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ASSESSMENT OF ADVERSE EFFECTS OF HORMONAL CONTRACEPTIVES IN WOMEN ATTENDING PRIMARY HEALTH CARE CENTERS IN HOLY KARBALA CITY

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Abstract:

This study investigates the adverse effects of hormonal contraceptives among women attending two primary health care centers in Holy Karbala City, Iraq. Despite their global prevalence due to effectiveness and reversibility, hormonal contraceptives remain under scrutiny for side effects, especially in contexts with limited healthcare literacy. Addressing a knowledge gap in localized user experiences and preferences, a cross-sectional survey was conducted using a structured questionnaire administered to 355 women aged 15–49. Statistical analysis using SPSS revealed that oral contraceptive pills (OCPs) were the most commonly used method, particularly among housewives aged 30–39 with lower education levels. Significant side effects reported included mood disturbances (43.1%), menstrual irregularities (38%), weight gain (33%), and gastrointestinal issues, all varying by contraceptive type and user demographics. These findings highlight the need for enhanced medical counseling, informed contraceptive choice, and community-based education to mitigate side effects and improve reproductive health outcomes in similar populations.

Keywords: hormonal contraceptives; women; and primary health care.

Introduction

The deliberate use of contraceptive techniques to postpone or prevent conception and/or to reach the desired family size is known as family planning. There are several methods that family

planning might lower maternal mortality, including 1) Family planning can help reduce the number of births, which in and of itself helps minimize maternal fatalities because all pregnancies carry some risk; 2) Family planning may help reduce mistimed pregnancies; and 3) It lowers the risk of sexually transmitted illnesses.

The variety of contraceptive options accessible to couples is essential to the success of any family planning program. Couples with require of family planning should have access to oral contraceptive tablets as they are a very safe and effective way of birth control [1]. A complex interplay of several sociocultural and demographic factors on the individual, family, and societal levels influences the acceptance for family planning methods, which differs within and between nations [2]. Religions have a significant influence on how individuals feel about restricting fertility. Contrarily, education is the most effective and potent instrument for fostering in couples a favorable attitude toward family planning practices and strategies [3,4].

The various contraceptive techniques include hormonal or non-hormonal, long- or short-acting, permanent or reversible, and suitable for both men and women. There are both psychological and physical obstacles that women must overcome in order to get family planning services [5]. These obstacles might include sociocultural and attitudinal ones (including ignorance of family planning options and their accessibility, perceptions of pregnancy risk, and views on the means of Devices that act as barriers to human reproductive cells (such as the female diaphragm or the male condom); chemicals that kill or impair human reproductive cells (such as spermicidal); chemicals and hormones that suppress ovulation, thicken cervical mucus, or change the female reproductive system (such as injectable female hormones or the oral contraceptive pill); and surgical sterilization that completely eliminates fertility (such as tubal ligation or vasectomy) are all examples of contraception [6,7].

METHODOLOGY

1. Aim
   The study's objectives are to: a) determine the proportion of hormonal contraceptive users of all birth control methods, together with the proportions of each kind in family planning units, in order to determine which type is most acceptable.
   a) To determine the problems that hormonal contraceptive users encounter.
   b) To illustrate the unique demographic relationships.
2. Research design: A cross-sectional descriptive research.
3. Study period:
   The study's data gathering period ran from September 1, 2024, to June 1, 2025.
4. Study location: Two primary healthcare facilities in Karbala, Al-Abasayah Al Garbiah and Al-Mulhak, served as the study's sites.
5. Design of sampling
   The sample consisted of 355 women who attended the two PHCC family planning centers.
6. Criteria for inclusion
   A female client who is between the ages of 15 and 45.
   a. They utilise contraceptives for family planning.
7. Administrative and Ethical Approval
   The Iraqi Ministry of Health's section of the Arabic Board for Medical Specialisation provided ethical approval (see attachment 1). Plans were made to get authorisation from the Almarkz

health sector and the Karbala health directorate. Each client gave their oral informed consent after being briefly briefed about the study's objectives.

8. Sample Size: Using EPI-INFO statistical software version 7, the sample size was determined to be 341 and increased by 5% to account for any missing or rejected clients. The population survey estimation of the sample size was 3000, which is the total number in registered females within family planning units during the previous two years, at an expected frequency of 50% and a confidence limit of 5%. On average, the interview took place two days a week, with three to five days in a week.
9. Design of data gathering (questionnaire):
   A unique questionnaire that asked about demographics (age, education, and employment), parity, kind of contraceptive, and the existence of specific complaints based on their chromic usage was used to gather the data.
   After being examined and authorized by gynecologist and family professionals, the questionnaire was sent to a pilot study.
10. Pilot research:
    For ten days, a sample of twenty-five clients participated in the pilot study at the (PHCC) of Al-abasyh al-Garbiah at the (FP) unit.
    The pilot study's primary goals were as follows:
    a. To identify the primary challenges encountered during the interview in order to decide which questions should be included and which should be removed.
    b. To determine if clients approve of the questionnaire's design. – based on a pilot study, to calculate the amount of time needed for each interview.
    c. The time needed was 12 to 15 minutes, a few modifications were made to the questionnaire, and the acceptance was excellent.
11. Data collection and sampling methods: The researcher conducted direct interviews with each client based on the inclusion criteria listed above, using the questionnaire form in the (FP) units. The study's objectives were presented to each client.
12. Criteria for exclusion:
    A customer is someone who is not of childbearing age.
    a. Customers who use the techniques for reasons other than birth control.
    b. Individuals who decline to take part.
13. Data analysis: The statistical package for social science (SPSS) version 19 was used to do the statistical analysis. The chi-square and t tests were used as appropriate, and the p-value (level of significance) was set at $P<0.05$.

RESULTS

The analysis began with assessing the demographic characteristics of the study participants, which are summarized in **Table 1**. This table presents the distribution of the respondents according to age group, education level, occupation, number of children, and other socioeconomic indicators, offering a foundational understanding of the study population.

Table 1: Distribution of study population according to socioeconomic status

Variable	Number (355)	Percentage

Client Age Groups in years	33	9.3
< 20	117	33.0
20- 29	136	38.3
30 -39	69	19.4
40- 49	173	48.7
Age at Marriage in years	162	45.6
<20	20	5.7
20-29	262	73.8
30-39	80	22.5
Client occupation	13	3.7
Housewife	157	44.2
Employed	175	49.3
Student	23	6.5
Number of children	58	16.3
1-3	172	48.5
4-7	82	23.1
8-11	20	5.6
Client education	23	6.5
Illiterate or read and write	33	9.3
Primary	117	33.0
Intermediate	136	38.3
Secondary	69	19.4
Higher	173	48.7

To explore how contraceptive preferences varied by age, **Table 2** illustrates the association between client age groups and the type of contraceptive method used. The distribution shows significant differences in method preference among different age brackets, particularly highlighting the dominance of oral contraceptive pills among younger women.

Table 2. Association between client age groups & type of contraceptive method.

		Type of method				Total
		Oral contraceptive pills	Inject able contraceptive	Both	Intra uterine device	
Client Age Group In years	< 20	19	8	6	0	33
		57.6%	24.2%	18.2%	.0%	100.0%
	20- 29	58	17	16	26	117
		49.6%	14.5%	13.7%	22.2%	100.0%
	30 -39	59	23	15	39	136
		43.4%	16.9%	11.0%	28.7%	100.0%
	40- 49	17	13	19	20	69
		24.6%	18.8%	27.5%	29.0%	100.0%
		153	61	56	85	355

Total	43.1%	17.2%	15.8%	23.9%	100.0%

A further comparison based on employment status is detailed in **Table 3**, which investigates the relationship between client occupation and contraceptive method used. Notably, housewives demonstrated a higher tendency toward oral contraceptives, whereas students and employed women displayed varying preferences.

Table 3. Significant association between the age of the client and the contraceptive used.

		Type of method				Total
		Oral contraceptive pills	Inject able contraceptive	Both	Intrauterine device	
	Housewife	120	51	47	44	262
		45.8%	19.5%	17.9%	16.8%	100.0%
	Employed	29	9	8	34	80
		36.3%	11.3%	10.0%	42.5%	100.0%
	Student	4	1	1	7	13
		30.8%	7.7%	7.7%	53.8%	100.0%
Total		153	61	56	85	355
		43.1%	17.2%	15.8%	23.9%	100.0%

The study also investigated side effects, starting with gastrointestinal (GIT) complications. **Table 4** provides insight into the association between GIT symptoms—such as nausea and bloating—and the type of contraceptive method, indicating a higher prevalence among oral contraceptive users.

Table 4. Association between GIT complication and type of contraceptive method.

		Type of method			Total
		Oral contraceptive pills	Injectable contraceptive	Both	
Nausea and bloating	Yes	47	15	24	86
		54.7%	17.4%	27.9%	100.0%
	No	106	46	32	184
		57.6%	25.0%	17.4%	100.0%
Total		153	61	56	270
		56.7%	22.6%	20.7%	100.0%

In terms of physical changes, **Table 5** outlines the relationship between reported weight changes and the contraceptive method used. A considerable proportion of respondents on oral contraceptive pills reported experiencing weight gain compared to those on injectable methods.

Table 5. Association between type of contraceptive method &weight changes.

		Type of method			Total
		Oral contraceptive pills	Injectable contraceptive	Both	
Weight changes	Yes	69	23	25	117
		59.0%	19.7%	21.4%	100.0%
	No	84	38	31	153
		54.9%	24.8%	20.3%	100.0%
Total		153	61	56	270
		56.7%	22.6%	20.7%	100.0%

Similarly, mood changes emerged as a commonly reported side effect. **Table 6** shows the association between different contraceptive methods and the incidence of mood disturbances, emphasising the psychological effects of hormonal contraception. Table 6. Association between the type of contraceptive method and mood changes.

		Type of method			Total
		Oral contraceptive pills	Injectable contraceptive	Both	
Mood changes	Yes	92	26	35	153
		60.1%	17.0%	22.9%	100.0%
	No	61	35	21	117
		52.1%	29.9%	17.9%	100.0%
Total		153	61	56	270
		56.7%	22.6%	20.7%	100.0%

To better understand the reasons behind method preference, **Table 7** examines the relationship between a client's educational background and their stated reasons for choosing a specific contraceptive. Preferences such as safety, ease of use, and cost-effectiveness are shown to differ by education level.

Table 7. Association between client's education & cause of preference.

		Cause of preference					Total
		Safe	Easy	Cheap	Safe and easy	All above	
	Illiterate	22	7	6	0	0	35
		62.9%	20.0%	17.1%	.0%	.0%	100.0%
	Primary school	56	47	28	3	1	135
		41.5%	34.8%	20.7%	2.2%	.7%	100.0%
	High school	32	34	12	0	1	79
		40.5%	43.0%	15.2%	.0%	1.3%	100.0%

	Collage	12	5	3	1	0	21
		57.1%	23.8%	14.3%	4.8%	.0%	100.0%
Total		122	93	49	4	2	270
		45.2%	34.4%	18.1%	1.5%	.7%	100.0%

About information dissemination, **Table 8** highlights the primary sources of contraceptive instruction—doctors, pharmacists, or others—based on the client's education level. The data reveals that medical professionals are the predominant source of guidance, especially among less-educated clients.

Table 8. Shows no significant association between client's education & instruction provider.

		The instruction provider			Total
		doctor	pharmacist	others	
Client Education2	illiterate	22	6	7	35
		62.9%	17.1%	20.0%	100.0%
	primary school	88	26	21	135
		65.2%	19.3%	15.6%	100.0%
	high school	46	18	15	79
		58.2%	22.8%	19.0%	100.0%
	collage	15	4	1	20
		75.0%	20.0%	5.0%	100.0%
Total		171	54	44	269
		63.6%	20.1%	16.4%	100.0%

Another important demographic factor, parity, is discussed in **Table 9**, which explores how the number of children influences contraceptive method selection. Women with more children tended to favour intrauterine devices over hormonal methods.

Table 9. Association between parity & type of contraceptive method.

		Type of method				Total
		Oral contraceptive pills	Injectable contraceptive	Both	Intrauterine device	
Parity groups	1-3	88	29	20	20	157
		56.1%	18.5%	12.7%	12.7%	100.0%
	4-7	61	24	29	61	175
		34.9%	13.7%	16.6%	34.9%	100.0%
		4	8	7	4	23

	8-11	17.4%	34.8%	30.4%	17.4%	100.0%
Total		153	61	56	85	355
		43.1%	17.2%	15.8%	23.9%	100.0%

Menstrual irregularities were also prevalent among users. **Table 10** presents the association between different methods and the presence of menstrual disturbances, with a notably higher rate among those using oral contraceptives.

Table 10. Association between Type of method and menstrual disturbance.

		Type of method			Total
		Oral contraceptive pills	Injectable contraceptive	Both	
Menstrual disturbance	Yes	77	25	33	135
		57.0%	18.5%	24.4%	100.0%
	No	76	36	23	135
		56.3%	26.7%	17.0%	100.0%
Total		153	61	56	270
		56.7%	22.6%	20.7%	100.0%

Further, **Table 11** focuses on breast tenderness as a side effect, correlating it with specific methods of contraception. The findings suggest that breast discomfort is more frequently associated with oral contraceptive pills.

Table 11. Association between the type of contraceptive method and breast tenderness.

		Breast tenderness		Total
		Yes	No	
Type of method	Oral contraceptive pills	48	105	153
		31.4%	68.6%	100.0%
	Injectable contraceptive	16	45	61
		26.2%	73.8%	100.0%
	Both	15	41	56
		26.8%	73.2%	100.0%
Total		79	191	270
		29.3%	70.7%	100.0%

Table 12 addresses joint pain, providing a breakdown of incidence across the three contraceptive methods studied. This physical complaint also appeared more prominently among users of oral contraceptives.

Table 12. Association between type of contraceptive method and joints pain.

		Joints pain		Total
		Yes	No	
	Oral contraceptive pills	34	118	152

Type of method		22.4%	77.6%	100.0%
	Injectable contraceptive	13	48	61
		21.3%	78.7%	100.0%
	Both	20	36	56
		35.7%	64.3%	100.0%
Total		67	202	269
		24.9%	75.1%	100.0%

Lastly, **Table 13** investigates the occurrence of migraines among the study participants, showing how this neurological symptom varies in prevalence depending on the contraceptive method used, with a slightly higher incidence among those using combined methods.

Table 13. Association between Type of method and Migraine.

		Migraine		Total
		yes	no	
Type of method	oral contraceptive pills	46	107	153
		30.1%	69.9%	100.0%
	injectable contraceptive (medroxy progesterone)	19	42	61
		31.1%	68.9%	100.0%
	both	21	35	56
		37.5%	62.5%	100.0%
Total		86	184	270
		31.9%	68.1%	100.0%

DISCUSSION

Women's capacity to restrict and spread out pregnancies is greatly impacted by their health and well-being [8]. Every form of contraception has pros and cons, and no single technique is suitable for every user. Since their introduction in 1961, oral contraceptive pills (OCPs) have emerged as the most widely used technique globally. However, because of health concerns, consumption has decreased in developed nations like Russia, Germany, and Italy [9,10,11,12].

Concern has been raised regarding the associations between oral tablets and the risk of cardiovascular illnesses, which is lower among non-smokers and women under 35. Different age groups have different preferences for different methods. Oral contraceptive tablets are the most popular technique (43.1%), followed by depomedroxy progesterone (17.2%) and intrauterine devices (23.9%). Women between the ages of 30 and 40 use the majority of contraceptives, with 38.8% and 43% of them using OCP [13,14,15].

This study found that 22% of customers over 35 used oral contraceptives more frequently than those using other methods, including those between 35 and 45. This is not a safe approach for this age range, particularly if they have hypertension. Intrauterine devices rank second (23.9%), with 29% of users being between the ages of 30 and 39 [16,17]. The availability of OCP, the impression of mild side effects, and the absence of regular follow-ups all contribute to this decision [18].

Because they believe it to be a permanent, reversible, and safe technique, women with lower levels of education are more likely to utilize contraceptives. Like earlier research conducted in Jordan and Tikrit Teaching Hospital, the majority of users are housewives [19].

According to the study, mood swings are strongly correlated with the kind of contraception used, and the majority of women who take oral contraceptive pills have a number of adverse effects [20]. For women to continue taking tablets to avoid unintended pregnancies, these emotional swings are crucial. However, these problems are frequently not sufficiently addressed in warning statements on pill packets, which might endanger women's reproductive health in particular as well as their overall health [21,22].

Health issues, side effects, anxiety, false information, insecurity, and sexual dissatisfaction are some of the obstacles that prevent people from using oral contraceptive tablets. Compared to earlier research, the incidence of gastrointestinal side effects was lower for OCCP users (54.7%) and DMPA users (17.4%). Additionally, 17.4% of OCCP users reported feeling queasy, which was greater than the 1.3% observed in prior research and the 1.2% recorded in FDA clinical trials [23].

Amenorrhea, breakthrough bleeding, and irregular menstruation were among the complications of menstrual disturbances that increased from 18.5% in DMPA users to 56.0% in OCCP users. Poor adherence to the various formulations employed may be the cause of this high proportion. It was shown that OCCP users gained more weight, 59.0% and 19.7%, respectively, which suggests that oral contraceptives are more likely to cause weight gain than injectable ones [24].

According to the study, 75.0% of patients with higher educational attainment and 62.9% of patients who told their doctors about appropriate family planning techniques were illiterate. Health professionals and family members provided the majority of the information, while the media had no part in public education. The promotion and acceptability of contraception in other nations are significantly influenced by the mass media [25].

CONCLUSION

Most of the study's customers were in the 30- to 39-year-old age range. About 38% of respondents said that the following were the most often used methods: 43.1% for ocp, 23.9% for IUDs, and 17.2% for depomedroxy progesterone (DMPA) (15.8%). In terms of the other demographic characteristics, 48.5% were educated to the elementary school level, and 73.8% were housewives. According to the findings analysis, the most frequent adverse effects were mood changes (43.1%), followed by menstruation irregularities (38%), weight changes (33%), migraine, GIT problems, arthritis, breast soreness, and skin pigmentations. Most clients made their birth control choices based on their doctor's advice, which highlights the need of appropriate medical counseling and health education.

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