



KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING HORMONAL CONTRACEPTIVE IMPLANTS AMONG SAMPLE OF CHILDBEARING AGE WOMEN ATTENDING OUTPATIENT CLINICS IN AL-IMAMMEIN AL-KADHIMEIN MEDICAL CITY IN BAGHDAD/ 2025

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ABSTRACT

Background: Hormonal contraceptive implants are long-acting reversible contraceptives are small, flexible rods inserted subdermally in the upper arm by trained providers, that offer highly effective birth control through the continuous release of synthetic progestin hormones. These implants are widely recognized for their efficacy, convenience, and reversibility, making them a key option in modern family planning strategies. **Subjects and Methods:** A descriptive cross-sectional study used apre-structured questionnaire adopted from previous literatures. A convenient sample of 300 participants of childbearing age women were recruited from the outpatient clinics in Al-Imammein Al-Kadhimein medical city in Baghdad. The current study was carried out over a period of seven months, from 1st of February 2025 to end of August 2025. The questionnaire consisted of 5 parts, the first part was about Sociodemographic information. The second part was about Reproductive History. The third part measure participants knowledge. The fourth part was about attitude towards hormonal implants, the last part was about hormonal implants practices. The data collected by direct interview, and analysed by using statistical package for social science version 26. **Results:** The results showed that 166 (55.3%) of participants were not knowledgeable and only 134 (44.7%) were knowledgeable while regarding attitude, 177 (59.0%) had a negative attitude and 123 (41.0%) had a positive one. Only 30 (10.0%) of the participants had ever used hormonal implants, from them, 20 (66.7%) were willing to continue using it. A statistically significant association was found between knowledge of the participants and the educational level, occupation, monthly income, miscarriage history, and implant use. Attitude was significantly associated with age group, educational level, and implant use. Use of hormonal implants was significantly associated with the participants age group, age at first childbirth, monthly income, and miscarriage history. **Conclusions:** More than half of the participants lacked knowledge and had negative attitudes towards hormonal implants. Using hormonal implants was low. Education, monthly income, and personal reproductive history were important factors influencing knowledge, attitude, and practice. Raising awareness and community education may enhance acceptance and use of long-acting contraceptives like hormonal implants.

1.1. INTRODUCTION

Family planning (FP) is a cornerstone of reproductive health and a critical intervention for reducing maternal and infant morbidity and mortality worldwide. Modern contraceptive methods are broadly categorized into short-acting, long-acting reversible contraception (LARC), and permanent methods. Among these,

LARCs—including intrauterine devices (IUDs) and hormonal implants—are increasingly recommended due to their high effectiveness, reversibility, and convenience. They are particularly suitable for women of all reproductive ages, including adolescents and postpartum women, as they require minimal user

compliance and are associated with high satisfaction and low discontinuation rates.^[1]

Hormonal contraceptive implants, such as Implanon® and its upgraded version Nexplanon®, are small, flexible rods inserted subdermally in the upper arm by trained providers.^[2] Their advantages include a failure rate as low as 0.05%, long-term protection for 3–5 years, rapid return of fertility upon removal, and no need for daily adherence, surpassing the effectiveness of female sterilization.^[3]

Globally, contraceptive implant use has expanded rapidly, particularly in low- and middle-income countries where family planning programs have integrated LARCs to reduce unintended pregnancies. Evidence highlights their cost-effectiveness, high continuation rates, and user satisfaction compared with short-acting methods such as oral pills and injectable.^[4] The World Health Organization (WHO) strongly endorses their use as a strategic measure to reduce maternal morbidity and mortality, especially in underserved settings.^[5]

Historically, the introduction of Norplant® in the 1980s marked the beginning of subdermal implants, later replaced by safer and more user-friendly versions, culminating in Nexplanon® with radiopaque features and improved insertion devices.^[6]

In Iraq, despite joint efforts by the Ministry of Health (MOH) and the United Nations Population Fund (UNFPA) to integrate hormonal implants into reproductive health services, their uptake remains limited. Barriers include cultural resistance, inadequate counseling, lack of awareness, and a shortage of trained healthcare providers. Understanding Iraqi women's knowledge, attitudes, and practices toward hormonal implants is therefore essential to guide national family planning policies and improve reproductive health outcomes.^[7]

This study aims to assess the knowledge, attitudes, and practices of participants towards the hormonal contraceptive implants. And to assess association between participants' knowledge, attitudes, and practices and their socio-demographic Characteristics.

SUBJECTS AND METHODS

This cross sectional study was carried out recruiting a sample of childbearing age women (15-49) years who attended outpatient clinics in Al-Imammein Al-Kadhmein medical city in Baghdad/ Iraq. It was carried out over a period of seven months, from 1st of February 2025 to 31th of August 2025. A convenient sample of 300 women of child bearing age were included. **Inclusion criteria were** all married women of child bearing age (15-49 years) attending the outpatient clinics during the study period and willing to participate in the study. **Exclusion Criteria** were women with mental health

problems and those who refused to participate or who didn't complete the interview.

A structured questionnaire with skipping pattern was adapted from previous studies.^{[8][9][10]} Adjusted by the supervisor, and translated to Arabic. Face validity was established by sending the questionnaire to three experts in (Family medicine, Community medicine and Gynecology) and all their notes were taken in consideration.

3.5.2. Questionnaire

The questionnaire consists of five parts.

The first part was about Socio-demographic Characteristics consist of six questions, including age, , educational level for participant and her husband, occupation, residence, and monthly income.

The second part was about Reproductive History – it consist of five questions, such as age at marriage, age at first childbirth, number of living children, miscarriage history, and decision-making in childbearing.

The third part consisted of 14 questions that measure patient's knowledge about hormonal contraceptive implants evaluating participants awareness of family planning methods, their knowledge of different contraceptive methods, sources of information, understanding of the benefits, side effects, effectiveness, safety, availability, and the impact of financial situation on method choice

The fourth part consisted of eight questions about women attitudes towards Hormonal Contraceptive Implants effectiveness, its perceived health impacts—including fertility, menstruation, weight, and breast milk—and the extent of its acceptance by society.

The last part was about hormonal contraceptive implants practices it consist of nine questions including previous and current contraceptive use, reasons for choosing or avoiding implants, experiences of side effects, and future interest to using it.

Scoring System

Concerning knowledge section, Scoring Method: One point (1) is awarded for each correct answer to the knowledge questions. Incorrect or "I don't know" responses receive zero (0) points, after calculating the total score. The participant who scored from the mean and above ($\geq 50\%$) was considered knowledgeable. Conversely, the participant scored below the mean ($< 50\%$) was considered not knowledgeable.^[59]

Score (%) = (Total score ÷ Number of questions) × 100

As regards the attitude, questions were answered by agree, neutral and disagree. Answers were scored as the following: agree 3 points, neutral 2 points and 1point for disagree. The participant was classified as having a positive attitude if her total score equal to or greater than

the mean score ($\geq 50\%$) Conversely, if her score was below the mean ($< 50\%$), she was considered as having negative attitude toward the implant method.

Regarding practice, if the woman reported using an implant as a contraceptive method at the time of data collection, she was considered to have practiced implant use. If she had never used the method, she was classified as not practiced.

Statistical Analysis

The data entered and analyzed using statistical packages for social sciences (SPSS ver.26). The data presented by frequencies and percentages and the association of the dependent and independent variables were tested using Pearson's chi-square test of independence or exact test (for the relations were more than 20% of the cells less than 5). The association considered significant when alpha level less than 5%.

Ethical Considerations

An approval from scientific council of Arabic board for health specialization to collect data was obtained from the administrative department of the hospital (**appendix C**). After selecting the patient through convenient sampling, the purpose of the study was fully explained to the participant by the researcher, data privacy and anonymity were ensured also and the right to withdraw at any time during the interview was granted for the participant. Informed verbal consent was obtained from each person before starting the interview.

RESULTS

Socio-Demographic Characteristics

The study involved 300 participants, primarily aged 30-39 (42.3%). Most women had university education (41.7%), while 58.7% were housewives. Urban residents made up 81%, and income varied, with 36% earning 500,000-999,999 IQD; as shown in Table (1).

Table (1): Sociodemographic characteristics of the study group, n=300.

Sociodemographic characteristics of the study group, n=500.			
Sociodemographic characteristics		No.	%
Age groups	15 - 19 years	8	2.7
	20 - 29 years	89	29.7
	30 - 39 years	127	42.3
	40 - 49 years	76	25.3
Women educational level	Illiterate	6	2.0
	Can read and write	6	2.0
	Primary	101	33.7
	Secondary	57	19.0
	University	125	41.7
	Postgraduate	5	1.7
Husband's educational level	Illiterate	10	3.3
	Primary	88	29.3
	Secondary	75	25.0
	University	111	37.0
	Postgraduate	16	5.3
Occupation	Housewife	176	58.7
	Student	5	1.7
	Employee	119	39.7
Residence	Urban	243	81.0
	Rural	57	19.0
Monthly income	Less than 500,000 IQD	106	35.3
	500,000 to less than 1,000,000 IQD	108	36.0
	1,000,000 IOD or more	86	28.7

Reproductive History

The study of 300 participants reveals early marriage trends, with 42.3% marrying at 16-20 years. Nearly 24% had their first child by 18, and 40% experienced miscarriage. Most reproductive decisions are joint (76.3%); as shown in Table (2).

Table (2): Reproductive history of the study group, n=300.

History of the study group, n=500.			
Reproductive History		No.	%
Age at marriage	<=15 years	35	11.7
	16 - 20 years	127	42.3
	21 - 25 years	109	36.3
	>=26 years	29	9.7

Age at first childbirth	<=18 years	71	23.7
	19 - 23 years	98	32.7
	24 - 29 years	89	29.7
	>=30 years	12	4.0
Number of living children	0	30	10.0
	1 - 2	116	38.7
	3 - 4	106	35.3
	5 - 6	41	13.7
	>6	7	2.3
History of miscarriage	Yes	120	40.0
	No	180	60.0
Decision maker in childbearing	Wife	33	11.0
	Husband	38	12.7
	Both	229	76.3

Knowledge of the Participants

A study of 300 participants revealed that while 90% were aware of hormonal contraceptive implants, only 50% correctly classified them as long-acting. Economic

factors influenced choices, and awareness of benefits was high, but knowledge of side effects and safety was low, highlighting a need for better education.

Table (3): Knowledge of the participants about Hormonal Contraceptive Implants, n=300.

Items	NO.	%
Have you heard about family planning	175	58.3
Have you heard about hormonal implants as a family planning method	270	90.0
Participants classification of hormonal implants as a contraceptive method		
Long-acting	150	50.0
Short-acting	10	3.3
Don't know	140	46.7
Financial situation affects participants' choice of contraceptive method	155	51.7
Have knowledge about the benefits of contraceptive implant	214	71.3
Participants' awareness of the side effects of contraceptive implant	151	50.3
Have knowledge about the safety of hormonal implant safe for all women	19	6.3
Have knowledge about the affectivity of the contraceptive implant	253	84.3
The implant use requires periodic follow-up	63	21.0
The women can use their arm directly after implant insertion	213	71.0

Attitudes of the Participants

A survey of 300 participants showed 54% view hormonal contraceptive implants as cost-effective, but only 28% feel community support. Misconceptions

persist about health risks, with 82% citing menstrual disorders and concerns about weight changes and breast milk; as shown in Table (4).

Table (4): Attitudes of the participants about Hormonal Contraceptive Implants, n=300.

Items	Disagree	Neutral	Agree
	No. (%)	No. (%)	No. (%)
The hormonal implant is a cost- effective method of family planning	14 (4.7%)	124 (41.3%)	162 (54%)
The society encourages to use the hormonal implant	59 (19.7%)	157 (52.3%)	84 (28%)
Hormonal implant causes spontaneous abortion in the future	216 (72%)	76 (25.3%)	8 (2.7%)
The hormonal implant causes sterility	155 (51.7%)	113 (37.7%)	32 (10.7%)
The hormonal Implant causes delivery of low-birth-weight children in the future	236 (78.7%)	64 (21.3%)	0 (0.0%)
The hormonal implant causes weight changes	41 (13.7%)	56 (18.7%)	203 (67.7%)
The hormonal implant negatively affects the breast milk	148 (49.3%)	81 (27%)	71 (23.7%)
The hormonal implant causes menstrual disorders	20 (6.7%)	34 (11.3%)	246 (82%)

4.5. Practice of the Participants

Hormonal implant use was low at 10%. Effectiveness motivated 93.3% of users, but menstrual disorders led to

early removal. Despite side effects, 66.7% would continue use. Non-users cited fear of side effects and lack of information as barriers; as shown in Table (5).

Table (5): Actual practices about Hormonal Contraceptive Implants.

Items	NO.	%
Have you ever used the hormonal implants either in the past or currently? (n=300)	30	10.0
Causes to use (n=30)		
Effectiveness	28	93.3
Convenience	9	30.0
Safety	4	13.3
Medical advice	2	6.7
Duration of the implant use (n=30)		
<1 year	10	33.3
1 to 3 years	13	43.3
>3 years	7	23.3
Early removal of the hormonal implant before 1 year		
Causes of early removal(n=10)		
Menstrual disorders	10	100.0
Hormonal side effects	2	20.0
Medical issues	1	10.0
Side effects from using the implant (n=30)		
Menstrual disorders	28	93.30
Headache	4	13.30
Mood swings or Depression	2	6.70
Are you willing to continue using the implant despite its side effects? (n=30)	20	66.7
Reasons for never using the hormonal implant (n=270)		
Fear of side effects	114	42.2
Lack of information	88	32.6
Desire to have children	45	16.7
Husband's refusal	10	3.7
Financial cost	3	1.1
Other	10	3.7
Participants interested to using the hormonal implant in the future (n=270)	42	15.6

Total knowledge and Attitudes Scores of the Participants

Table (6) shows that 55.3% of participants lacked knowledge about hormonal implants for family planning,

and 59.0% had negative attitudes towards their use. Only 44.7% were knowledgeable, while 41.0% held positive attitudes.

Table (6): Knowledge and attitudes of the participants about the using of hormonal implants.

Knowledge	NO.	%
Not knowledgeable	166	55.3
Knowledgeable	134	44.7
Attitudes		
Negative attitude	177	59.0
Positive attitude	123	41.0
Total	300	100

The Association between Knowledge of the Participants and their Socio-Demographic Characteristics

Table (7) analyzes 300 women's knowledge of hormonal implants, revealing significant associations with

education, occupation, income, and miscarriage history. Higher knowledge correlates with university education, employment, and modern contraceptive use, while age and other factors showed no significant impact.

Table (4.7): The association between Participants' knowledge about hormonal implant and their sociodemographic characteristics, n=300.

Variables		Knowledgeable		P-value
		No (n=166)	Yes (n=134)	
		No. (%)	No. (%)	
Age groups	15 - 19 years	7 (87.5)	1 (12.5)	0.275 ^a
	20 - 29 years	50 (56.2)	39 (43.8)	

Variables		Knowledgeable		P-value
		No (n=166)	Yes (n=134)	
		No. (%)	No. (%)	
	30 - 39 years	70 (55.1)	57 (44.9)	
	40 - 49 years	39 (51.3)	37 (48.7)	
Age at marriage	<=15 years	23 (65.7)	12 (34.3)	0.386
	16 - 20 years	73 (57.5)	54 (42.5)	
	21 - 25 years	56 (51.4)	53 (48.6)	
	>=26 years	14 (48.3)	15 (51.7)	
Age at first childbirth	<=18 years	41 (57.7)	30 (42.3)	0.187
	19 - 23 years	57 (58.2)	41 (41.8)	
	24 - 29 years	40 (44.9)	49 (55.1)	
	>=30 years	8 (66.7)	4 (33.3)	
Number of living children	0	20 (66.7)	10 (33.3)	0.278 ^a
	1 - 2	57 (49.1)	59 (50.9)	
	3 - 4	63 (59.4)	43 (40.6)	
	5 - 6	21 (51.2)	20 (48.8)	
	>6	5 (71.4)	2 (28.6)	
Women educational level	Illiterate	6 (100)	0 (0)	0.017* ^a
	Can read and write	4 (66.7)	2 (33.3)	
	Primary	65 (64.4)	36 (35.6)	
	Secondary	32 (56.1)	25 (43.9)	
	University	57 (45.6)	68 (54.4)	
	Postgraduate	2 (40)	3 (60)	
Husband's educational level	Illiterate	4 (40)	6 (60)	0.295 ^a
	Primary	56 (63.6)	32 (36.4)	
	Secondary	42 (56)	33 (44)	
	University	55 (49.5)	56 (50.5)	
	Postgraduate	9 (56.3)	7 (43.8)	
Occupation	Housewife	107 (60.8)	69 (39.2)	0.004* ^a
	Student	5 (100)	0 (0)	
	Employee	54 (45.4)	65 (54.6)	
Residence	Urban	135 (55.6)	108 (44.4)	0.873
	Rural	31 (54.4)	26 (45.6)	
Monthly income	Less than 500,000 IQD	76 (71.7)	30 (28.3)	<0.001*
	500,000 to less than 1,000,000 IQD	46 (42.6)	62 (57.4)	
	1,000,000 IQD or more	44 (51.2)	42 (48.8)	
History of miscarriage	Yes	57 (47.5)	63 (52.5)	0.026*
	No	109 (60.6)	71 (39.4)	
Decision maker in childbearing	Wife	19 (57.6)	14 (42.4)	0.097
	Husband	27 (71.1)	11 (28.9)	
	Both	120 (52.4)	109 (47.6)	
Hormonal implants use	Yes	2 (6.7)	28 (93.3)	<0.001*
	No	164 (60.7)	106 (39.3)	
Attitudes levels	Negative attitude	93 (52.5)	84 (47.5)	0.243
	Positive attitude	73 (59.3)	50 (40.7)	

^a Exact test, *Significant at 0.05 alpha level

The Association between the Attitudes of the Participants and their Socio Demographic Characteristics

Table 8 shows that younger women have mixed attitudes toward hormonal implants, while older women show

more positivity. Higher education correlates with favorable attitudes, but implant users generally have negative perceptions, indicating possible misconceptions.

Table (8): The association between Participants' attitudes toward hormonal implants and their socio-demographic characteristics, n=300.

Variables		Attitudes		P-value
		Negative N=177	Positive N=123	
		No. (%)	No. (%)	
Age groups	15 - 19 years	4 (50)	4 (50)	0.024* ^a
	20 - 29 years	59 (66.3)	30 (33.7)	
	30 - 39 years	80 (63)	47 (37)	
	40 - 49 years	34 (44.7)	42 (55.3)	
Age at marriage	<=15 years	25 (71.4)	10 (28.6)	0.419
	16 - 20 years	72 (56.7)	55 (43.3)	
	21 - 25 years	62 (56.9)	47 (43.1)	
	>=26 years	18 (62.1)	11 (37.9)	
Age at first childbirth	<=18 years	46 (64.8)	25 (35.2)	0.376
	19 - 23 years	59 (60.2)	39 (39.8)	
	24 - 29 years	49 (55.1)	40 (44.9)	
	>=30 years	5 (41.7)	7 (58.3)	
Number of living children	0	18 (60)	12 (40)	0.334 ^a
	1 - 2	72 (62.1)	44 (37.9)	
	3 - 4	65 (61.3)	41 (38.7)	
	5 - 6	18 (43.9)	23 (56.1)	
	>6	4 (57.1)	3 (42.9)	
women educational level	Illiterate	4 (66.7)	2 (33.3)	0.029* ^a
	Can read and write	6 (100)	0 (0)	
	Primary	50 (49.5)	51 (50.5)	
	Secondary	37 (64.9)	20 (35.1)	
	University	75 (60)	50 (40)	
	Postgraduate	5 (100)	0 (0)	
Husband's educational level	Illiterate	6 (60)	4 (40)	0.065 ^a
	Primary	43 (48.9)	45 (51.1)	
	Secondary	50 (66.7)	25 (33.3)	
	University	65 (58.6)	46 (41.4)	
	Postgraduate	13 (81.3)	3 (18.8)	
Occupation	Housewife	99 (56.3)	77 (43.8)	0.117 ^a
	Student	5 (100)	0 (0)	
	Employee	73 (61.3)	46 (38.7)	
Residence	Urban	146 (60.1)	97 (39.9)	0.431
	Rural	31 (54.4)	26 (45.6)	
Monthly income	Less than 500,000 IQD	59 (55.7)	47 (44.3)	0.203
	500,000 to less than 1,000,000 IQD	71 (65.7)	37 (34.3)	
	1,000,000 IQD or more	47 (54.7)	39 (45.3)	
History of miscarriage	Yes	72 (60)	48 (40)	0.774
	No	105 (58.3)	75 (41.7)	
Decision maker in childbearing	Wife	18 (54.5)	15 (45.5)	0.418
	Husband	26 (68.4)	12 (31.6)	
	Both	133 (58.1)	96 (41.9)	
Hormonal implants use	Yes	30 (100)	0 (0)	<0.001*
	No	147 (54.4)	123 (45.6)	

^a Exact test, *Significant at 0.05 alpha level

The Association between the Participant Practices and their Socio-Demographic Characteristics

Table (9) shows that hormonal implant usage for family planning among 300 women is significantly influenced

by age, age at first childbirth, income level, and history of miscarriage, with notable trends in utilization among specific demographics.

Table (9): The association between Participants' usage of hormonal implants and their socio-demographic characteristics, n=300.

Variables		Hormonal implants use		P-value
		No	Yes	
		No. (%)	No. (%)	
Age groups	15 - 19 years	8 (100)	0 (0)	0.001*^a
	20 - 29 years	71 (79.8)	18 (20.2)	
	30 - 39 years	117 (92.1)	10 (7.9)	
	40 - 49 years	74 (97.4)	2 (2.6)	
Age at marriage	<=15 years	33 (94.3)	2 (5.7)	0.686 ^a
	16 - 20 years	114 (89.8)	13 (10.2)	
	21 - 25 years	96 (88.1)	13 (11.9)	
	>=26 years	27 (93.1)	2 (6.9)	
Age at first childbirth	<=18 years	69 (97.2)	2 (2.8)	0.004*
	19 - 23 years	79 (80.6)	19 (19.4)	
	24 - 29 years	82 (92.1)	7 (7.9)	
	>=30 years	10 (83.3)	2 (16.7)	
Number of living children	0	30 (100)	0 (0)	0.132 ^a
	1 - 2	102 (87.9)	14 (12.1)	
	3 - 4	92 (86.8)	14 (13.2)	
	5 - 6	39 (95.1)	2 (4.9)	
	>6	7 (100)	0 (0)	
Women educational level	Illiterate	6 (100)	0 (0)	0.109 ^a
	Can read and write	6 (100)	0 (0)	
	Primary	97 (96)	4 (4)	
	Secondary	50 (87.7)	7 (12.3)	
	University	107 (85.6)	18 (14.4)	
	Postgraduate	4 (80)	1 (20)	
Husband's educational level	Illiterate	10 (100)	0 (0)	0.059 ^a
	Primary	84 (95.5)	4 (4.5)	
	Secondary	68 (90.7)	7 (9.3)	
	University	93 (83.8)	18 (16.2)	
	Postgraduate	15 (93.8)	1 (6.3)	
Occupation	Housewife	163 (92.6)	13 (7.4)	0.115 ^a
	Student	5 (100)	0 (0)	
	Employee	102 (85.7)	17 (14.3)	
Residence	Urban	215 (88.5)	28 (11.5)	0.07
	Rural	55 (96.5)	2 (3.5)	
Monthly income	Less than 500,000 IQD	104 (98.1)	2 (1.9)	0.002*
	500,000 to less than 1,000,000 IQD	92 (85.2)	16 (14.8)	
	1,000,000 IQD or more	74 (86)	12 (14)	
History of miscarriage	Yes	118 (98.3)	2 (1.7)	<0.001*
	No	152 (84.4)	28 (15.6)	
Decision maker in childbearing	Wife	33 (100)	0 (0)	0.053 ^a
	Husband	36 (94.7)	2 (5.3)	
	Both	201 (87.8)	28 (12.2)	

^a Exact test, *Significant at 0.05 alpha level**DISCUSSION****Knowledge Part**

The current study (Table 3) reveals a moderate level of general knowledge about family planning, while implant-

specific knowledge about eligibility, safety, and follow-up is variable. In Iraq, **Salh & Abdulridha**^[11], 2025, reported a modest overall knowledge level (46.25%). High recognition of implants as a method is increasingly

common **Tegegne et al.**, 2024, Ethiopia^[10], reported 87.6% awareness, and **Jonas et al.**, 2021, South Africa^[12] reported 75.6%—yet detailed safety knowledge lags.

The current study (Table 7) findings demonstrated that women's educational level had a significant association with knowledge about contraceptive methods ($p=0.017$). Women with university or postgraduate degrees showed higher levels of knowledge compared to those with minimal or no formal education. This finding is consistent with the study by **Abdulrahman et al.**,^[13] 2019, in the UAE, which reported that women with higher educational attainment were significantly more knowledgeable about contraceptive methods ($p=0.03$). Similarly, **Le Voir**, 2022^[14], reported that in Iraq, women with upper secondary or higher education were more likely to use modern contraceptives, reflecting enhanced awareness and decision-making capacity. A significant association was also found between occupation and knowledge ($p=0.004$), with employed women showing greater awareness compared to housewives and students. The relationship between employment and contraceptive knowledge may reflect increased autonomy, exposure to workplace health education, and better access to health services **Tiruneh et al.**, 2023^[15], in Ethiopia similarly observed that employment was positively linked to modern contraceptive use. Furthermore, monthly income was strongly associated with knowledge levels ($p<0.001$), where lower income groups had less knowledge. The study also found that a history of miscarriage was significantly associated with higher knowledge levels ($p=0.026$). This may be due to increased healthcare contact following adverse reproductive outcomes. A similar observation was reported in Iraq by **Salh and Abdulridh** 2025^[11] who suggested that miscarriages often lead to increased interaction with reproductive health services, thereby improving contraceptive awareness. Another strong association was found between current hormonal implant use and knowledge ($p<0.001$), indicating that users of long-acting methods were more informed.

Attitudes Part

The current study Table (4) demonstrates that while over half of participants recognize hormonal contraceptive implants as a cost-effective family planning option, a significant portion remain uncertain. This mirrors recent findings from Pakistan and Ethiopia, where although awareness of implant effectiveness is common, detailed understanding—especially regarding cost benefits—remains incomplete among many women **Shaikh et al.**, 2021^[74] and **Tegegne et al.**, 2024.^[59] Community support for implant use appears limited, nearly one third respondents reporting societal encouragement, and more than half expressing neutrality. These findings are consistent with studies in South Africa and Indonesia, which identify community ambivalence and lack of advocacy as common barriers to broader uptake **Shihundla et al.**, 2021^[78], **Anjarwati et al.**, 2023.^[79]

Social endorsement often hinges on proactive health worker engagement and targeted community interventions. Encouragingly, misconceptions about severe health risks are decreasing. The majority percentage of participants, respectively, rejected the beliefs that implants cause spontaneous abortion or low-birth-weight infants. These reassuring trends parallel findings from recent KAP studies in Pakistan and Ethiopia, where improved access to reliable information has debunked such myths **Shaikh et al.**, 2021^[16], **Tegegne et al.**, 2024.^[10] Despite this progress, concerns about side effects persist. A large proportion (82%) associated implants with menstrual disorders, and 67.7% believed they could cause weight changes—echoing widespread worries reported in similar studies in Nepal and Ethiopia **Sharma**, 2024^[17], **Tegegne et al.**, 2024.^[10]

This study (Table 8) revealed a significant relationship between age group and attitudes toward contraceptive use ($p=0.024$), with older women (especially those aged 40–49) more likely to exhibit positive attitudes. These results echo the findings of (**Abdulrahman et al.**, in UAE, 2019)^[13], and (**Tiruneh et al.**, in Ethiopia, 2023).^[15] When housemaids with college and above education were two times more likely to have a positive attitude towards modern contraceptives compared to those who were illiterate. Interestingly, the current study also observed that all women using hormonal implants had negative attitudes ($p<0.001$), despite their higher knowledge levels. This paradox may reflect personal or community-level concerns, perceived side effects, or cultural concerns surrounding hormonal methods.

Practices Part

Low uptake of hormonal implants This pattern is consistent with findings from Ethiopia, where 87.6% of women were aware of implants, only 20.6% had ever used them **Tegegne et al.** (2024).^[10] Similarly, in Nigeria, **Ilegbusi et al.** (2021)^[8], found that implants accounted for just 3.4% of contraceptive use among women. A major barrier identified in the present study is concern over side effects—particularly menstrual disturbances—which was reported majority of implant users as an experienced adverse effect. These findings align with those in Nepal, menstrual disturbances and prolonged bleeding were the most commonly cited reasons for implant discontinuation in **Sharma** (2024).^[17] the effectiveness of hormonal implants was recognized by nearly all users in this study, making it the principal motivator for adoption. This finding is in line with **Ilegbusi et al.** (2021)^[8], who reported that 46.57% of Nigerian women correctly identified the high effectiveness of implants as a contraceptive method. However, continuation remains a challenge, as one-third of users removed their implants early—universally due to menstrual disorders. This is also reflected in the findings of **Sharma**, in Nepal, 2024^[17], emphasizing that side effects remain the primary reason for early discontinuation. Nevertheless, it is encouraging that two-thirds of users in the present study expressed willingness

to continue implant use, suggesting that adequate counseling and support can help women tolerate or manage side effects—a point similarly noted in Ethiopia by **Tegegne et al, 2024**.^[10] The role of information and counseling emerges as another critical theme. In our study, one third of non-users cited inadequate information as a main reason for not choosing implants, consistent with the work of **Jonas et al, 2021**^[18] who found that better knowledge and comprehensive counseling were strongly associated with increased intention to use the implant.

In our study (Table 9) found that age group was significantly associated with hormonal implant use (**p=0.001**), with the highest usage among women aged 20–29 years. This corresponds with the findings of a study in Iraq, **Abdelaziz et al., 2023**^[19], The age at first childbirth was also significantly associated with implant use (**p=0.004**), where women who had their first child between 19–23 years had higher adoption rates. Moreover, income level was significantly associated with implant usage (**p=0.002**). Higher-income women were more likely to use implants, reflecting the affordability and accessibility of LARCs. This aligns with findings in a studies in Iraq from **Le Voir, 2022**.^[14] Conversely, the study observed that women with a history of miscarriage were significantly less likely to use hormonal implants (**p<0.001**). This inverse relationship may stem from concerns about fertility, psychological trauma, or provider hesitancy, as noted in Iraq **Salh and Abdulridha, 2025**.^[11] These concerns may hinder the uptake of long-acting methods among women with prior pregnancy loss.

CONCLUSIONS

More than half of the participants lacked knowledge and had negative attitudes towards hormonal implants. Using hormonal implants was low. Education, monthly income, and personal reproductive history were important factors influencing knowledge, attitude, and practice. Raising awareness and community education may enhance acceptance and use of long-acting contraceptives like hormonal implants.

REFERENCES

1. World Health Organization. Family planning, 2018.
2. Practice Bulletin No. 186: Long-Acting Reversible Contraception: Implants and Intrauterine Devices. *Obstet Gynecol*, 2017; 130: e251–e269. doi:10.1097/AOG.0000000000002400. Cited: in : PMID: 29064972.
3. Jacobstein R, Stanley H. Contraceptive implants: providing better choice to meet growing family planning demand. *Glob Heal Sci Pract*, 2013; 1: 11–17. doi:10.9745/GHSP-D-12-00003. Cited:in: PMID: 25276512.
4. Alrawi Y. Exploring barriers to family planning service utilization and uptake among women in Iraq. *East Mediterr Heal J*, 2021; 27: 818–825. doi:10.26719/EMHJ.21.015. Cited: in : PMID: 34486718.
5. World Health Organization. Strategies toward ending preventable maternal mortality (EPMM), 2015.
6. Rocca ML, Palumbo AR, Visconti F, Di Carlo C. Safety and benefits of contraceptives implants: a systematic review. *Pharmaceuticals*, 2021; 14: 548.
7. United Nations Population Fund (UNFPA) & Iraqi Ministry of Health. Family planning programs and contraceptive access in Iraq. Baghdad: UNFPA; 2019.
8. Ilegbusi PH, Tomori MO, Alabi BY. Knowledge, attitude and practice of women of childbearing age towards the acceptance of contraceptive implants in Akungba-Akoko, Ondo State. *Int J Pharm Sci Med*, 2021; 6: 64–97.
9. Vachhani SA, Parikh TB, Shah DH, Shah DS, Vekariya NP, Vaishnav GD, Kapadia SN. A cross-sectional study to assess the knowledge, attitude and practice of contraceptive implants at tertiary care hospital in Ahmedabad, Gujarat. *Int J Reprod Contraception, Obstet Gynecol [Internet]*, 2025; 14: 869–874. doi:10.18203/2320-1770.ijrcog20250520.
10. Tegegne KT, Teferi G, Wudu TK, Abinew Y, Tegegne ET, Tessema MK. Knowledge, attitude, practice, and associated factors of implant use in women, Ethiopia. *Biomed Res Int*, 2024; 2024: 9978336.
11. Salh FM, Abdulridha MK. Assessment of awareness about contraception among a sample of Iraqi women using hormonal contraceptives: a cross-sectional study. *Pharmacia*, 2025; 72: 1–14.
12. Teal S, Edelman A. Contraception selection, effectiveness, and adverse effects: a review. *Jama*, 2021; 326: 2507–2518.
13. Abdulrahman M, Farajallah HM, Kazim MN, AlHammadi FE, AlZubaidi AS, Carrick FR. Pattern and determinants of contraceptive usage among women of reproductive age in the United Arab Emirates. *J Fam Med Prim Care*, 2019; 8: 1931.
14. Le Voir R. Measuring contraceptive use in a displacement-affected population using the Multiple Indicator Cluster Survey: The case of Iraq. *J Migr Heal*, 2022; 6: 100114.
15. Tiruneh GA, Erega BB, T/mariam AB, Abebe EC, Ayele TM, Baye ND, Tilahun Z, Taye A, Kassa BG. Level of knowledge, attitude, and practice on modern contraceptive method and its associated factors among housemaids living in Debre Tabor town, northwest Ethiopia: a community-based cross-sectional study. *BMC Womens Health*, 2023; 23: 632.
16. Shaikh IB, Jafry SIA, Naqvi S, Firdous SN. Knowledge, attitude and practices regarding implants among women of childbearing age. *J Pak Med Assoc*, 2021; 71: 993–996.
17. Sharma S, Akhtar F, Singh RK, Mehra S. Early marriage and spousal age difference: predictors of preconception health of young married women in Delhi, India. *J Heal Res*, 2022; 36: 1118–1130.

18. Jonas K, Mazinu M, Kalichman M, Kalichman S, Lombard C, Morroni C, Mathews C. Factors associated with the use of the contraceptive implant among women attending a primary health clinic in Cape Town, South Africa. *Front Glob women's Heal*, 2021; 2: 672365.
19. Abdelaziz W, Nofal Z, Al-Neyazy S. Factors affecting contraceptive use among currently married women in Iraq in 2018. *J Biosoc Sci*, 2023; 55: 449–462.