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KNOWLEDGE, ATTITUDE AND PRACTICES OF INTRAUTERINE CONTRACEPTIVE DEVICES AMONG WOMEN IN BAGHDAD CITY

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ABSTRACT

Background: Although intrauterine contraception (IUC) is the most widely used reversible method globally, only 10% of Iraqi women aged 15 to 44 used an intrauterine contraceptive device (IUCD) in 2011. Due to their convenience and effectiveness, interest in IUCDs is increasing. The levonorgestrel intrauterine system (LNG-IUS) and copper-bearing IUD offer efficacy comparable to sterilization, providing an attractive alternative to permanent surgical methods. **Objective:** To assess the knowledge and attitude towards IUCDs among women of reproductive age in Baghdad. **Methods:** A cross-sectional study was conducted in two hospitals and two primary health care centers in Baghdad from March 15 to June 30, 2013. Married women aged 15-50 were included using a consecutive non-random sampling technique via direct interviews with a structured questionnaire. Women with a history of infertility or menopause were excluded. **Results:** Data from 600 women were analyzed. Copper-IUD was the most commonly known and used IUCD, with all respondents aware of it; however, only 165 (27.5%) had a positive attitude. Poor knowledge of copper-IUD was observed in 52.7%, but improved with higher education levels (P = 0.009) and employment (P = 0.007). Only 53 (9.2%) women were current copper-IUD users, with usage significantly associated with age, years of marriage, and parity. Knowledge of LNG-IUS was good in 39.4% of those aware of it. Friends and relatives were the main sources of information (97.2%). **Conclusions:** Knowledge and utilization of IUCDs were low. Media and healthcare professionals should play a greater role in promoting IUCD awareness and acceptance.

KEYWORDS: Intrauterine contraceptive device, knowledge, attitude, Baghdad, reproductive age, contraception.

INTRODUCTION

The global health landscape faces numerous challenges, yet the ability to control fertility remains one of the most critical, impacting millions worldwide.[1] Family planning is defined as the use of contraceptive methods and practices to help individuals and couples achieve their desired number of children while spacing and timing births effectively. It includes contraception and treatment for involuntary infertility, significantly affecting women's health and pregnancy outcomes.[2] Ensuring access to reproductive health services, including family planning, is a key target of the United Nations Millennium Development Goals, emphasizing its role in reducing poverty and promoting development.[3] Despite the increasing use of contraception, many women still face an unmet need for family planning—defined as the desire to avoid pregnancy for at least two years without using a contraceptive method—placing them at risk of unintended pregnancies, adverse health outcomes, and societal burdens.[4] Globally, 82% of unintended pregnancies are due to unmet contraceptive needs. In Iraq, unintended pregnancies account for approximately 23% of annual pregnancies, disproportionately affecting young, low-income, and uneducated women.[5-7]

Several socioeconomic factors influence family planning, including education level, accessibility to services, household wealth, and societal attitudes toward contraception.[8] Contraceptive use has increased worldwide, particularly in Asia and Latin America, though it remains low in sub-Saharan Africa.[9] In Iraq, a national fertility survey reported a contraception prevalence rate of 14.5% in 1974.[9] Previously, family planning services were provided only for medical reasons by the Iraq Family Association and the private

sector. However, in 1994, a government policy change allowed access to all women.[10] The 2006 Multiple Indicator Cluster Survey (MICS) showed a 49.8% contraceptive use rate, with 32.9% using modern methods and 17% relying on traditional methods.[11] By 2011, MICS-4 indicated that 51% of married women or their husbands used contraception, with modern methods at 33% and traditional methods at 18%. The most common modern method was the pill (15%), while withdrawal was the leading traditional method (14%).[7] However, long-acting, reversible contraception such as intrauterine devices (IUDs) remains underutilized (10%) despite their higher efficacy and lower discontinuation rates.[12] This study aims to assess the knowledge, attitudes, practices, and barriers to intrauterine contraceptive device (IUCD) use among women attending health facilities in Baghdad. Additionally, it seeks to explore the relationship between IUCD knowledge and demographic and reproductive factors.

METHOD

Study Design: A cross-sectional study with an analytic element was conducted to assess the knowledge and attitude of women of reproductive age regarding intrauterine contraceptive devices (IUCDs). The study design allows for identifying misinformation and low levels of knowledge about IUCDs. Setting: Data collection occurred between March 15 and June 30, 2013, at two major teaching hospitals in Baghdad (Al-Yarmouk and Al-Alwiya) and two primary health care centers (Al-Mahmodeia and Abu Ghraib). These hospitals serve the Al-Karkh and Al-Rusafa sides of Baghdad, respectively. Population Sample and Sampling Technique: A convenient sample of women attending outpatient clinics at the selected facilities was included. Women meeting the inclusion criteria were recruited consecutively during clinic hours (four hours per day, 1-2 days per week) and interviewed while waiting for their medical appointments. Inclusion and Exclusion Criteria: Inclusion criteria comprised currently married women aged 15-50 years who were using or had ever used contraception. Excluded were women with a history of infertility or menopause.

Method: A structured questionnaire, developed after a literature review and validated by a scientific committee, was used to assess knowledge, attitude, practices, and barriers to IUCD use. The researcher introduced herself, explained the study, and obtained oral consent before conducting face-to-face interviews. Ethical Consideration: The study was approved by the ethical committee of the scientific council of community and family medicine and the Ministry of Health.

Pilot Study: A pilot study was conducted on 40 women at Al-Yarmouk Hospital to refine the questionnaire, which was then modified accordingly. These participants were not included in the main study. Statistical Analysis: Data were coded, entered, and analyzed using SPSS-20. Descriptive statistics (frequency and percentages) were used to describe socio-demographic, reproductive characteristics, knowledge, attitude, practices, and barriers to IUCD use. Chi-square tests assessed associations between socio-demographic factors and IUCD knowledge/use, with a significance level of $P<0.05$. Knowledge scores were categorized as low (0-6 correct answers), fair (7-10), and good (11-13).[13] Definitions of Variables: Variables included socio-demographic factors (age, residency, education, occupation, marriage duration), reproductive variables (parity), IUCD use (non-user, current user, past user), attitude (positive or negative), knowledge (types of IUCDs, indications, safety, risks, and sources of information). Limitations: The study focused on public sector facilities, limiting generalizability to private-sector users where LNG-IUS use may be higher. Security concerns restricted sampling from rural areas, potentially affecting representativeness. The small number of LNG-IUS users may limit findings regarding its usage.

RESULTS

The data was collected from 600 women in reproductive age. Table (1) shows that the studied sample of women distributed according to their socio-demographic characteristics, the mean age was 32.7±8.3 years, the largest age group was between25-34 years old (37.8%), the majority was from urban area (83.3%), about half had finished the primary school (49.3%), the most were housewives (84.3%), more than half of the sample had duration of marriage of >10 years and 32.8% of them had >5 children, the mean of children number was3.9±2.2 children.

Table 1: Distribution of the sample according to socio-demographic and reproductive (parity) characteristics.

		No	%
Age (years)	<25	118	19.7
	25—34	227	37.8
	35—44	188	31.3
	>45	67	11.2
	Mean±SD(Range)	32.7±8.3(16-52)	
Residence	Urban	500	83.3
	Rural	100	16.7
Occupation	Housewife	506	84.3
	Governmental employee	89	14.8
	Self-employee	5	.8
Education	Illiterate	56	9.3

	Read&Write	23	3.8
	Primary	296	49.3
	Intermediate&Secondary	155	25.8
	College&higher	70	11.7
Years of Marriage	=<5	127	21.2
	6—10	148	24.7
	>10	325	54.2
Parity	P1	58	9.7
	P2	115	19.2
	P3	136	22.7
	P4	94	15.7
	P5&more	197	32.8
	Mean ±SD(Range)	3.9±2.2 (1-13)	
Total		600	100

Table 2 shows that all the respondents had heard about cupper-IUD, the majority of them (70.3%) stated that its estimated failure rate is low, (48%) of respondents said that cupper-IUD is safe. The majority of the respondent thought that copper IUD increase the risk of PID (84.8%), pelvic pain (82.5%), menorrhagia (82.2%). Only 11% of the respondents had heard about LNG-IUS, most of them (83.3%) stated that its estimated failure rate is low, 68.2% of respondents believe that LNG-IUS is safe. The minority of the respondents thought that LNG-IUS increases the risk of ectopic pregnancy (16.7%), menorrhagia (13.6%), and pelvic pain (12.1%). Women were uncertain who was an appropriate candidate for intrauterine contraception, only 12.3% thought that nulliparous women could receive intrauterine contraception, a small proportion of respondents believed that women with history of previous ectopic pregnancy (20.7%), women with a history of a sexually transmitted infection (57.7%), or adolescents (56%) would be candidates for intrauterine contraception.

Table 2: the distribution of sample according to their information about Cupper- IUD&LNG-IUS.

	Yes		**No**	
	No	**%**	**No**	**%**
Do you hear about: Copper-IUD	600	100	-	-
: LNG-IUS	66	11	534	89
Do you Know the indication for use : Copper-IUD	600	100	-	-
: LNG-IUS	66	11.0	534	89
Do you think that Cu-IUD has a low failure rate in preventing pregnancy	422	70.3	178	29.7
Do you think that LNG-IUS has a low failure rate in preventing pregnancy	55	83.3	11	16.6
Think that Copper- IUD is safe	288	48.0	312	52
Think that LNG-IUS is safe	45	68.2	21	31.7
Think Copper-IUD increase risk of;				
PID	509	84.8	91	15.2
Infertility	174	29.0	426	71
Ectopic pregnancy	298	49.7	302	50.3
Cancer	174	29.0	426	71
Menorrhagia	493	82.2	107	17.8
Pelvic pain	495	82.5	105	17.5
Think LNG-IUS increase risk of;				
PID	2	3.0	64	97
Infertility	3	4.5	63	95.4
Ectopic pregnancy	11	16.7	55	83.3
Cancer	6	9.2	60	90.8
Menorrhagia	9	13.6	57	86.4
Pelvic pain	8	12.1	58	87.9

The appropriate candidates for IUD use are women who are:				
Nulliparous	74	12.3	526	87.7
With history of ectopic pregnancy	124	20.7	476	79.3
With history of STI	346	57.7	254	42.3
Adolescent <20 years old	336	56.0	264	24

Figure1 shows that the knowledge of more than half of the respondents (52.7%) regarding cupper-IUD was poor and only 5%of them had good knowledge score about cupper-IUD.

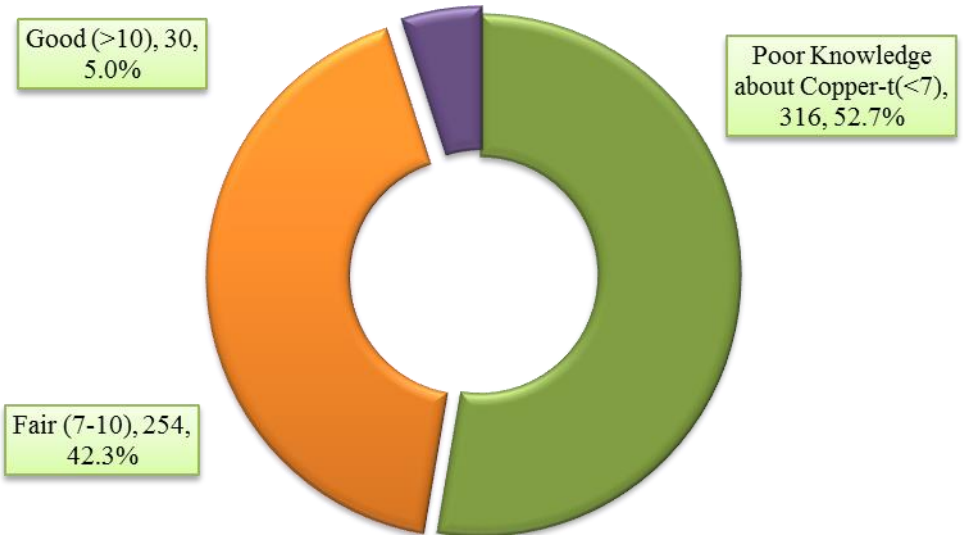

Figure 1: The distribution of sample according to their cupper-IUD knowledge score.

Figure 2 shows that 39.4% of the respondents had good knowledge regarding LNG-IUS and only 13.6% had poor knowledge regarding LNG-IUS.

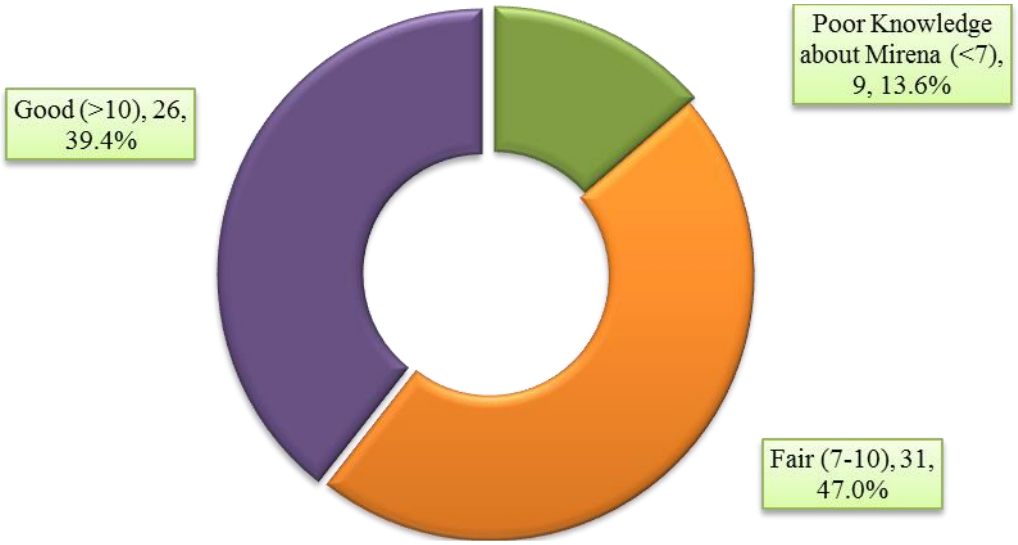

Figure 2: The distribution of sample according to their LNG-IUS knowledge score.

Table (3) show that there is significant association between respondent's occupation and their good knowledge score regarding Copper- IUD, 40% of those with good knowledge are self –employee (p=0.007). Also, the association between the education of the respondents and their good knowledge was significant, 17.4% of those with good knowledge score can read and write and only 3.6% were illiterate, (p=0.009). While the age, years of marriage, parity and previous or current use of IUD had no statistically significant association with IUD knowledge score.

Table 3: the relation between respondents' socio-demographic& reproductive characteristics and their Cupper-IUD knowledge score.

Knowledge about Copper-t		Poor (<7)		Fair (7-10)		Good (>10)		P value (df)
		No	%	No	%	No	%	
Age (years)	<25	58	18.4	52	20.5	8	26.7	0.286
	25—34	118	37.3	100	39.4	9	30.0	(6)
	35—44	96	30.4	83	32.7	9	30.0	
	=>45years	44	13.9	19	7.5	4	13.3	
Residence	Urban	259	51.8	213	42.6	28	5.6	0.267
	Rural	57	57.0	41	41.0	2	2.0	(2)
Occupation	Housewife	271	53.6	211	41.7	24	4.7	0.007*
	Governmental employee	43	48.3	42	47.2	4	4.5	(4)
	Self-employee	2	40.0	1	20.0	2	40.0	
Education	Illiterate	40	71.4	14	25.0	2	3.6	0.009*
	Read&Write	11	47.8	8	34.8	4	17.4	(8)
	Primary	153	51.7	128	43.2	15	5.1	
	Intermediate& Secondary	75	48.4	76	49.0	4	2.6	
	College&higher	37	52.9	28	40.0	5	7.1	
Years of Marriage	<=5	61	48.0	57	44.9	9	7.1	0.634
	6-9	78	52.7	64	43.2	6	4.1	(4)
	=>10	177	54.5	133	40.9	15	4.6	
Parity	P1	31	53.4	24	41.4	3	5.2	0.337
	P2	60	52.2	45	39.1	10	8.7	(8)
	P3	68	50.0	65	47.8	3	2.2	
	P4	48	51.1	39	41.5	7	7.4	
	P5&more	109	55.3	81	41.1	7	3.6	
Uses IUCD	Yes	99	47.1	100	47.6	11	5.2	0.133
	No	217	55.6	154	39.5	19	4.9	(2)
*Significant using Pearson Chi-square test at 0.05 level.								

The main source of information regarding IUD was relatives and/or friends (97.2%), and to a lesser extent health care provider (43.7%), mass media (5.2%), others which includes books and internet account for 2%, some respondents gave more than one responses shown in figure (3).

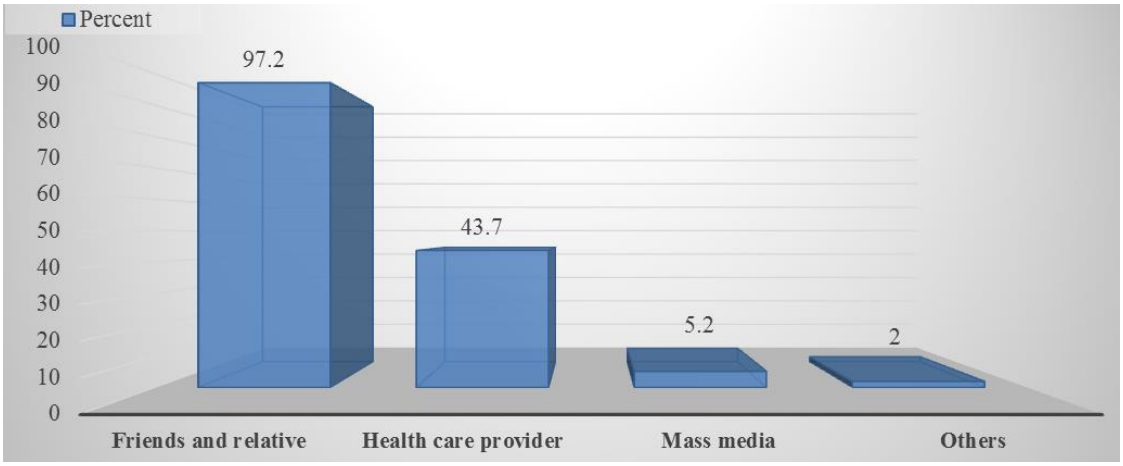

Figure 3: The distribution of sample according to the source of their information.

As seen in table (4), the majority of respondents (72.5%) has negative attitude towards IUD use, the common reasons for negative attitude include fear from menorrhagia (28.5%), perforation of uterus (17.9%), PID(18.3%),and pelvic pain(11.4%). Religious causes constitute 2% only.27.5% of the respondents have positive attitude towards IUD use,the most common reason for positive attitude include safety(65.4%), followed by effectiveness(60.6%),long life span (58.7%), convenient (55.1%) and its reversibility (41.2%), some respondents gave more than one reason for their attitudes.

Table 4: The distribution of sample according to their attitude towards IUD& IUS use & the reasons for their attitudes.

Attitude	No	%
Negative	**(n=435)**	**72.5**
Religious causes	9	2
Misinformation		
PID	80	18.3
Infertility	5	1.1
Cancer	5	1.1
Husband refusal	16	3.6
Financial causes	4	0.9
Others (specify)		
Fear from menorrhagia	124	28.5
Perforation of the uterus	78	17.9
Ectopic pregnancy	9	2
Pain of insertion	39	8.9
Patient prefers natural method	43	9.8
Breast feeding amenorrhea	36	8.3
Fear of expulsion	36	8.3
Pregnancy with loop	26	5.9
Patient prefers tubal ligation	7	1.6
Pelvic and back pain	50	11.4
Positive	**(n=165)**	**27.5**
Effective	100	60.6
Safe	108	65.4
Reversible	68	41.2
Long life span	97	58.7
Other (specify)		
Convenient	91	55.1
No side effect	92	55.7

*Note; some respondents give more than one response.

Table 5 shows that a strong association was found between Cupper-IUD use state and attitude towards cupper- IUD use, (p< 0.000), 43.1% of current or past user have positive attitude while only 18.7% of the non-user have positive attitude.

Table 5: the relation between respondents' cupper- IUD use state and their attitude towards cupper-IUD use.

		Attitude			
		Positive	**Negative**	**total**	
		No %	**No %**		**P value (df)**
IUD use	**User**	92 43.8%	118 56.2%	210(100%)	0.000 (1)
	Non-user	73 18.7%	317 81.3%	390(100%)	
	Total	165 27.5%	435(72.5%)	600(100%)	

*Significant using Pearson Chi-square test at 0.05 level.

Figure (4) shows that non- users of intrauterine contraceptive devices represent higher percentage (65%)than users (35%).

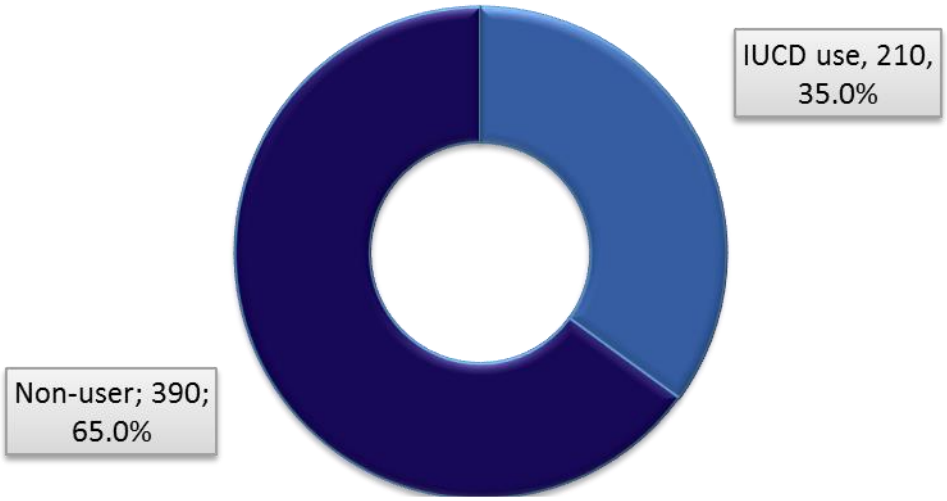

Figure 4: Distribution of the sample according to their use state.

Figure (5) shows that 151women (72% of the users) were past- users of cupper IUD, current -users were 53 (25%of the users), and LNG-users were 6 (3%). Note;the current use percentage from the total population is 9.2%.

*Note; 27 of current users of IUD had a past use of IUD

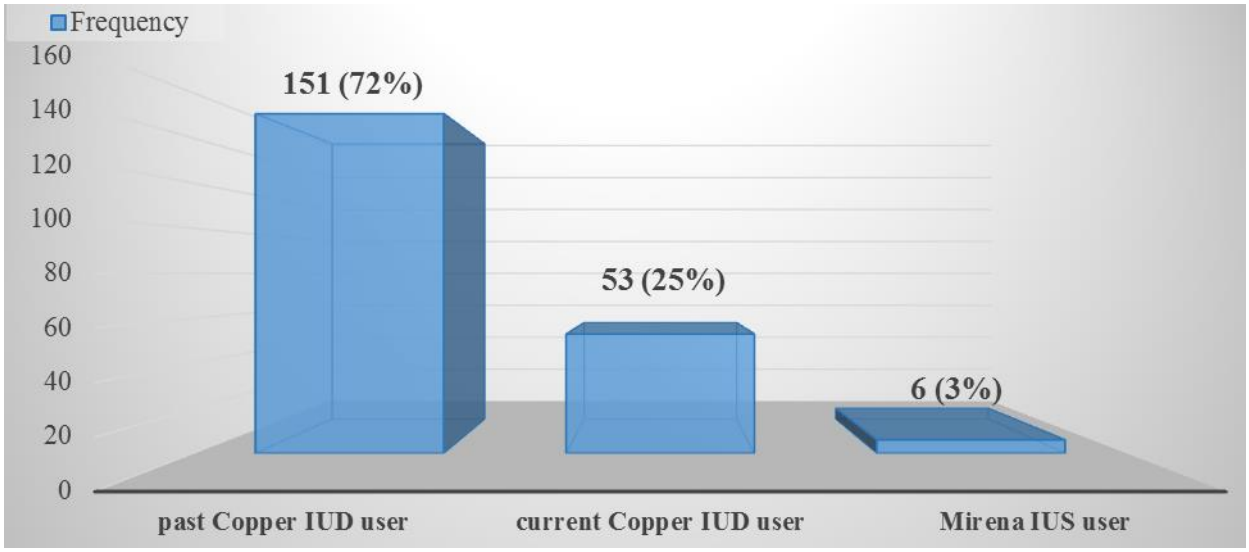

Figure 5: Distribution of the users according to the type of the used IUD.

Table 6 shows that approximately one third of the past user used the cupper IUD for less than one year and other third use it for five years and more. The mean of LNG-IUS past use duration were 1.2 months.

Table6: Distribution of the IUD&IUS user according to duration of past use.

		No	%
Duration of past Copper-IUD use (years)	=<1	72	40.5
	2	24	13.5
	3	10	5.6
	4	12	6.7
	=>5	60	33.7
	Total	178	100
	Mean±SD(Range)	3.7±3.8 (1m-16)	
Duration of past use of LNG-IUS (months) Mean±SD (Range)		1.2±0.8 (1-20)	

Table 7 shows that the most common cause for removing Cupper IUD is desired pregnancy (38.2%), followed by menorrhagia (20.8%) then PID (8.4%), pelvic pain (8.4%), pregnancy with IUD (8.4%). The reasons for removing LNG-IUS were menorrhagia (66.6%) and spontaneous expulsion (33.4%).

Table 7: The distribution of those who discontinued use of IUD &IUS according to reasons behind discontinuation.

		No	%
Reasons for Copper-IUD discontinuation (n=178)	Menorrhagia	37	20.8
	Desired pregnancy	68	38.2
	Genital tract infection	15	8.4
	Pelvic pain	15	8.4
	Pregnancy with IUD	15	8.4
	Device expired	13	7.3
	IUD expelled spontaneously	10	5.6
	Perforation of the uterus	5	2.8
Reasons of LNG-IUS discontinuation (n=3)	Menorrhagia	2	66.6
	Spontaneous expulsion	1	33.4

Table 8 shows that there was a significant association between age of the respondents and IUD use (p= 0.0001), women who were current or previous users of intrauterine contraception were slightly older, about 40% of them were above 40 years and only 8.1% were below 25 years old. Also, there was a significant association between years of marriage and IUD use (p= 0.0001), User were more likely to be married for more than 10years 74.8% and only8.1% of them were married for1-4 years. In addition, 50% of the current and past user had five children &more, an association was seen between parity and IUCD use, (p= 0.0001).

Table 8: the relation between respondents' socio-demographic & characteristic (parity) and Copper-IUD use state.

		Uses IUD		No		P value(df)
		No	%	No	%	
Age (years)	<25	17	8.1	101	25.9	0.0001*
	25—34	72	34.3	155	39.7	(3)
	35—44	84	40	104	26.7	
	=>45years	37	17.5	30	7.7	
Residence	Urban	183	87.1	317	81.3	0.066
	Rural	27	12.9	73	18.7	(1)
Occupation	Housewife	178	84.8	328	84.1	0.447
	Governmental employee	29	13.8	60	15.4	(2)
	Self-employee	3	1.4	2	0.5	
Education	Illiterate	24	11.4	32	8.2	0.225
	Read&Write	5	2.4	18	4.6	(4)
	Primary	99	47.1	197	50.5	
	Intermediate&Secondary	61	29.0	94	24.1	
	College&higher	21	10.0	49	12.6	
Years of Marriage	1-5	17	8.1	110	28.2	0.0001*
	6-10	36	17.1	112	28.7	(2)
	>10	157	74.8	168	43.1	
Parity	P1	-	-	58	14.9	0.0001*
	P2	24	11.4	91	23.3	(4)
	P3	42	20.0	94	24.1	
	P4	39	18.6	55	14.1	
	P5&more	105	50.0	92	23.6	
*Significant using Pearson Chi-square test at 0.05 level.						

DISCUSSION

This study aimed to assess the knowledge, attitude, and use of intrauterine contraceptive devices (IUCDs) among reproductive-aged women. The findings revealed that while all participants were aware of the copper-IUD (Cu-IUD), only a minority knew about the levonorgestrel intrauterine system (LNG-IUS) or its indications beyond contraception. This is likely due to Cu-IUDs being freely available in public family planning clinics, whereas LNG-IUS is not. Additionally, the primary source of knowledge was relatives and friends, with health workers playing a limited role. This aligns with a U.S. study (2006) where nearly all sexually active women knew about Cu-IUDs, while only 20% knew about LNG-IUS.[14] However, it contrasts with a South African study (2007), where 50% of women were aware of Cu-IUDs

and only 2% of LNG-IUS.[15] Despite widespread awareness of Cu-IUDs, specific knowledge remained low, even among users, with myths and misconceptions prevalent. Some participants underestimated the effectiveness of Cu-IUDs and LNG-IUS, differing from a U.S. study (2011), where 61% underestimated IUCD effectiveness but overestimated LNG-IUS efficacy.[16] Concerns about safety were common, with participants associating Cu-IUDs with pelvic infection, menorrhagia, and pelvic pain, while fewer linked IUCDs to infertility or cancer, findings consistent with a U.S. study (2011).[16] Misconceptions also influenced attitudes on appropriate IUCD candidates, as many believed nulliparous women or those with a history of ectopic pregnancy or STIs were unsuitable candidates, similar to a U.S. study (2011), where only 46% considered nulliparous women eligible for IUCD use.[16] Knowledge levels correlated with education and employment, aligning with a South African study (2006) but differing from a U.S. study (2006), where knowledge increased with age and parity [14,15]. The dominant role of family in knowledge transmission, with minimal input from healthcare providers, was also observed in Saudi Arabia (2010).[17] Limited provider involvement negatively impacted IUCD counseling and utilization. Attitudes towards IUCD use were polarized, with three-quarters of participants having a negative view due to myths and fears about adverse effects. This aligns with a study in El Salvador, where negative attitudes stemmed from fear-based rumors.[18] Unlike a Turkish study (2003), where religious beliefs and husband/family disapproval were major barriers, these factors played a minor role in Iraq.[19] Among the 27.5% with positive attitudes, most cited IUCDs' effectiveness, safety, and convenience as reasons, findings consistent with studies in Pakistan (2004) and the U.S. (2011).[16,20] IUCD utilization was low (9.2%), comparable to Iraq's 2007 rate (12.2%) [13]. Usage rates varied among nearby Arab countries, with Syria (25.7%) and Yemen (23.1%) reporting higher rates, while Bahrain (2.8%), UAE (3.7%), and Saudi Arabia (6.6%) had lower rates, reflecting cultural differences [13]. Global IUCD use also varied, with the highest prevalence in North Korea (78%) and the lowest in North America (2%).[21] Cu-IUD was the predominant IUCD used, while LNG-IUS use was low due to its unavailability in public clinics and high cost in private settings. This contrasts with European countries where LNG-IUS comprises a significant share of IUCD users, such as the UK (73%), Sweden (66%), and Germany (60%).[22] Discontinuation rates were high, with 40% of Cu-IUD users removing it within the first year, mainly due to planned pregnancies or side effects like menorrhagia and pain, findings consistent with a Jordanian study.[23] LNG-IUS discontinuation was 50%, primarily due to menorrhagia or expulsion, differing from a UK study, where discontinuation (18-25% at three years) was mostly due to amenorrhea.[24] Age, marriage duration, and parity significantly influenced IUCD use. Usage was lowest among women under 25 (8.1%) and highest in those over 40 (40.5%), reflecting their reproductive goals. This aligns with a U.S. study (2011)[19] and a European study where IUCD use concentrated among older, multiparous women.[22] Years of marriage also predicted use, with lower rates in newlyweds and higher rates after 10+ years, consistent with findings from Shanghai (2003).[25] Parity strongly influenced IUCD adoption, increasing with the number of living children, a trend supported by a U.S. study (2011).[16]

CONCLUSION

This study highlights the lack of awareness about LNG-IUS, while all respondents knew about Cu-IUD. Most participants had a negative attitude toward IUCDs, leading to low utilization, with Cu-IUD being the most commonly used. Older age, longer marriage duration, and higher parity significantly influenced IUCD use. Concerns about adverse effects, myths, and relatives' influence were key factors shaping attitudes and decisions regarding IUCD use.

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