sexual Function, IUDs, Lubrication, Orgasm, Progesterone.

## INTRODUCTION

Female sexual function is the ability to achieve sexual arousal, lubrication, orgasm, and satisfaction and it results in a state of wellness and a life with good quality. So female sexual dysfunction is defined as disorder of libido, arousal, orgasm, and sexual pain that lead to personal distress [(1)].

One of the factors that influence women's sexual and quality of life is the use of contraception methods [(2)]. It was reported that the use of contraceptive methods fluctuated between 59% and 60% in Egypt. The commonly utilized methods were the (Cupper-T IUDs), combined oral pills (COP), progestin only pills (POP), Depomedroxy progesterone acetate (DMPA) and combined hormonal injections that represented 30%, 16% and 9% respectively [(3)].

The negative effects of female contraceptive methods on female sexuality are still a matter of debate, especially for the hormonal methods. Previous studies, performed on women taking hormonal contraception have yielded conflicting results, whereas some studies reported impairment of sexual function in contrast to other studies that reported unaffected or improved sexual experiences [(4)]. It was evidenced that progesterone has central sedative effects and progestins can induce depression and also have inhibitory effects on sexual behavior [(5)]. Therefore, the aim of this study was to study the effect of commonly used contraceptive methods on female sexual function.

## SUBJECTS AND METHODS

This is a cross-sectional controlled study on 314 female, which was conducted at the Family Planning and Gynecological Clinics at Menoufia University Hospital, Menouf General Hospital in the period from September 2019 to August 2020.

**Ethical considerations**:

All procedures were carried out in accordance with the ethical standards **and an approval from the Ethics Committee of Faculty of Medicine, Menoufia University was taken.** Formal consent was taken from every female. All the females freely accepted to participate in the interview and to fill the questionnaire.

**Inclusion criteria:** Healthy married women between 21- 45 years old who established sexual relationship (reproductive age) who were sexually acting in the previous 4 weeks, and were either using contraceptive methods for at least 4 weeks (Study group) or were not using any contraceptive method for at least 3 months (Control group).

**Exclusion criteria:** Conditions lead to abstinence of sexual intercourse as: (Vaginal bleeding, pelvic pain, painful genital lesion (scar of previous episiotomy or genital disease), diabetes, heart and vascular (blood vessel) disease, neurological disorders and chronic diseases such as kidney or liver failures, psychotic disorders and patients on antidepressant drugs and patients suffering from sexual problems before starting contraceptive methods).





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**Participants were divided into two groups:**

**Group A:** (study group) included 164 females who used the most common contraception as intrauterine contraceptive device (IUCD) cupper type, combined oral contraceptive pills (COC); 150 µg levonorgestrel and 30 µg ethinyl estradiol taken 21 days every 28 days, Progestin-only pills (POP) taken continuously every day, and depomedroxy progesterone acetate (DMPA) (oxyprogest) injections taken intramuscular every 3 months.

**Group B:** (control group) included 150 females who haven't used any contraceptive method for at least 3 months. All participants were assured of confidentiality and basic demographic information was recorded from all participants. History such as age, educational level, medical history and surgical history, also current contraceptive method if she uses one and duration of using it, participants were also asked for general examination as measuring blood pressure and local examination for local lesions and infections. Also, investigations as CBC and creatinine were required from them and all of them were free from other diseases.

All participants were asked to answer the questions written in the female sexual function index (FSFI) questionnaire, which was translated into Arabic.

Female sexual function index questionnaire (FSFI) consists of questions about 6 domains (desire, arousal, lubricants, orgasm, satisfaction and pain), each domain is assigned a minimum and maximum score and the total score for sexual function is determined for all domains. Impaired FSF was diagnosed when the FSFI total score was< 26.55 [6].

***Statistical analysis***

Data were collected, tabulated, statistically analyzed using Statistical Package for the Social Sciences (SPSS) version 25 (SPSS, Inc, Chicago, Illinois, USA). Descriptive data were presented in the form of mean, standard deviation (SD), median and range, and qualitative data were presented in the form numbers and percentages. Analytical statistics were performed using Chi-Square ($\chi^2$) test, Mann-Whitney U test, and Kruskal-Wallis test. Results were considered significant if P≤0.05 and highly significant if P≤ 0.01.

## RESULTS

Mean age for participants was 29.17±5.983 years. The mean duration of contraception for participants on contraception was 24.97± 31.627 months and the mean duration for cessation of contraception for cases without contraception was 30.36± 34.011 months (Table 1).

**Table (1): Socio demographic data of our studied participant**

| | No (no=314) | % |
|---|---|---|
| **Age (years)** | 29.17±5.983 | |
| Mean ±SD | 314 | |
| N Median (Range) | 29.00(18-46) | |
| **Groups** | | |
| On contraception | 164 | 52.2 |
| Control | 150 | 47.8 |
| **Educational level** | | |
| Low | 62 | 19.7 |
| Moderate | 157 | 50.0 |
| High | 95 | 30.3 |
| **Type of contraception** | | |
| COC | 42 | 13.4 |
| DMPA | 41 | 13.1 |
| IUCD | 41 | 13.1 |
| POP | 40 | 12.7 |
| None | 150 | 47.8 |
| **Duration of contraception (for cases on contraception)** | 24.97± 31.627 | |
| Mean ±SD | 164 | |
| N Median (Range) | 12.00 (3 -216) | |
| **Duration of cessation contraception (for control group)** | 30.36± 34.011 | |
| Mean ±SD | 150 | |
| N Median (Range) | 18.00( 3- 180) | |

COC: Combined oral contraceptive pills, DMPA: Depomedroxy progesterone acetate, IUCD: Copper-T intrauterine device, POP: Progestin only pills.

There was a statistically significant difference between FSFI scores of the group of women on contraception and the control group in each domain (desire, arousal, lubrication, orgasm, and satisfaction except for pain domain). Total FSFI scores of the group of women on contraception was significantly lower than in the control group (Table 2).

**Table (2):** Comparison between the FSFI scores of the group of women on contraception and the control group in each domain

| | | On Contraception (N=164) | Control N=150 | P value |
|---|---|---|---|---|
| **Age** | Mean ±SD<br>Median (Range) | 29.24± 6.11<br>29.00 (18- 46) | 29.08± 5.86<br>28.50 (18-45) | 0.827 |
| **Desire** | Mean ±SD<br>Median (Range) | 4.08± 1.19<br>4.20 (1.20- 6.00) | 4.73± 0.95<br>4.80 (1.20- 6.00) | 0.0001* |
| **Arousal** | Mean ±SD<br>Median (Range) | 4.80± 1.13<br>4.80 (0.90-6.00) | 5.36± 0.83<br>5.70( 0.90- 6.00) | 0.0001* |
| **Lubrication** | Mean ±SD<br>Median (Range) | 4.95± 1.13<br>5.10 ( 0.00- 6.00) | 5.34± 0.86<br>5.70 ( 0.30- 6.00) | 0.002* |
| **Orgasm** | Mean ±SD<br>Median (Range) | 4.71± 1.23<br>4.80 ( 0.00- 6.00) | 5.21± 1.01<br>5.60 (0.00 - 6.00) | 0.0001* |
| **Satisfaction** | Mean ±SD<br>Median (Range) | 4.75± 1.36<br>4.80 ( 0.00- 6.00) | 5.37± 1.06<br>6.0 (0.00- 6.00) | 0.0001* |
| **Pain** | Mean ±SD<br>Median (Range) | 5.12± 1.09<br>5.60 ( 0.00- 6.00) | 5.34± 0.95<br>5.6 (0.00- 6.00) | 0.075 |
| **Full Scale Score Range** | Mean ±SD<br>Median (Range) | 28.40± 5.92<br>29.75 (2.10-36.00) | 31.34± 4.55<br>32.6 (2.40-36.00) | 0.0001* |

*: Significant, Number of control is 149 in lubrication and orgasm and 148 in full scale score range

In our study, there was a statistically significant difference between FSFI scores of the whole subgroups of women on contraception with the FSFI scores of the control group in each domain (desire, arousal, lubrication, orgasm, satisfaction, and pain domain and also full-scale score range), There was significant lower FSFI scores among DMPA and POP subgroups in comparison to controls. Also, there were lower scores in DMPA group and POP group than others subgroups (Table 3).

**Table (3):** Comparison between the FSFI scores of the group and the subgroups of women on common methods of contraception in Egypt with the FSFI scores of the control group. Data are represented as mean±SD and median (Range)

| | COC N=42 | DMPA N=41 | IUCD N=41 | POP N=40 | Control N=150 | P-value |
|---|---|---|---|---|---|---|
| **Desire** | 4.57±0.92<br>4.80(2.40- 6.00) | 3.09±1.02<br>3.60(1.20-4.80) | 4.57±0.99<br>4.80(1.80- 6.00) | 4.07±1.21<br>3.9(1.20-6.00) | 4.73±0.945<br>4.8(1.20-6.00) | 0.0001* |
| **Vs Control p-value** | **0.256** | 0.0001 | 0.311 | 0.001 | | |
| **Arousal** | 5.34±0.75<br>5.7( 3.60- 6.00) | 3.72±1.11<br>3.6(0.90- 6.00) | 5.25±0.80<br>5.4(2.70-6.00) | 4.88±1.04<br>4.8( 2.4 -6.00) | 5.36±0.83<br>5.7(0.90- 6.00) | 0.0001* |
| **Vs Control p-value** | **0.57** | 0.0001 | 0.244 | 0.002 | | |
| **Lubrication** | 5.22±0.81<br>5.4(3.30- 6.00) | 4.04±1.34<br>4.2(0.00-6.00) | 5.46±0.72<br>6.0(3.60-6.00) | 5.07±1.02<br>5.4(2.40-6.00) | 5.34±0.86<br>5.7(0.30-6.00) | 0.0001* |
| **Vs Control p-value** | **0.288** | 0.0001 | 0.148 | 0.148 | | |
| **Orgasm** | 5.29±0.84<br>5.6(2.00- 6.00) | 3.80±1.24<br>4.0(0.00-5.60) | 5.14±0.99<br>5.6(1.20-6.00) | 4.58±1.23<br>4.8(1.60-6.00) | 5.21±1.01<br>5.6(0.00-6.00) | 0.0001* |
| **Vs Control p-value** | 0.75 | 0.0001 | 0.487 | 0.001 | | |
| **Satisfaction** | 5.09±1.12<br>4.8(1.20- 6.00) | 3.80±1.54<br>4.8 (0.00-6.00) | 5.50±0.85<br>6.0(2.4- 6.00) | 4.59±1.27<br>4.8(1.2- 6.0) | 5.37±1.06<br>6.0(0.0-6.0) | 0.0001* |
| **Vs Control p-value** | 0.044 | 0.0001 | 0.564 | 0.0001 | | |
| **Pain** | 5.20±1.09<br>5.8(2.00-6.00) | 4.53±1.28<br>4.4(0.00-6.00) | 5.38±0.71<br>5.6 (3.6-.00) | 5.36±1.02<br>5.8 (1.20-6.00) | 5.33±0.95<br>5.6(0.00-6.00) | 0.001* |
| **Vs Control p-value** | 0.726 | 0.0001 | 0.739 | 0.762 | | |
| **Full Scale Score Range** | 30.72±3.99<br>31.3 (20.0-36.0) | 22.99±6.15<br>23.7 (2.1-33.2) | 31.30±3.68<br>32.9 (19.7-36.0) | 28.50±5.64<br>29.75 (12 -36) | 31.34±4.548<br>32.6 (2.40-36.0) | 0.0001* |
| **Vs Control p-value** | 0.213 | 0.0001 | 0.640 | 0.001 | ---- | ---- |

*: Significant, Number of control is 149 in lubrication and orgasm and 148 in full scale score range, COC: Combined oral contraceptive pills, DMPA: Depomedroxy progesterone acetate, IUCD: Copper-T intrauterine device, POP: Progestin only pills

In our study, large percent of impaired sexual function (40%, 16.9%) was in DMPA group, POP group. 53% of good sexual function cases had not any contraception and 15% of good sexual function cases were on IUCD (Table 4).

**Table (4):** Comparison between FSFI total score cutoff values of impaired sexual function in different types of contraceptive groups. Data are represented as number and percentage

| | | FSFI total score cutoff values of impaired sexual function | | Total | P value |
|---|---|---|---|---|---|
| | | <26.55 | ≥ 26.55 | | |
| Type of contraception | COC | 7 | 35 | 42 | 0.0001* |
| | | 10.80% | 14.20% | 13.50% | |
| | DMPA | 26 | 15 | 41 | |
| | | 40% | 6.10% | 13.10% | |
| | IUCD | 4 | 37 | 41 | |
| | | 6.20% | 15% | 13.10% | |
| | POP | 11 | 29 | 40 | |
| | | 16.90% | 11.70% | 12.80% | |
| | None | 17 | 131 | 148 | |
| | | 26.20% | 53% | 47.40% | |
| Total | | 65 | 247 | 312 | |
| | | 100.00% | 100.00% | 100.00% | |

*: Significant, COC: Combined oral contraceptive pills, DMPA: Depomedroxy progesterone acetate, IUCD: Copper-T intrauterine device, POP: Progestin only pills

N.B. Scores <26.55 of maximum achievable score in each domain are considered as sexual dysfunction in that domain.

## DISCUSSION

In the current study, female sexual function was evaluated using female sexual function index questionnaire (FSFI) that consists of questions in 6 domains (desire, arousal, lubricants, orgasm, satisfaction and pain).

In the current study, there was a statistically significant difference between FSFI scores of the group of women on contraception with the FSFI scores of the control group in each domain (desire, arousal, lubrication, orgasm, and satisfaction except for pain one). **Lee *et al.*** [7] performed a comprehensive review of the current literature on FSD as measured by the female sexual function index and concluded that oral contraceptives (OCs) can cause FSD in reproductive women. Domains that include female sexual interest and arousal and genito-pelvic pain were affected. OCs also can cause dyspareunia owing to increased risk of vestibulitis and vaginal dryness. This risk is increased if OCs are used in adolescents and the duration of oral contraception (OC) use is at least 2 years.

The results of **Sakinci *et al.*** [8] showed significantly lower scores for arousal ($p$ = 0.021), lubrication ($p$ = 0.021), orgasm ($p$ = 0.040), pain ($p$ < 0.001), and overall FSFI ($p$ = 0.031) in Cu-IUD users compared to non-users. **Battaglia *et al.*** [9] reported that the OC use induced a significant decrease of the number of intercourse/week, and a reduction of the frequency of orgasm during intercourse with worsening of pain during intercourse after OC. **Caruso *et al.*** [10] assessed the effects of a low-dose oral contraceptive (OC) on sexuality. 48 healthy volunteers (18-35 years) participated in the study. Sexual behavior was assessed using the self-administered Personal Experience Questionnaire, at baseline, and at 3, 6 and 9 months of pill use. Women reported decreased sexual desire ($p<0.005$) and sexual activity ($p<0.05$) at the 9$^{th}$ month of pill use, and diminished sexual arousal at the 3$^{rd}$ month of pill intake ($p < 0.05$), with respect to baseline. The frequency of orgasm did not change during OC use. Moreover, sexual enjoyment was worse at the 3$^{rd}$, 6$^{th}$ and 9$^{th}$ month with respect to baseline ($p < 0.001$). **Sanders *et al.*** [11] conducted a study to explore predictors of discontinuation of oral contraceptives including pre-OC use characteristics and adverse physical, emotional, and sexual effects of OCs. Emotional side effects, worsening of PMS, decreased frequency of sexual thoughts, and decreased psychosexual arousability correctly categorized 87% of cases by using logistic regression. Emotional and sexual side effects were the best predictors of discontinuation/ switching.

In this study also, total FSFI scores of contraception group was significantly lower than that of control group. A similar study was conducted by **Hassanin *et al.*** [5] on women attending mother and child-care units in Cairo and Department of Gynecology of the Faculty of Medicine, Beni Suef University to investigate the impact of the commonly practiced contraceptive methods in Egypt on FSF. Their results showed that the mean total FSFI scores were significantly lower in contraceptive group (25.9±5.2) compared to non-contraceptive group (27.6±5.4). Also, the mean FSFI scores in desire, arousal and lubrication domains were significantly lower in contraceptive group compared with non-contraceptive group.

A larger Iranian study was conducted by **Fataneh *et al.*** [13] to evaluate sexual function in two groups of women using contraceptive methods, ($n$ = 306) and non-user group ($n$ = 302). The results showed that sexual function in control group was better than in contraceptive users group (26·5 ± 4·5 vs 18·1 ± 4·2). This is also in agreement with **Caruso *et al.*** [14] who used the female sexual function index (FSFI) questionnaire to investigate sexual behavior of women on OC for 72 days with a 4-day hormone-free interval. The FSFI score obtained at 72-82 day detected a worsening with respect to baseline score ($P < 0.05$).

In contrast, **Wallwiener *et al.*** [15] analyzed 2612 questionnaires submitted by respondents aged ≤30 years

(mean age (SD) 23.5 (2.5) years). Median FSFI total scores (ranges) were 28.2 (2.0-36.0) for all respondents. Median FSFI was significantly lower in non-users (24.4) versus users (28.7) of contraception (p<0.001). This difference can be explained by the fear about an unwanted pregnancy that is associated with a negative impact on women's sexual arousal, particularly if one's partner did not share the same concern [(16)]. When it comes to the sexual effect of special type of contraception, there was a statistically significant difference between FSFI scores of the all subgroup of women on contraception with the FSFI scores of the control group in each domain (desire, arousal, lubrication, orgasm, satisfaction, pain domain and also full scale score range).

Concerning hormonal methods, there was significant lower FSFI scores among DMPA and POP subgroups in comparison to controls. Also, there were lower scores mostly in DMPA group and pop group than others subgroups. However, no statistically significant difference was found between FSFI scores of the COC subgroup and control group in each domain except for satisfaction domain. Moreover, large percent of impaired sexual function (40%, 16.9%) was detected in DMPA and POP group. By the same way, **Guo *et al.*** [(17)] examined whether there is a positive association between sexual dysfunction (SD) and different types of progestin-based contraceptives and found an increase in the use of levonorgestrel (COC and IUD), drospirenone, and medroxyprogesterone in subjects with SD. Also, the risk of contraceptives did not differ when compared with oral levonorgestrel. **Butt *et al.*** [(18)] established a cross-sectional study on consecutive sampling of women of reproductive age using either hormonal or non-hormonal contraception to evaluate the prevalence of FSD. The prevalence of FSD among those using hormonal and those using non-hormonal contraception was 51.5% and 29.6%, respectively (p= 0.0001). Thus, a high prevalence of and a strong association between hormonal contraception and FSD was reported. Similarly, **Kariman *et al.*** [(19)] compared sexual function in women using COC and DMPA and found a significant difference in sexual function between the COC and DMPA groups. Sexual arousal and lubrication were more favorable in the COC group in comparison with the DMPA group; also, pain in this group was lower than the DMPA group. **Malmborg *et al.*** [(20)] also reported that women using hormonal contraception were more likely to experience reduced sexual desire compared with women using hormone-free contraception. **Wallwiener *et al.*** [(15)] compared female sexual function index (FSFI) total scores in hormonal contraceptive users oral hormonal contraception (OHC) + nonoral hormonal contraception (NOHC) vs nonhormonal contraception (NHC), users and revealed a significant difference between the two groups ($p$ = 0.007), with NHC users showing higher FSFI total scores. The difference in FSFI total scores between OHC and NOHC users was also significant ($p$ = 0.007) but with lower scores among OHC, which is contrary to the current finding.

In the same point of view, **Boozalis *et al.*** [(21)] performed a cross-sectional analysis of 1,938 of the 9,256 participants enrolled in the Contraceptive CHOICE Project. Multivariable logistic regression was used to assess the association between contraceptive method and report of lacking interest in sex, controlling for potential confounding variables. Their results showed that more than one in five reported a lack of interest in sex for several months or more when asked at their 6-month follow-up survey. Also, women who used DMPA injections, the contraceptive ring, and the implant were more likely to report a lack of interest in sex compared to copper IUD users. However, they did not find association between lack of libido and the hormonal IUD, oral contraceptive pill, and contraceptive patch compared to copper IUD users. **Čiaplinskienė *et al.*** [(22)] performed a prospective randomized single-institution study, 80 healthy women with a monogamous partner and an active sexual life were randomised into two groups for a period of 3 months. Women in the exposed group ($n$=40) took a COCs containing 30μg ethinylestradiol (EE) and 3mg drospirenone (DRSP) in a 21/7 regimen. Women in the control group ($n$=40) used either a barrier contraceptive method (BCM) or a natural family planning method (NFPM). The total FSFI score ($p$<0.0001), as well as the desire ($p$ = 0.04) and arousal ($p$ = 0.03) scores, were significantly lower in the COCs group after 3 months of hormonal contraceptive use compared with baseline. Women using BCM or NFPM showed an improvement in total FSFI score ($p$ = 0.02). Hormonal contraception with DRSP increased the likelihood of worse sexual function in the desire ($p$ = 0.01) and arousal domains ($p$ = 0.005) and in total FSFI score ($p$ < 0.001). The results remained statistically significant even after adjustment for smoking status. **Lee *et al.*** [(23)] also found that free testosterone levels were lower in OCP users without differences in FSFI scores, clitoral thermal or vibratory thresholds, or vestibular pain thresholds between OCP users and non-hormonal users.

In similar study on female German medical students to investigate the prevalence and types of FSD and the relationship between hormonal contraception (HC) and FSD, **Wallwiener *et al.*** [(24)] showed that hormonal contraception was associated with lower total FSFI scores and lower desire and arousal scores than no contraception and non-hormonal. Different studies also detected positive sexual effects of hormonal methods. **Guida *et al.*** [(25)] compared sexual function with the use of three types of hormonal contraceptives (subdermal hormonal contraceptive, vaginal ring, oral contraceptive) and non-hormonal use. Improvement of sexual function in women of hormonal groups after 3 months of contraceptive intake, compared to control, that was demonstrated by the positive values in visual analogue scale (VAS) of some parameters expressing positive sexual function (pleasure, satisfaction,

complicity, sexual interest, frequency, and orgasm intensity) and by the negative values in VAS of some parameters expressing negative sexual function (anxiousness, pain and discomfort). Also, **Strufaldi *et al.*** [26] compared the effects of two contraceptive pills with different doses of the same components on female sexual function among women without previous sexual dysfunction and found that both groups showed improvements in the FSFI desire score.

In contrast to our finding, **Wallwiener *et al.*** [15] found that, the FSFI score For OHCs was lower than for other contraceptives but there was no significant association with ethinylestradiol (EE) dose or progestins, possibly due to small sample sizes. **Schaffir *et al.*** [27] compared sexual function and hormone concentrations in combined oral contraceptive (COC) and injectable progestin users and delineated that while users of COC and DMPA have significantly different sex hormone levels, they were not different in sexual function as measured by FSFI. They argued that estradiol level had no effect on dyspareunia and lubrication score in women studied, and believed that, because of effects of progesterone on vaginal epithelium in women using DMPA, estradiol level was tangibly low, and may even cause suppression of estrogen. On the other hand, many women using DMPA, had amenorrhea, which may have affected their sexual desire or sexual enjoyment, through unexpected bleeding.

Despite numerous studies in this area, mechanisms of sexual disorder in hormonal contraceptive methods actually remain unknown and cannot be predicted for all women [19]. regarding IUCD, the current study showed non-significant difference between IUCD users and controls regarding total and domain scores of FSFI. Similarly, the study of **Moreira *et al.*** [28] showed that sexual function not significantly changed after using either CuIUD (copper intrauterine device), SIUD group (silver intrauterine device) for 3 months with non-significant data suggesting an improvement in sexual function.

In the study of **Sakinci *et al.*** [8] to examine the effect of copper intrauterine device (Cu-IUD) on FSD, the prevalence of FSD was 41.1% (n = 37) and 37.7% (n = 26) in Cu-IUD users and control groups, respectively with non-significant difference ($p > 0.05$). **Enzlin *et al.*** [29] also reported that the influence of IUCs on sexual functioning was in the lower range and did not differentiate LNG-IUS greatly from Cu-IUD-users. **Bastianelli *et al.*** [30] showed that lower rates of sexual dysfunction were noted among women using either copper IUC (21%) or a levonorgestrel intrauterine system (LNG-IUS) (10%) than among women using no contraception (35%). **Safarinejad** [31] stated that women using IUDs have higher scores in sexual arousal and lubrication domains of sexual function in stages of sexual activity.

In contrast, **Panchalee *et al.*** [32] studied the prevalence and associating factors of sexual dysfunction in Thai women using contraception with intrauterine device (IUD) and reported a higher prevalence (50.9%) of sexual dysfunction IUD users. The significant domains were found to be desirable and arousal domains. The associating factor that affected the sexual dysfunction significantly was observed in body mass index (BMI) group ($p=0.033$). Subgroup analysis illustrated that the underweight group had more sexual dysfunction. The lowest FSFI score was observed in the underweight group. Indeed the current findings can be attributed to the fact that these devices can reduce the fear of unwanted pregnancy, promoting a more relaxed and pleasurable sexual experience and, thus, improving the user's sexual function. This may be possible because a satisfactory sexual response and the perception of sexual pleasure during intercourse is influenced by a complex multifactorial set, involving biological, psychological, and environmental factors [28].

From the above results, it must be mentioned that the range of contraceptive effects on women's sexual experiences shape their use and opinions of the product, leading to either increased motivation and consistent use or poor adherence and discontinuation [33]. Awareness of these individualized experiences can help providers better understand and guide their patients towards successful contraceptive use. The strength of the current study was the comparison of sexual function among contraceptive users and non-contraceptive users besides evaluation of sexual function among most commonly used contraceptive methods in Egypt. On the other hand, one shortcoming was the exclusive number of this study that might not reflect the general population of Egypt. Other limitations of this study were the addiction of subjects or their partners to cigarettes, or drug use, which might have been neglected. Also, the subjects' embarrassment in expressing their sexual issues and lack of knowledge about the spouse's sexual disorders were other limitations of this study.

## CONCLUSION

Progestin only contraceptives were associated with impairment of FSF; the injectable was worse than the POP while neither IUDs users nor participants on COP suffered from impaired sexual function.

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