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Effect of Combined Oral Contraceptive Pills versus Copper Intrauterine Device on Women's Sexual Function

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Abstract:
BACKGROUND: Sexuality is fundamental for the maintenance of health and wellbeing. Various contraceptive methods have been associated with changes in sexual function. AIM of this study was to evaluate the effect of combined oral contraceptive versus copper intrauterine device on women's sexual function. DESIGN: A descriptive, comparative and correlational design. SETTING: family planning clinic affiliated to Benha Educational Hospital. SAMPLE: a purposive sample consisted of two groups (the first group comprised 100 women using combined oral contraceptive pills and the second group comprised 100 women usingcopper intrauterine device). TOOLS: The tools of data collection were self -administrated questionnaire sheet, and the female sexual function Index. RESULTS: The present study showed that overall level of knowledge regarding types of contraceptive methods, combined oral contraceptive pills, copper intrauterine device and sexual health was average level among the two groups and mean total score of sexual function domains was (20.55 ± 2.53in combined oral contraceptive pills users versus 25.94 ± 2.44 in copper intrauterine device users) (P < 0.001). CONCLUSION: women using combined oral contraceptive pills were more likely to report negative effects on sexual function compared with copper intrauterine device users. RECOMMENDEDATIONS: family planning counseling is required for all women to be aware about the sexual acceptability of contraceptive methods. So this finding emphasizes the importance of sexual counseling as part of family planning counseling.

Key words: sexual function, combined oral contraceptive pills, copper intrauterine device, women

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I: INTRODUCTION

Sexual health is a crucial part of general health and central feature of human development. The concept of sexual reproductive health (SRH) is defined as a "state of optimal wellbeing related to sexuality throughout lifespan". SRH implies a wide range of health issues, including family planning; maternal and newborn health care; prevention, diagnosis and treatment of sexually transmitted infections (STIs); male and female sexuality; cervical cancer screening; infertility prevention and management *(Hales, 2017).*

Sexual health cannot be understood without a broad consideration of sexuality, which underlies important behaviors and outcomes related to sexual health. Sexuality has been generally defined as dynamic result of physical ability, drive, attitudes, chances for relationship, sexual behavior and satisfaction with one's sexual self and life .Sexual activity results from the interaction of each partner's physical status, interest, behavior, and attitudes and the underlying quality of the relationship and intimacy level. Therefore, female sexuality and sexual concerns always should be discussed throughout lifespan (*Morton, 2017).*

The nature of women sexual function is complex and is influenced by many non-biological and biological factors; therefore to reliably predict how sexual activity may be affected by different contraceptive

methods is an important matter. In recent years, reproductive health researchers have shown increasing interest in how contraception affects women's sexual well-being and how sexuality may influence contraceptive choices and practices *(Higgins et al., 2015).*

Sexual dysfunction is a serious public health issue that is endangering women's well-being. Woman Sexual dysfunction (WFS) is defined as difficulty experienced by the woman during any stage of a normal sexual activity, including female sexual interest/arousal disorder, female orgasmic disorder, and genito-pelvic pain/penetration disorder (*Mishraet al., 2016).*

Access to safe, effective contraception is both a public health and feminist imperative. Family planning products and services are associated with a range of health benefits, including reduced unintended pregnancies, improved infant health, and lowered pregnancy-related morbidity and mortality. Successful fertility control also leads to many social and economic benefits for women, from educational attainment and personal autonomy to relationship stability and satisfaction .Thus, contraceptive access and acceptability are critical to both sexual and social health *(Higgins and Smith, 2016).*

Combined oral contraceptive pills (COCPs) have two hormonal components, an estrogen and a progestin which inhibit the mid cycle luteinizing hormone surge, resulting in ovulation suppression. COCPs offer several medical benefits in addition to providing effective contraception, which, together with their relatively low cost, availability and convenience, have led to being a common first-choice contraceptive *(Zethraeus et al., 2017).*

Since the introduction of COCPs half a century ago, thousands of scientific studies have examined the various effects of the pill with more focus on contraceptive safety and efficacy, weight gain, bleeding irregularities, nausea, and effects on mood but there have been relatively few studies on their impact on female sexuality with conflicting results on how COCPs could positively or negatively affect woman sexual function *(Malmborg et al., 2015).*

Also, copper intrauterine device Cu-IUD is a safe and highly effective method of birth control with similar rates of failure for typical or perfect use. CU- IUDs also have the advantages of being hormone-free, providing highly effective emergency contraception which can be continued long term, and not disturbing the regularity of the menstrual cycle. However, the inflammatory response in the endometrium results in a 30% or more increase in menstrual flow which has been cited as one of the most common reasons for discontinuation of the method *(Bateson et al.,2016).*

Cumulative continuation rates for Cu-IUDs up to three years have been reported to be among the highest of all modern methods of contraception .But, to improve the appeal and acceptability of Cu-IUDs, research needs to explore how clients' potential uptake and continued use of Cu-IUDs may be associated with sexuality. Therefore, more studies are needed especially for long acting reversible contraception (LARC), the most effective contraceptive methods currently available *(Rivlin and Westhoff, 2017).*

The maternity nurse is uniquely positioned to play an important role in preventative women's health care through providing care related to reproduction, STIs, chlamydia tests and breast care. With appropriate training, the maternity nurse's role could be further expanded to provide additional sexual and reproductive health services, such as evaluating sexual function concerns, providing consultation and sex education ,guiding the women to find treatments for sexual problems, offering contraceptive counseling, and providing alternative contraceptive options when needed *(levi, 2017).*

Counseling should include practical information on how to use contraceptive methods and provide anticipatory guidance regarding advantages, disadvantages, contraindications, side effects, and the sexual acceptability of contraceptive methods. Nurses should be equipped with the knowledge and practice skills to provide SRH care in all settings and develop trusting relationships with women to communicate thoughtfully and skillfully *(Bishop, 2015).*

Significance of the study:

The exact prevalence of FSD in the Middle East is exceptionally difficult to be determined in light of its sensitive nature and the conservative tinge of the population. In a study from Lower Egypt, it was found that 68.9% of 936 women (16–49 years) had one or more sexual problems; however, 23% of the

women with sexual problems were not distressed by these issues. In another study from Upper Egypt, it was found that 76.9% from 601 women (18–60 years) reported one or more sexual dysfunction problems, and most of these women (87.7%) were distressed by these issues *(Elnashar et al., 2015).*

Aim of the study

This study aimed to evaluate the effect of using combined oral contraceptive pills versus copper intrauterine device on women's sexual function.

Research Question:

- What is the effect of using combined oral contraceptive pills compared to copper intrauterine device on women's sexual function over time?

II: SUBJECTS AND METHOD

Research design:

A descriptive and comparative design has been utilized to fulfill the aim of the present study.

Research Setting:

The study was conducted at family planning clinic affiliated to Benha Educational Hospital. This clinic includes 5 rooms and is located at the outpatient clinics building in the ground floor. Women attend for family planning counseling, insertion or removal of IUD and transdermal contraceptive capsules and taking contraceptive injection and COCPs. It starts from 9 Am to 1 Pm**.**

Sampling:

- **Sample type:**

A purposive sample was used from the above mentioned study setting.

- **Sample Size:**

The sample consisted of 200 women who were chosen among those attending family planning clinic through a period of six months and they were divided into two groups (the first group comprising 100 women who used combined oral contraceptive pills and the second group comprising 100 women who used copper intrauterine device). The studied samples were selected according to the inclusion criteria;

1. Age from (20 – 45) years.
2. Use combined oral contraceptive pills or copper intrauterine device continuously for at least 6 months.
3. Sexually active with regular marital life.
4. Not suffering from any sexual problems before starting using contraceptive methods.
5. Free from any medical, psychological, obstetrical disease or congenital abnormality

- **Sample technique:**

The researcher visited the study setting, introduced herself and explained the purpose of the study briefly to women with the previous mentioned criteria and this was repeated 2times/weekly until the predetermined size of sample was completed.

-Tools of Data collection:

I- A structured interviewing questionnaire:

It was designed by the researcher after reviewing related literature *(Hassan et al., 2015; Casey et al., 2015)* and under guidance of supervisors. It was written in a simple Arabic language in the form of close and open ended questions and consisted of three parts**:**

Part 1: Personnel data such as (age, level of education, residence, occupation, age at marriage, duration of marriage)

Part 2:

- Menstrual and obstetrics history such as (regularity of menstrual cycle, interval, duration…... etc.)
- Sexual history such as (circumcision, previous sexual disorders, current sexual problems.…..etc.)

Part 3: Assessment of women's knowledge regarding COCPs and CU-IUD and sexual health through items written in Arabic language in the form of multiple choice questions for assessing the women knowledge regarding the following:

Knowledge's scoring system: All knowledge variables were weighted according to items included in each question. Each item was given a score (3) when the answer was complete correct answer, a score (2) when the answer was incomplete correct answer and a score (1) when the answer was don't know. The total score of each category was calculated by summation of the scores of its items. The total score for the knowledge of a participant was calculated by the addition of the total score of all parts. The score of total knowledge was classified as the following:

- Good: (≥ 75% correct answers).

- Average: (50 - < 75% correct answers).

- Poor: (< 50% correct answers).

II- The Female Sexual Function Index (FSFI) (Appendix II): a brief questionnaire measure of sexual functioning designed by ***(Rosen et al., 2000)*** was used to evaluate sexual function domains composed of 19 items divided into six subscales: (a) desire (as, frequency and level); (b) arousal (as, frequency, level, confidence and satisfaction); (c) lubrication (as, frequency, difficulty, frequency of maintaining and difficulty of maintaining); (d) orgasm (as, frequency, difficulty and satisfaction); (e) satisfaction (as, with amount of closeness with partner, with sexual relationship and with overall sex life); (f) pain (as, frequency during vaginal penetration, frequency following vaginal penetration and level during or following vaginal penetration). Each item can be graded by the subject from (0 to 5). The Female Sexual Function Index was translated into Arabic to suit Egyptian culture. The Arabic Female Sexual Function Index is a validated, reliable, and locally accepted tool for use in the assessment of female sexual function in the Egyptian population by *(Anis et al., 2011).*

Scoring system:

The individual domain scores and scale (overall) score of the FSFI can be derived the computational formula outlined in the table below. For individual domain scores, add the scores of the individual items that comprise the domain and multiply the sum by the domain factor (see below). Add the six domain scores to obtain the full scale score. It should be noted within the individual domains, a domain score of zero indicates that the subject reported having no sexual activity during the past month. Subject scores can be entered in the right – hand column. The FSFI total score was determined by the sum of the six domains and varies from 2 to 36. According to the Arabic female sexual function index, total score (28.1) was taken as the cutoff point to distinguish between women with sexual dysfunction and normal sexual function.

Domain	Questions	Score range	Factor	Minimum score	Maximum score	score
Desire	1,2	1 - 5	0.6	1.2	6	
Arousal	3,4,5,6	0 - 5	0.3	0	6	
Lubrication	7,8,9,10	0 - 5	0.3	0	6	
Orgasm	11,12,13	0 - 5	0.4	0	6	
Satisfaction	14,15,16	0(or1) - 5	0.4	0.8	6	
Pain	17,18,19	0 - 5	0.4	0	6	
Full scale Score ranges				**2.0**	**36.0**	

Validity and reliability of tools:

The tools were developed and translated into Arabic after reviewing the current and past national and international relevant literature related to contraception and sexuality, by using local and international books, journals, periodicals and computer searches then tools were tested by 3jury experts in the obstetrics and gynecological field for content validity. Cronbach's alpha coefficient test was calculated to assess the reliability that indicated that each of the two tools consisted of relatively homogenous items as indicated by the moderate to high reliability of each tool. The internal consistency of knowledge was (α =0.754) and the internal consistency of FSFI tool was (α=0.851).

Ethical Considerations:

- An official permission from the selected study setting was obtained for the fulfillment of the study.
- The aim of the study was explained to each woman before applying the tools at the beginning of interview and time throughout the study to gain her confidence and trust.
- The researcher took oral consent from each woman to participate in the study and withdraw when she needs.
- Confidentiality was ensured throughout the study process, where personal data were not disclosed, and the women were assured that all data was used only for research purpose.

Pilot Study:

- A pilot study has been conducted on 10% (20 women) of the total sample before starting data collection to test the clarity and applicability of study tools, asses the feasibility of the fieldwork and determine the time needed to fill in the questionnaire. Required modifications were done in the form of clarification and simplification some sentences. Women involved in the pilot study weren't included in the study sample.

Field work:

The study was implemented for six months, from the beginning of March 2017 to the end of August 2017. The researcher began the study by visiting the family planning clinic two days per week (Saturday and Thursday) from 9 a.m. to 1 p.m. At the beginning of the interview the researcher greeted the woman, introduced herself, explained the purpose of the study and took an oral consent to participate in the study .the self-administered questionnaire was given to each woman to collect personal characteristics, menstrual, obstetrics and sexual history and collect baseline data about women's knowledge regarding types of contraceptive methods, COCPs, CU-IUD and sexual health

through asking simple Arabic questions .The time needed to complete the self-administered questionnaire sheet ranged from 30-35 minutes. Then, the researcher used FSFI tool to evaluate sexual function domains for about 20-30 minutes. The researcher assured that all answers are very secret. Average number collected was (4-5) women per day. All these steps were repeated until the needed sample was reached.

- Administrative Design:

The necessary official permissions for data collection were obtained by submission an official letter issued from the dean of Benha nursing faculty and directed to the director of Benha Educational Hospital to obtain their official agreement to conduct the study. The title and objectives of study were illustrated as well as the main data item to be covered.

- Statistical Design and Data Manipulation:

Data was verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 20.0) was used for that purpose, followed by data tabulation and analysis. Descriptive statistics were applied (e.g., mean, standard deviation frequency, and percentages).Test of significance (Fisher's exact test Chi-square test) and Independent t-test that was used to compare the mean of the total sexual function score and its domains between the study groups). Pearson correlation coefficients were used. A significant level value was considered when $p \leq 0.05$. And A highly significant level value was considered when $p \leq 0.001$

III: RESULT

Table (1): personal characteristics of COCPs and CU-IUD users (n=200).

Group / Personal characteristics	COCPs users (n=100) %	CU-IUD users (n=100) %	X^2	P - value
Age (years)				
• 20 < 25 • 25 < 30 • 30 < 35 • 35 < 40 • 40 ≤ 45	15.0 39.0 25.0 16.0 5.0	13.0 37.0 21.0 18.0 11.0	2.911	0.573
Mean ± SD	30.24±4.97	30.24±4.97		
Educational level				
Illiterate Primary education Secondary education University education	16.0 5.0 42.0 37.0	11.0 2.0 .047 40.0	FET 3.451	0.327
Occupation				
Housewife Employee	66.0 34.0	75.0 25.0	1.947	0.163
Residence				
Rural Urban	72.0 28.0	76.0 24.0	0.416	0.519
Age at marriage (years)				
< 20 20 – 30	44.0 56.0	37.0 63.0	1.017	0.313
Mean ± SD	20.47±2.73	20.55±2.35		
Duration of marriage (years)				
1 - < 10 10 - < 20 20 – ≤ 30	59.0 34.0 7.0	53.0 38.0 9.0	0.794	0.672
Mean ± SD	9.61±5.25	11.03±5.62		

Table (1) shows that there was no statistically significant difference between the studied groups regarding their personal characteristics (age, level of education, residence, occupation, age at marriage, and duration of marriage) (P > 0.05).

Table (2): menstrual history of COCPs and CU-IUD users:

Group / Menstrual history	COCPs users (n=100) %	CU-IUD users (n=100) %	X^2	P - value
Regularity of menstruation				
Yes	81.0	77.0	0.482	0.487
No	19.0	23.0		
Interval (days)				
≤ 20	22.0	18.0	FET 6.907	0.032*
21- 35	77.0	73.0		
≥ 36	1.0	9.0		
Mean ± SD	26.03± 4.58	27.09± 5.34		
Duration (days)				
1-3	43.0	32.0	6.059	0.047*
4 - 6	49.0	49.0		
≥ 7	8.0	19.0		
Mean ± SD	3.81 ± 1.48	4.40±1.79		
Daily amount of menstruation				
Mild amount (2 pads or less)	25.0	11.0	FET 29.946	0.000**
Moderate amount (3-4 pads)	71.0	56.0		
Severe amount (5pads or more)	4.0	33.0		
Nature of menstruation				
Liquid blood	91.0	85.0	1.705	0.194
Clotting blood	9.0	15.0		
Pain accompanied with menstruation				
Yes	39.0	78.0	31.325	0.000**
No	61.0	22.0		

Table (2) shows that there was no statistically significant difference between the studied groups regarding regularity and nature of menstruation (P > 0.05). On the other hand there was statistically significant increase regarding interval and decease regarding duration of menstruation among COCPs users compared with CU-IUD users (P ≤ 0.05) and also there was highly statistically significant increase regarding daily amount of blood and decrease regarding pain accompanied with menstruation among COCPs users compared with CU-IUD users (P < 0.001).

Table (3): obstetrics history of COCPs and CU-IUD users (n=200):

Group / Obstetrics history	COCPs users (n=100)		CU-IUD users (n=100)		X^2	P - value
	%		%			
Duration of using the current method (months)						
6 - <12	5.0		1.0		FET 29.207	0.000**
12 - < 18	27.0		24.0			
18 - < 24	35.0		9.0			
≥ 24	33.0		66.0			
Mean ± SD	22.40± 11.34		32.17±24.11			
Using of previous contraceptive method						
Yes	39.0		38.0		0.021	0.884
No	61.0		62.0			
Previous contraceptive method	**n=39**		**n =38**			
	N	**%**	**N**	**%**		
Injection	9	23.1	14	36.8	FET 55.059	0.000**
IUD	30	76.9	0	0.0		
Pills	0	0.0	24	63.2		
Causes of stopping the method	**n=39**		**n= 38**			
	N	**%**	**N**	**%**		
Back pain	8	20.5	0	0.0	FET 50.984	0.000**
Weight gain	7	17.9	16	42.1		
Stomach	2	0.1	9	23.7		
Bleeding	22	56.5	0	0.0		
forgetting	0	0.0	13	34.2		

Table (3) reveals no statistically significant difference between the studied groups regarding (use of previous contraceptive method) ($P > 0.05$). On the other hand there was highly statistically significant difference regarding (Duration of using the current method, Previous contraceptive method and Causes of stopping) ($P < 0.001$).

Table (4): sexual history of COCPs and CU-IUD users (n=200):

Sexual history \ Group	COCPs users (n=100)		CU-IUD users (n=100)		X^2	P - value
	%		%			
Presence of Previous sexual disorders						
Yes	7.0		6.0		0.082	0.774
No	93.0		94.0			
Type of previous sexual disorders n=7			**n= 6**			
	N	**%**	**N**	**%**		
Low desire	6	85.7	5.0	83.3	FET	0.953
Pain during sexual intercourse	1	14.3	1.0	16.7	0.096	
Presence of current sexual problems						
Yes	69.0		2.0		FET	0.000**
No	31.0		98.0		78.577	
Nature of current sexual problems n=69			**n=2**			
	N	**%**	**N**	**%**		
Low desire	40	60.0	2	100.0		
Low arousal	8	11.6	0	0.0	FET	0.000**
Pain during sexual intercourse	21	30.4	0	0.0	78.614	
Regularity of sexual intercourse per week						
Yes	58.0		97.0		FET	0.000**
No	42.0		3.0		43.577	
Frequency of sexual intercourse per week n=58			**n= 97**			
	N	**%**	**N**	**%**		
One	26	44.8	14	14.4		
Two	30	51.8	31	32.0	FET	0.000**
Three	2	3.4	34	35.1	83.861	
Four	0	0.0	18	18.5		

Table (4) clarifies that there was no statistically significant difference between the studied groups regarding previous sexual disorders and type of previous sexual disorders (P > 0.05). On the other hand there was highly statistically significant difference regarding current sexual problems, nature of current sexual problems , regularity of sexual intercourse per week and frequency of sexual intercourse per week) (P <0.001)**.**

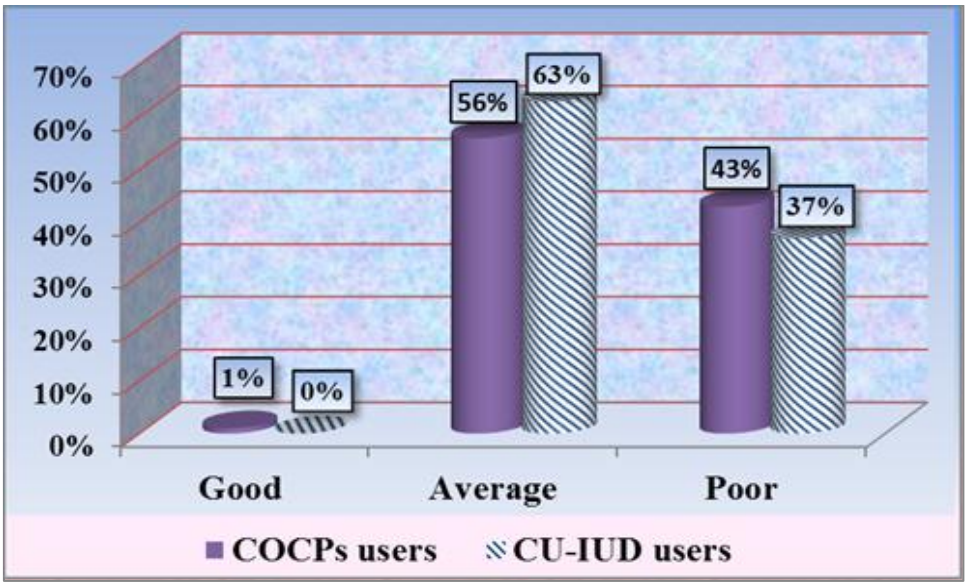

Figure (1): Distribution of the studied sample in relation to total knowledge score about contraception and sexual health.

Table (5): comparison between COCPs and CU-IUD users according to mean scores of sexual function domains (n=200):

Group / Domain	Maximum score	COCPs users (n=100)	CU-IUD users (n=100)	Independent t test	P - value
		Mean ± SD	Mean ± SD		
Desire	6	2.83 ±0.80	4.43 ± 0.65	15.44	0.000**
Arousal	6	3.18 ± 0.55	4.58 ± 0.75	15.11	0.000**
Lubrication	6	3.64 ± 0.75	5.07 ± 0.58	15.12	0.000**
Orgasm	6	3.48 ± 0.74	4.79 ± 0.61	13.68	0.000**
Satisfaction	6	3.33 ± 1.01	5.17 ± 0.65	15.41	0.000**
Pain	6	4.09 ± 0.98	1.90 ± 0.66	18.63	0.000**
Total	36	20.55 ± 2.53	25.94 ± 2.44	15.34	0.000**

** Highly statistically significant at ($P \leq 0.001$)

Table (5) clarifies that mean score of sexual desire was (2.83 ±0.80 in COCPs users versus 4.43 ± 0.65in CU-IUD users), arousal was (3.18 ± 0.55 in COCPs users versus 4.58 ± 0.75 in CU-IUD users) ,vaginal lubrication was (3.64 ± 0.75 in COCPs users versus 5.07 ± 0.58 in CU-IUD users), orgasm was(3.48 ± 0.74 in COCPs users versus 4.79 ± 0.61 in CU-IUD users) and satisfaction was (3.33 ± 1.01 in COCPs users versus 5.17 ± 0.65 in CU-IUD users). On the other hand mean score of pain domain was (4.09 ± 0.98 in COCPs users versus 1.90 ± 0.66 in CU-IUD users). Also total mean score of sexual function domains was (20.55 ± 2.53in

COCPs users versus 25.94 ± 2.44 in CU-IUD users) with highly statistically significant difference between the two groups (P < 0.001).

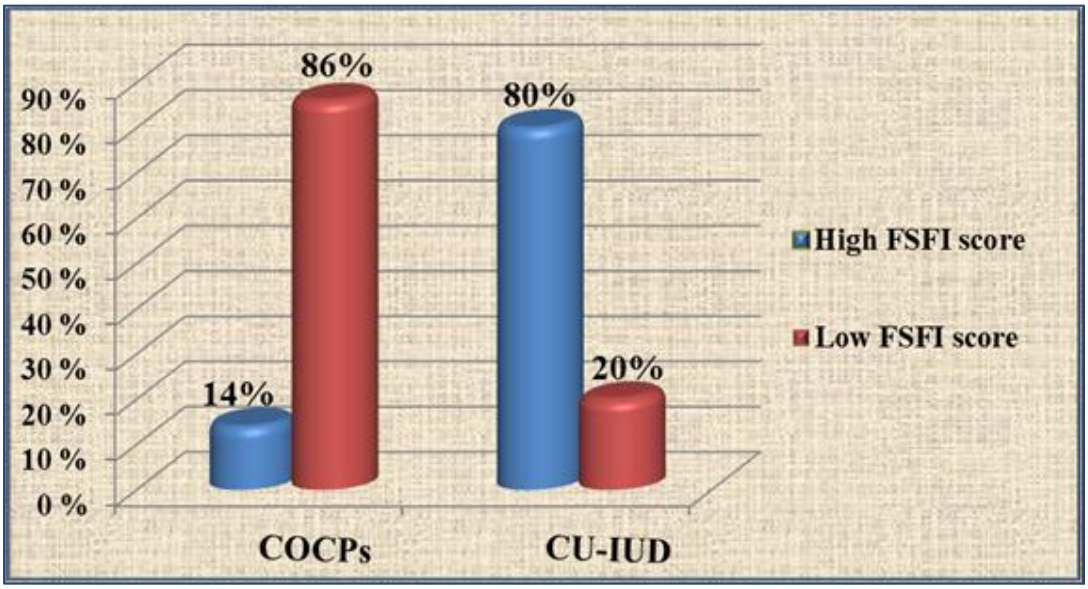

Figure (2): Distribution of the studied sample in relation to total sexual function score.

Table (6): Correlation coefficient between total sexual function score and (age, duration of marriage, duration of using COCPs or CU-IUD) .

Variables \ Group	Total sexual function score	
	COCPs users	
	r	P-value
Age	- 0.372	0.000**
Duration of marriage	- 0.423	0.000**
Duration of using the method	- 0.526	0.000**

**Highly statistically significant at (P ≤ 0.001).

Table (6) shows highly significant negative correlation between age, duration of marriage, duration of using the COCPs and total sexual function score (P < 0.001).

Table (7): Correlation coefficient between total sexual function score and (age, duration of marriage, duration of using the CU-IUD).

Variables \ Group	Total sexual function score	
	CU-IUD users	
	r	P-value
Age	-0.368	0.000**
Duration of marriage	-0.346	0.000**
Duration of using the method	0.375	0.000**

Table (7) shows highly significant negative correlation between age, duration of marriage and total sexual function score. On the other hand, there was highly significant positive correlation between duration of using the CU-IUD and total sexual function score ($P < 0.001$).

IV: DISCUSSION

Regarding personal characteristics of the studied groups, the results of the present study cleared that there was no statistically significant difference among the studied groups regarding their personal characteristics (age, level of education, residence, occupation, age at marriage, and duration of marriage) ($P > 0.05$). This may be due to homogeneity of the study population.

This result is similar to *Mark et al., (2016)* who found no statistically significant difference regarding age and level of education. In accordance with *Pazandeh et al., (2017)* who indicated that there was no statistically significant difference regarding age, marriage age, duration of marriage and level of education .

This result also agrees with *Sanders et al., (2015)* who found that baseline characteristic of the women (age, education, occupation) didn't demonstrate any statistical significant difference between the two groups. This result comes in the same line with *Cetin et al., (2015)* who reported that there was no statistical significant difference in the baseline characteristics between the studied groups. *Lessoe et al., (2014)* as well mentioned that there was no statistical significant difference regarding duration of marriage and educational level.

Additionally, this result is supported by *Casey et al., (2016)* who found that baseline characteristics of the women regarding (age, level of education, occupation, residence, age of marriage) didn't demonstrate any statistical significant differences between the studied groups. Also *Kariman et al., (2017)* reported that there was no statistical significant differences regarding age, educational level and age of marriage. Moreover, *Umran and Melike (2016)* found that there was no statistically significant difference is determined between the working status and use of a method.

However, this result isn't consistent with the findings of a study conducted by *Smith et al., (2014*) and found that there was a highly statistical significant difference regarding age between the hormonal and non-

hormonal users. This difference could be related to cultural diversities in the study populations, as well as the use of different data collection tools.

The results of the current study revealed that nearly more than one third of COCPs and CU-IUD users are aged from 25- < 30 years with a mean age 30.24 ± 4.97 and 31.67 ± 5.94 respectively. This result is supported by *Sakinci et al., (2016)* who concluded that more than one third of the two groups are aged from 25-30 years old with a mean age 32.97 ± 4.88 and 34.26 ± 4.29. Also the result comes in the same line with *Boozalis et al., (2016)* who found that nearly half of women are aged from 25-35years old.

The current study clarified that nearly half of COCPs and CU-IUD users have moderate level of education. This result agrees with *Smith et al., (2014)* who found that nearly half of the studied subjects have secondary education. This result also is in agreement with *Boozalis et al, (2016)* who found that that nearly half of the studied subjects have moderate level of education. On the other hand this result disagree with *Mark et al., (2016)* who found that nearly half of the studied subjects have high level of education. The contradiction among these studies may be due to the differences in the cultures of the studied samples.

As regards women's occupation, the present study indicated that more than half of the studied subjects of the two groups were housewives. It's well-known that employed women are subjected to more stress than housewives so; the housewives may be more sexually active than the employees. This result is supported by *Ghanbarzadeh et al, (2013)* who found that more than half of the studied subjects were housewives .Also, this result agrees with *Cetin et al., (2015)* who found that more than half of the studied subjects were housewives. This result is consistent with *Hassan et al., (2015)* who found that the majority of the sample was housewives.

The results of the current study indicated that nearly two thirds of COCPs and CU-IUD users lived in rural areas. This result is in agreement with *Elshimi et al., (2014)* who found that nearly two thirds of the studied subjects lived in rural areas. This result also is congruent with *Higgins et al., (2015)* who found that more than half of the studied subjects lived in rural areas.

Meanwhile this result disagrees with *Sakinci et al., (2016)* who found that more than half of the studied subjects lived in urban areas. This may be due to that women live in rural areas have low level of knowledge and don't have the opportunity to tell about sexual problems.

As regards age of marriage, the results of the present study revealed that more than half of COCPs and CU-IUD users were married at the age of 20-30 years with a mean marriage age 20.47 ± 2.73 and 20.55 ± 2.35 respectively. This is result is in accordance with *Kariman et al.,* (2016) who found that nearly half of the studied subjects married at the age of 21-35years with mean marriage age 19.92 ± 3.98 and18.55 ± 3.61 respectively. This nearly similar to *Pazandeh et al., (2017)* who stated that mean woman's age at marriage of COCPs and cyclofem users was 19.92±3.98 and 18.55±3.62 respectively. Also, *Martin-Loeches et al., (2003)* found that more than half of the studied subjects were married at the age of 18-25. Meanwhile this result disagrees with *Hassan et al., (2015)* who found that the mean women's age at marriage was (24.95 ± 5.04).This may be due to large sample size.

The results of the present study clarified that more than half of the COCPs and CU-IUD users had duration of marriage range from 1- <10 years with mean 9.61±5.25 and 11.03±5.62 respectively .This result agrees with *Pazandeh et al., (2017)* who mentioned that mean marriage duration of COCPs and cyclofem users was 9.57±5.94 and 8.70±4.89 respectively. This result is congruent with *Sakinci et al., (2016)* who stated that mean duration of marriage of the control group and CU-IUD group was 11.64 ± 5.51 & 11.54 ± 4.90 respectively. In addition, *Grewal et al., (2013* concluded that more than half of the studied subjects had marriage duration ranged from 1-10 years.

Concerning menstrual history the results of the current study cleared that regularity and nature of menstruation showed no statistically significant difference between COCPs users and CU-IUD users (P > 0.05). This result agrees with *Hassan et al., (2015)* who confirmed that nearly three quarters of COCPs users had regular menstruation. Also, this result comes in the same line with *Li et al., (2004)* who found that there was no statistically significant difference between COCPs users and CU-IUD users regarding regularity and passage of clots of menstruation.

As regards interval and duration of menstruation the result of the current study showed that there was statistically significant increase regarding interval and decease regarding duration of menstruation among COCPs users compared with CU-IUD users ($P \leq 0.05$). This could be explained that some CU-IUD users complained from bleeding as a cause of stopping the method leading to increasing the duration and decreasing the interval of menstruation compared with COCPs users. This is nearly similar to *Koseoglu et al., (2016)* who found that duration of menstruation caused statistically significant increase among CU-IUD users compared with women with no contraception.

the present study indicated that there was highly statistically significant decrease regarding daily amount of blood and pain accompanied with menstruation among COCPs users compared with CU-IUD users ($P \leq 0.001$).this result is congruent with *Villavicencio and Allen (2016)* who mentioned that women used the Cu-IUD may have decreased hemoglobin concentrations when compared to oral contraception users or contraceptive non-users. Also, Women on continuous regimens of COCPs may experience inter-menstrual spotting, lighter menses and overall less unscheduled bleeding days. *Diedrich et al., (2015)* concluded that continuation rates for the Cu-IUD in one large prospective study were 84% at 1 year, 76% at 2 years, and 70% at 3 years. The most common reason for discontinuation is bleeding and pain. Moreover, *Higgins and Smith (2016)* suggested that the CU-IUD can increase bleeding and cramping compared with hormonal contraception.

As regards obstetrics history, the result of the current study showed that duration of using COCPs showed highly statistically significant decrease with mean (22.40± 11.34) compared with CU-IUD users (32.17±24.11).This could be related to that many women prefer CU-IUD as it is inserted for 5-10 years with high efficacy while the irregularity of the times of taking COCPs may cause disturbances in menstrual cycle, bleeding and pregnancy may occur. Also the result revealed that more than one third of the two groups used previous contraceptive method with no statistically significant difference. This is may be expected as all women can't adapt with one method because of the side effects that may occur and personal preferences.

The current study indicated that more than three quarters of COCPs group used CU-IUD as a previous method and nearly two thirds of CU-IUD group used oral pills as a previous method. This could be explained that oral pills and CU-IUD are the most common contraceptive methods in Egypt and most women didn't have good idea about the other methods.

Concerning the causes of stopping contraceptive method, the result of the current study showed that the cause of stopping the previous method among COCPs users was bleeding while the cause of stopping the previous method among CU-IUD users was weight gain .This result is congruent with *Malborg et al.,(2015)* who stated that the most common causes of discontinuation of hormonal methods were decreased sexual desire, mood changes and weight gain while the most common causes of discontinuation of non-hormonal methods were bleeding and planning for pregnancy with significant differences between the two groups.

In relation to sexual history, the results of the current study revealed that more than three quarters of the COCPs users and CU-IUD users had been circumcised. This may be due to the Egyptian culture. This result is consistent with *Hassan et al., (2015)* who found that more than three quarters of the studied subjects had a genital cutting (circumcised).As regards current sexual problems, the result of the present work clarified that more than two thirds of COCPs users compared to 2% of CU-IUD users had sexual problems after using the method and it was found that low desire was the most complain. This result is in agreement with *Malborg et al.,(2015)* who pointed out that more than two thirds of hormonal contraception users compared with more than one third of non-hormonal contraception users wished to change the method due to decrease in sexual desire.

The result of the current study demonstrated that COCPs users who had regular sexual relationship had highly significant decrease regarding rate of sexual intercourse per week compared with CU-IUD users ($P \leq 0.001$). This could be attributed to the low sexual desire that can lead to vaginal dryness, genital pain and less interest or dissatisfaction with sexual relationship. This result agrees with *Smith et al., (2014)* who found that frequency of sex per week caused highly significant decrease among hormonal contraception users compared with non-hormonal contraception users. Additionally, *Grewal et al., (2013)* added that sexual intercourse frequency in most women with sexual problems ranged from 2-3 times per month.

It was evident from the current study that overall level of knowledge regarding types of contraceptive methods, COCPs, CU-IUD and sexual health was inadequate in both the two groups, where more than half of COCPs users and CU- IUD users had inadequate knowledge. Meanwhile only (1%) of the COCPs users compared to (0%) of CU-IUD users had good knowledge. This may be due to lack of implementing educational programs on sexual and reproductive health issues for young adults and prior to marriage.

According to sexual function of COCPs users and CU-IUD users, the results of the current study clarified that total mean score of sexual function domains among COCPs users showed highly significant decrease in comparison with CU-IUD users, where more than three quarters of COCPs users had low FSFI score (below 28.1) compared to more than three quarters of CU-IUD had high FSFI score (above 28.1)

This result answered the research question and pointed out that COCPs use can cause negative effects on women's sexual function in comparison with CU-IUD use. One possible explanation for such findings is that the synthetic estrogens found in combined hormonal methods may affect a woman's naturally testosterone .Testosterone is thought to be a key player associated with desire, arousal, and vaginal lubrication so, subsequent reductions in testosterone levels can be followed by potential effects on sexuality *(Higgins and Smith,2016). Zimmerman et al., 2013*concluded that women vary in the sensitivity to androgen reduction but not all women reported reduced sexual interest. Another explanation may be the various types of synthetic progestin found in all hormonal methods as progestin in high doses may suppress the sex drive.

This result is nearly similar to *Smith et al., (2014)* who stated that mean scores of sexual function domains of women using a hormonal contraceptive method experienced highly significant less arousal, higher frequency of a drier vagina than they would have liked, fewer orgasms, lower frequency of pleasure, and less frequent sexual activity compared with non-hormonal contraception. In the same line with *Wallwiener et al., (2015)* who investigated hormonal components of oral contraceptives associated with impaired female sexual function in Germany, Austria, and Switzerland and pointed out that the total FSFI score in oral hormonal contraception was lower than for other contraceptives. In accordance with *Umran and Melike (2016)* who emphasized that mean scores of desire, arousal, lubrication, orgasm, satisfaction domains of COCPs users were higher than those of CU-IUD users, but mean score of pain domain of COCPs users was lower than that of CU-IUD users. Additionally, *Koseoglu et al, (2016)* indicated that CU-IUD caused improvement in total sexual function score and there was no significant difference among CU-IUD users and women with no contraception regarding mean score of sexual function domains. Moreover, *Lessoe et al., (2014)* mentioned significantly lower mean sexual functin score in CHC users compared with non-hormonal contraception users.

However, this result is contraindicated with *Hamadiyan et al., (2016)* who mentioned that no significant difference was seen in mean scores of sexual function domains among different contraception groups. On the contrary, *Martin-Loeches et al., (2003)* demonstrated that mean scores of sexual function domains didn't not vary in relation to the use of oral contraception or IUDs. This may be due to small sample size.

V: CONCLUSION

Based on the results of the present study it is concluded that; women using combined oral contraceptive pills were more likely to report negative effects on sexual function compared with copper intrauterine device users. Among the two groups, there was significant decrease in total score of sexual function domains according to increase in age and duration of marriage. Meanwhile total score of sexual function showed significant decrease with duration of COCPs use overtime, but it showed significant increase with duration of using CU-IUD overtime. Moreover overall level of knowledge regarding COCPs, CU-IUD and sexual health was found to be average level among the two groups.

VI: RECOMMENDATIONS

1. Planning and developing antenatal classes is required for all women to be aware about the sexual acceptability of contraceptive methods.

2. Educational programs regarding contraception are recommended for the women visiting family planning clinics.
3. The healthcare providers must be aware of negative effects on female sexuality in order to provide care for their patients appropriately. Thus, these findings emphasize sexual counseling as part of family planning counseling.
4. Specific training in communication and counseling skills should be provided to health care professionals when promoting sexual health to women.

Further studies:

Further, prospective research with diverse women starting various methods of contraception is needed to enhance understanding of the potential negative sexual side effects of contraceptive methods, prevalence, and possible mechanisms.

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