

## Counseling Program for Married Women Regarding Emergency Contraceptive Methods

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### Abstract

**Background:** Emergency contraception is known as the type of contraception that is used as an emergency measure to avoid unplanned pregnancy following unprotected sexual intercourse. **Aim:** The study aimed to evaluate the effect of counseling programs for married women regarding emergency contraceptive methods. **Setting:** Family medicine centers affiliated to El Zawia El-Hamra area at Cairo Governorate. **Sample:** A simple random sample includes 186 married women of reproductive age. **Method:** A quasi-experimental design was used. **Tools:** First tool: A structured interviewing questionnaire consisting of four parts was used. **Part I:** To assess the socio-demographic characteristics of married women, **Part II:** To assess married women's reproductive history **Part III:** To assess married women's family planning history, and **Part IV:** To assess knowledge about emergency contraception methods. **Second tool:** To assess married women's attitudes about emergency contraception methods. **Third tool:** To assess married women's intention and willingness to use emergency contraceptive methods **Results:** The current study showed a highly statistically significant difference between the married women's total knowledge and their attitude regarding emergency contraceptive methods pre/post counseling program. **Conclusion:** Findings of this study concluded that there was poor knowledge about the emergency contraceptive methods among married women, at reproductive age, which in turn affected their attitudes towards using them. Highly statistically significant improvements occurred in the total score of knowledge and their attitudes post-counseling program. As well, following the implementation of the counseling program, women's intention to use emergency contraceptive methods increased. **Recommendations:** Improving family planning program information about emergency contraceptive methods, education and communication activities for husbands and wives through mass media and a clear language booklet, and simplified brochures and increasing awareness among the general public and health care providers.

**Keywords:** Contraception, emergency, married women.

### Introduction

Contraception works by interfering with the natural steps of getting pregnant, including ovulation, fertilization, and implantation. Women choose birth control based on various factors like effectiveness in preventing pregnancy, safety for their health, additional benefits beyond preventing pregnancy, affordability, and personal preferences. Different methods target different stages in the pregnancy process. Each method has its potential side effects and some are more reliable than others. (Glasier, 2021).

Emergency contraception refers to any

device or drug that is used as an emergency procedure to avoid pregnancy afterwards unprotected sexual relations. Reportedly, around 20 percent of pregnancies globally are not planned. The estimated total number of unsafe induced abortions performed every year is almost 20 million, or nearly half. Developing nations account for 95% of these cases. (Gerdt et al., 2022).

Emergency contraception can easily be used postictal to prevent pregnancy and has the potential of reducing women's risk of unplanned pregnancies. The consequences of these unintended pregnancies, particularly where abortion is legally restricted, may be life-threatening due to unsafe abortion procedures

(Grimes & Raymond, 2022).

Females can use emergency contraception, a kind of birth control, to avoid becoming pregnant up to five days after unprotected sex. The best period to take emergency contraception is 72 hours after unprotected sex. In every case, the effectiveness of the emergency contraception boosts with the exact time of using it (CDC, 2021).

Emergency contraceptive pills sometimes called "after morning" pills or post coital contraceptives, work primarily by preventing or delaying the release of eggs from the ovaries (ovulation). They do not work if a woman is already pregnant. Emergency contraception (EC) can prevent up to over 95% of pregnancies when taken within 5 days after intercourse (WHO, 2021).

Although there are numerous emergency contraceptive methods accessible, only six have been clinically used. These involve high-dose estrogens, progestogen-only (levonorgestrel) pills, progestogen-combination pills (Yuzpe regime), IUCD, danazol, and mifepristone. The modern EC pills are sold in Egypt under the trade name Contra Plan II (two tablets that include 0.75 mg of levonorgestrel taken together). (Elnasr et al., 2021).

Progestin-only ECPs are preferred because they work better and have milder side effects than the older kind. These pills work best the sooner you take them after unprotected sex. The longer you wait the less effective they become. The original way to take them was two doses, each 0.75 milligrams, within 72 hours of sex with the second dose 12 hours after the first. (Elnasr et al., 2021).

While some Middle Eastern countries, including Egypt, have had emergency contraception available for a long time, many others in the region still lack access to it. This is due to various concerns, such as the belief that these pills might: encourage risky sexual behavior, spread sexually transmitted infections, be a form of abortion, be too expensive, harm babies, or lead to pregnancies outside the womb. Additionally, some fear that easy access

might make women less careful with regular birth control methods, and question their effectiveness in reducing unwanted pregnancies. (Wanamo et al., 2021).

Copper IUDs are highly effective emergency contraception, with a low failure rate of about 0.1%. They are considered the most effective method recently available and are especially suitable in situations where other emergency contraception might be less effective, such as for women who are obese, highly fertile, or have frequent unprotected sex. (Ibrahim et al., 2022).

Community health nurses (CHNs) are a cornerstone of primary healthcare. They have responsibility for promoting health through education, providing follow-up across different settings, and supporting in managing care. This wide range of duties is reflected in how CHNs are defined. They're not just involved in health promotion activities like teaching, counseling, and community outreach, but also in policy and management. This includes developing policies, planning programs, evaluating initiatives, advocating for change, and supporting the creation of effective national health responses tailored to every country's unique context, priorities, and needs. (Gerdtts et al., 2022).

### Significance of Study

A woman could get pregnant accidentally shortly after giving birth owing to a lack of awareness, which carries health risks and raises the possibility of complications as well as miscarriage. Child spacing is still a problem, particularly for young moms. Around twenty percent of births take place within 24 months of the prior one (UNFP, 2022).

Globally, around fifty-five million pregnancies that occur every year are considered unintended. Twenty million out of those unintended pregnancies end by unsafe abortion. Ninety-seven percent of those abortions occur in developing countries. A recent survey in Egypt found that 60% of women use some form of contraception. However, 25% of women stop using their chosen method within a year due to concerns

about effectiveness, side effects, or other reasons. (Glasier, 2021). The Central Agency for Public Mobilization and Statistics (CAPMAS, 2021) said that the Total Fertility Rate for ever-married women aged 15 to 49 was 2.85 percent in 2021.

As per the 2015 Egypt Demographic as well as Health Survey, the majority of married women are aware of IUDs, pills, injectables, and implants. The percentage of women who recognize emergency contraception is only 14.7%. This suggests that women are still not well-informed about this kind of birth control. Empowering women with knowledge about family planning methods (EC) can lead them to feel more informed and involved in their reproductive health choices. This, in turn, can positively influence their views on EC and encourage them to utilize it when needed. Evaluating and strengthening women's awareness and attitudes towards contraception is crucial for promoting healthy motherhood and protecting their overall well-being, especially when it comes to reproductive health risks. (Ministry of Health and Population 2018; Nyirenda & Besa, 2019).

### **Aim of the study**

The study aimed to evaluate the effect of counseling programs on married women's knowledge and attitudes at reproductive age regarding emergency contraceptive methods through:

1. Assessing married women's knowledge at reproductive age about emergency contraceptive methods.
2. Assessing married women's attitudes at reproductive age toward emergency contraceptive methods.
3. Assessing married women's intention and willingness at reproductive age to use emergency contraceptive methods.
4. Designing and implementing counseling programs based on health needs and problems during reproductive age regarding emergency contraceptive methods.

5. Evaluating the effect of counseling programs on married women's knowledge and attitudes at reproductive age regarding emergency contraceptive methods.

### **Research Hypothesis**

The current study hypothesized that the counseling program will improve married women's knowledge and attitudes regarding emergency contraceptive methods.

### **Subjects & methods**

#### **Study design:**

A quasi-experimental design was utilized to collect the data relevant to this study.

#### **I. Technical Design:**

The technical design includes; the settings, subjects, and tools used in the study.

#### **Settings:**

The study was conducted at family medicine centers affiliated to El Zawia El-Hamra Health Unit in Cairo Governorate, which was chosen because of the high frequency of married women at reproductive age in this area, and the fact that it serves the largest portion of the population from slums areas and includes four family medicine centers, from which two centers were chosen for The conduction of the study (Third El-Zawia Center, and New El-Zawia Center).

#### **Sampling:**

#### **Type:**

A simple random sample was used

#### **Size:**

The study samples included 186 married women of reproductive age registered in the previously mentioned family medicine centers (affiliated with the Ministry of Health) and were attending the centers to receive health services, in the period, starting from February 2023 until

July 2023, (89 from Third El-Zawia Center and 97 from New El-Zawia Center), the number was based on the frequency of married women in the previous settings.

**The sample was calculated according to the power analysis formula as follows:**

$$n = \left( \frac{Z_{1-\alpha/2} + Z_{1-\beta}}{ES} \right)^2$$

Where the standard normal deviates for  $\alpha = Z\alpha = 1.960$  and the standard normal deviates from  $\beta = Z\beta = 1.2816$ .

$$n = 2.100$$

$$Z_{1-\alpha/2} = 10.5074.$$

$$Z_{1-\beta} = 0.0567.$$

$$ES = 185.3509.$$

Based on the above formula, the sample size is 186 (Rosner, 2016).

### Tools of the study

Data were collected through:

#### Tool I: A structured Interviewing Questionnaire:

The team of researchers developed it according to their knowledge, the views of experts, and the most recent review of related literature. It included four parts:

**Part I:** This part involved questions related to socio-demographic characteristics of married women at reproductive age like age, number of children, educational level, number of family numbers, occupation, and monthly income.

**Part II:** This part included questions related to the reproductive history of women such as gravida, parity, abortion, occurrence of pregnancy, and causes of unintended pregnancy.

**Part III:** This part included questions

related to the family planning history of women of reproductive age such as types of contraceptive methods used, the first time they heard something about emergency contraceptive methods, the source of hearing about emergency contraceptive methods, etc.

**Part IV:** This part is used to assess the married women's knowledge at reproductive age about emergency contraceptive methods. This included 20 closed-ended questions regarding the concept of emergency contraceptive methods, indications, types, time, time lag side effects, etc. This tool, adopted from Wanamo et al. (2021), and modified by the researchers, was used twice (pre/post-program).

#### ❖ Scoring system:

The answers of women were cross-coded with the model's main answers prepared by the researchers. Every correct answer had one score and an incorrect answer had a zero score. The total knowledge score was 42 grades because some of the questions had more than one answer. These scores were summed -up and categorized into two levels: 50% and more (21-42 points) were considered satisfactory and less than 50% (0-20 points) were considered unsatisfactory.

**Tool II:** Assessment of married women's attitudes related to emergency contraceptive methods, this included 10 statements regarding the legality of emergency contraceptive methods, religion, objections, cost, etc. This tool was adopted from Wallace et al. (2021), and modified by researchers, was used twice (pre/post-program).

#### ❖ Scoring system:

Likert scale women's attitudes score: (3) agree, (2) neutral, (1) disagree. The total scores equal 30 degrees, 50% and more (15- 30 points) were considered positive, and less than 50% (0-14 points) were considered negative.

**Tool III:** The Intention and Willingness of married women to use emergency contraceptive methods post-counseling

programs like fears about using emergency contraceptive methods and recommendations of emergency contraceptive methods to friends, was adopted by **Wallace et al. (2021)** and modified by the researchers.

## **II. Operational Design:**

### **Preparatory phase:**

A review of recent, past, national, and international literature or various aspects related to the topic was done using articles, textbooks, and internet searches to become familiar with the research problem and to develop the tools of the study.

### **Content validity:**

It was ascertained by a group of five experts from the Family and Community Health Nursing Department, Faculty of Nursing, Ain Shams University. Their opinions were elicited regarding the format, layout, consistency, accuracy, and relevancy of the tools' contents. The required modifications were carried out accordingly.

### **Reliability:**

The tool's level of moderate to high reliability was determined by Cronbach's Alpha coefficient test, and it also revealed that the tools' items were generally homogeneous. When Cronbach's alpha coefficient for the questionnaire was calculated, it was found to be 0.832 for items, indicating the strong reliability of the tools.

### **Pilot study:**

To test the applicability, clarity, and possibility of the study's process, the study was conducted on 19 married women, which representing 10% of the sample, in the previously mentioned settings. In addition, the pilot helped determine how long it would take every participant to complete the questionnaires. The pilot study confirmed the tools functioned effectively without needing adjustments, so these piloted women were included in the main study sample. However,

these women needed a program to improve their pre-unsatisfactory knowledge, their negative attitudes and their intentions, and their willingness to use emergency contraceptive methods post-counseling program.

### **Fieldwork:**

The director of El-Zawia El-Hamra Health Unit received an official letter from the dean of Ain Shams University's faculty of nursing, which included the study's title and purpose. It was then sent to the directors of the Third El-Zawia Center and the New El-Zawia Center, where the study was to be conducted, to obtain permission for data collection.

Following the selection of the married women, 186 married women were included (89 from the Third El-Zawia Center and 97 from the New El-Zawia Center). The researchers introduced themselves to the women they were studying, and the researchers who were present in the previously mentioned study settings three days a week from 9:00 a.m. to 12:00 p.m. talked about the objectives and importance of the study. Two or three women were met by the researchers every day. Data were gathered from the studied women via questionnaires and interviews over six months, starting in February 2023 and finishing in July 2023. The interview questionnaires took between 15 and 30 minutes to complete for each participant.

The women in the study gave their formal consent to participate. The researchers gave the women questionnaires to fill out and explained each question before they answered.

Pre- and post-tests were given to the women under study twice to evaluate the married women's knowledge and attitudes after the counseling program. The researchers had counseling sessions with married women at the Third El-Zawia Center from the beginning of February 2023 to the end of April 2023, and at the New El-Zawia Center from the start of May 2023 to the end of July 2023.

### III. Ethical considerations:

The researchers ensured the study was conducted ethically. They got approval from the Ain Shams University Faculty of Nursing's ethics committee. They also discussed ethical considerations with health unit directors and head nurses of each setting. Before starting the study, the researchers explained the goals of the research to married women of childbearing age who volunteered to participate. These women then provided formal consent to be included in the study. The researchers made sure that the subjects' data could be handled privately and anonymously. The married women were informed that they could choose to take part in the study or not, and that they could stop at any time, for any cause.

### IV. Administrative Design

To gain approval to conduct the study, a formal letter outlining the research and its objectives was sent from the Dean of the Faculty of Nursing at Ain Shams University. The letter was addressed to the Director of El-Zawia El-Hamra Health Unit and subsequently forwarded to the directors of both Third El-Zawia Center and New El-Zawia Center, where the study would take place.

#### Counseling Program Instruction:

It was implemented through four phases:

#### Phase I: Program Development

An extensive review of relevant recent, current, national, and international related literature was done. The sources were books, articles in periodicals and magazines, as well as, online search on various aspects of emergency contraceptive methods. Accordingly, the program was designed by the researchers as well, on the results obtained from the pre-test results.

#### Phase II: Assessment

Researchers assessed the needs of married women of childbearing age in various locations. They used a pre-test to gather

information about the women's knowledge and attitudes towards emergency contraception (EC). The pre-test took women 20-25 minutes to complete and was administered three days a week for three weeks at each location. This process lasted a total of 6 weeks.

#### Phase III: Program Implementation

The program rollout four months and half, in the two settings. Each setting took nine weeks to implement this program. This involved conducting sessions meticulously planned with diverse educational methods and media. Researchers conducted a five-week program for small groups of women (2-3) at family medicine center receptions. Each session lasted 15-30 minutes and aimed to build trust and ease any anxieties the women might have felt. The program began with an introduction explaining its goals and purpose. Starting from the second session onwards, each session included a clear and concise overview of the previous session's content and the objectives of the upcoming one, ensuring the language used was appropriate for the participating married women. In addition, an instructional supportive booklet was distributed to women who participated in the study and they were shown real equipment available in the centers. Each session concluded with a summary of the discussion, time for questions and answers, and a plan for the next session. This was not done for the final session, as it ended with feedback on the overall process.

#### Supportive materials:

The program materials were provided in a clear and concise Arabic booklet with pictures to aid understanding. The researchers used a variety of teaching methods, including discussions and lectures. Also, they employed various media formats, such as pamphlets, the centers' available equipment, and videos.

#### Phase IV: Program Evaluation

This phase measured how much married women learned, their opinions changed, and their willingness to act differently after the program. They were tested after the program ended. The researchers also looked for any

commonalities, variations, strengths, and weaknesses in the program's effects. This all happened one week after the program was completed.

#### IV. Statistical Design

The researchers entered the coded data from their study into a computer program called SPSS (version 22) to analyze it. They used basic statistics like frequencies, means, and standard deviations to describe the data. They also used chi-square to compare data from two groups (likely before and after a program) and Pearson's correlation to assess the relationships between two continuous variables. They considered results statistically significant at  $p < 0.05$  and highly significant at  $p < 0.001$ .

#### Results

**Table (1):** presents the socio-demographic characteristics of married women. It clarifies that the mean of married women's age included in the study was  $33.15 \pm 5.60$ . Concerning married women's level of education, 37.6% of them were in secondary education, while 4.3% of them were illiterate. About their occupation, 73.1% of married women were housewives. As well, 60.2% had insufficient monthly income for their needs.

**Table (2):** reveals that 64.5% of the married women were gravida three or more and 55.4% of them were multi-para. About abortion, 18.8% of them had an abortion. According to the occurrence of pregnancy, 30.6% of the studied sample had unintended pregnancy and 67.2% of them forgot to take contraceptive pills as a cause of unintended pregnancy.

**Table (3):** reflects that, 94.1% of married women use contraceptive methods and 49.7% of them use pills. Regarding hearing about emergency contraceptive methods 38.7% of them heard about it, of these 66.7% the first time they heard about them, was less than 6 months ago.

**Figure (1):** demonstrates that 31.9% of married women heard about emergency contraceptive methods from social media.

**Figure (2):** shows that 62.9% of married women had a lack of knowledge about the causes of not using emergency contraceptive methods.

**Figure (3):** reveals that 24.2% of married women used pills as emergency contraceptive methods before the program, while after the program, 37.6% used them. , 10.7% of them used IUCD before the program, while 13.4% used it after the program.

**Table (4):** presents the distribution of married women's knowledge pre/post counseling program regarding emergency contraceptive methods. It shows a significant improvement in married women's knowledge pre/post-program regarding the concept of emergency contraceptive methods and several taking emergency contraceptive methods (6.5%, 78% & 9.7%, and 79% respectively). Regarding types of emergency contraceptive methods that are currently available in Egypt and side effects of insertion emergency IUCD (21.5%, 75.3%, & 6.5%, 72.6% respectively). There were highly statistically significant differences between pre/post-counseling programs ( $P < 0.001$ ).

**Figure (4):** shows the total level of married women's knowledge regarding emergency contraceptive methods pre/post counseling program. It reveals that 20.4% of married women had a satisfactory level of total knowledge; pre-program. On the other hand, 69.9% had a satisfactory level of total knowledge post-counseling program with highly statistically significant improvement ( $P < 0.001$ ).

**Table (5):** clarifies attitudes toward using emergency contraceptive methods and reflects that agreeing about its use is legal, and they would not feel embarrassed obtaining emergency contraceptive methods If a couple has sex without using protection, emergency contraception can help prevent pregnancy, in preprogram (23.1%, 24.2% & 20.4%) respectively, while improved to (76.3%, 76.4 & 75.3%) respectively in post-program. There were highly statistically significant differences between pre and post-tests regarding all items

with a p-value of <0.001.

**Figure (5):** shows the total level of married women's attitudes pre/post counseling program regarding emergency contraceptive methods. It reveals an improvement in married women's attitudes pre/post program as 22.6% of married women had a positive attitude, pre-program, while, 74.2% had a positive attitude, post-counseling program, with highly statistically significant improvement ( $P < 0.001$ ).

**Table (6):** indicates that 52.2% of married women had the intention to use emergency contraceptive methods after the program and 84.4% will recommend emergency contraceptive methods to friends. According to

fears about using them, 53.2% of them were not afraid.

**Table (7):** detects an association between socio-demographic characteristics of women and total knowledge levels pre/post counseling program, it reveals that there are highly statistically significant differences between educational level and occupation and post-total knowledge ( $P < 0.001$ ).

**Table (8):** displays an association between married women's total knowledge and attitude pre/post counseling program. It reveals there is an association between married women's total knowledge and attitude with a highly statistically significant difference between pre/post counseling programs ( $P < 0.001$ ).

**Table (1): Distribution of Women According to Socio-Demographic Characteristics (n= 186)**

Items	No	%
<b>Age (years)</b>		
16≤26	68	36.5
26≤36	106	57.0
36 ≤ 45	12	6.5
<b>Mean ±SD</b>	33.15 ±5.60	
<b>Number of children</b>		
1 – 2	108	58.1
3 – 4	64	34.4
5 or more	14	7.5
<b>Educational level</b>		
Illiterate	8	4.3
Primary school	20	10.8
Preparatory	22	11.8
Secondary	70	37.6
University	66	35.5
<b>Number of family members</b>		
Four	66	35.5
Five	74	39.8
Six	46	24.7
<b>Occupation</b>		
Working	50	26.9
Housewife	136	73.1
<b>Monthly income</b>		
Sufficient	74	39.8
Insufficient	112	60.2



**Table (2): Distribution of Women According to Their Reproductive History (n= 186)**

Items	No	%
<b>Gravida</b>		
1 – 2	66	35.5
3 or more	120	64.5
<b>Mean ± SD 2.6 ± 1.7</b>		
<b>Parity</b>		
Primi para	83	44.6
Multi para	103	55.4
<b>Mean ± SD 2.2± 1.4</b>		
<b>Having abortion</b>		
Yes	35	18.8
No	151	81.2
<b>Occurrence of Pregnancy</b>		
Intended	129	69.4
Unintended	57	30.6
<b>Causes of unintended Pregnancy (n=57)</b>		
Contraceptive Failure	52	28.0
Forget to take contraceptive pills	125	67.2
Avoid using a contraceptive method	9	4.8

**Table (3): Distribution of Women According to Their Family Planning History (n= 186)**

Items	No	%
<b>Using contraceptive method</b>		
Yes	175	94.1
No	11	5.9
<b>Types of contraceptive methods used (n=175)</b>		
Pills	87	49.7
Injectable	21	12.0
Condoms	10	5.7
IUD	54	30.9
Calendar (rhythm)	3	1.7
<b>Hearing about emergency contraceptive methods</b>		
Yes	72	38.7
No	114	61.3
<b>The first time I heard something about emergency contraception (n= 72)</b>		
Less than 6 months ago	48	66.7
6 – 11 months ago	13	18.1
1 – 5 years ago	11	15.2

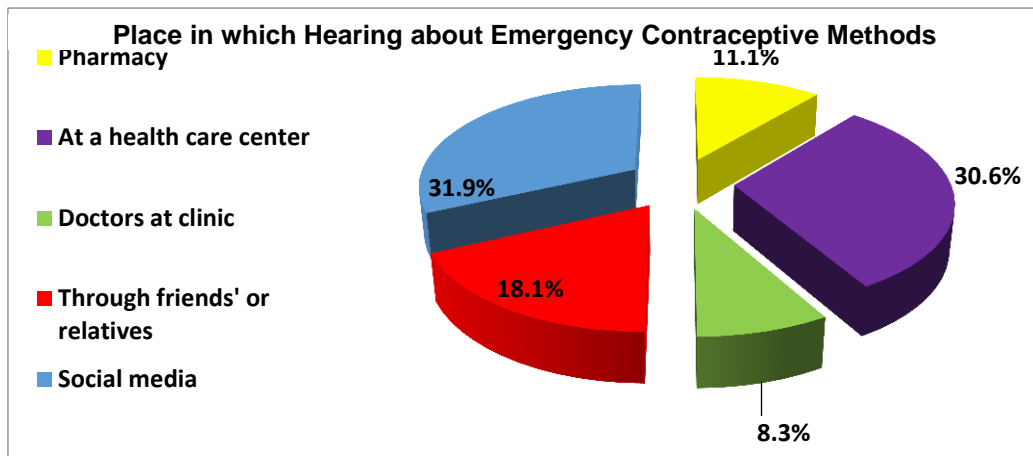


Figure (1): Distribution of Women According to Place in which Hearing about Emergency Contraceptive Methods (n= 72).

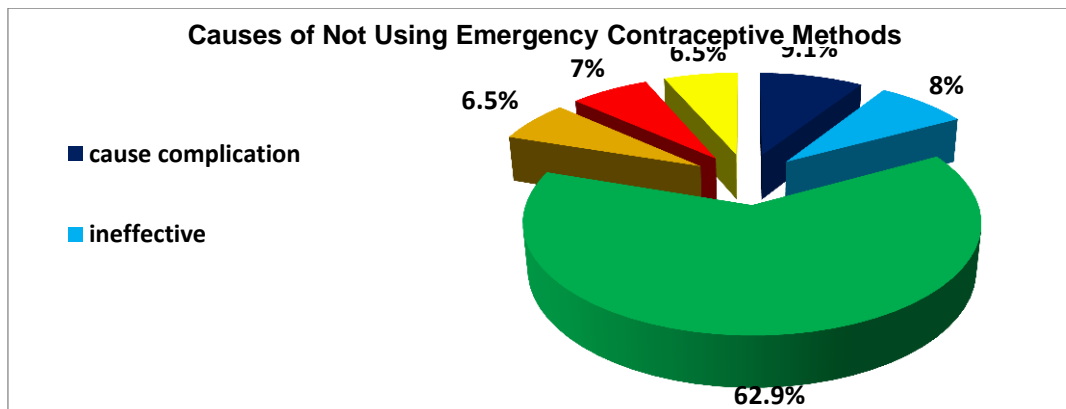


Figure (2): Distribution of Women According to Causes of Not Using Emergency Contraceptive Methods (n= 186).

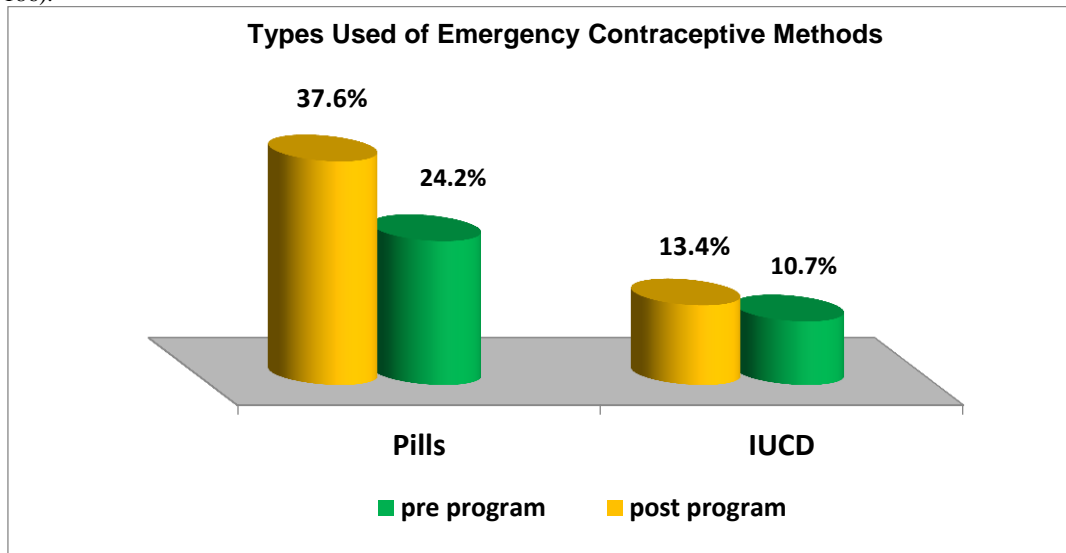
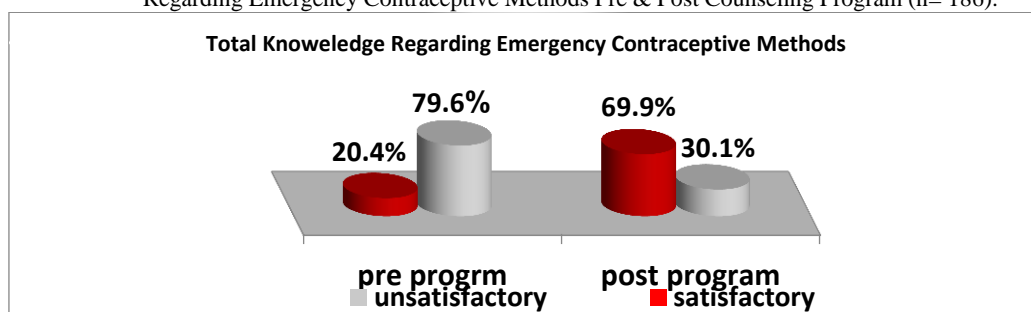


Figure (3): Distribution of Women According to Types Used of Emergency Contraceptive Method Pre & Post Counseling Program (n= 186).

**Table (4): Distribution of Women According to Their Satisfactory Score Level of Knowledge Regarding Emergency Contraceptive Methods Pre & Post Counseling Program (n= 186).**

Items	Pre – Intervention				Post-intervention				Chi-Square	
	Satisfactory		Unsatisfactory		Satisfactory		Unsatisfactory		X <sup>2</sup>	P
	No	%	No	%	No	%	No	%		
Concept of emergency contraceptive methods	12	6.5	174	93.5	145	78.0	41	22.0	180.326	<0.001**
Prescription to get emergency contraceptive methods is necessary	91	48.9	95	51.1	139	74.7	47	25.3	26.243	<0.001**
Place of getting emergency contraceptive methods	56	30.1	130	69.9	141	75.8	45	24.2	77.961	<0.001**
Efficacy of emergency contraceptive methods in preventing a pregnancy	4	2.2	182	97.8	135	72.6	51	27.4	197.113	<0.001**
Indications of emergency contraceptives	36	19.4	150	80.6	134	72.0	52	28.0	104.039	<0.001**
Number of emergency contraceptive methods	18	9.7	168	90.3	147	79.0	39	21.0	181.246	<0.001**
Working on emergency contraceptive methods if there is a menstrual delay	40	21.5	146	78.5	141	75.8	45	24.2	109.767	<0.001**
Working on emergency contraceptive methods during fertile days	80	43.0	106	57	141	75.8	45	24.2	41.479	<0.001**
Emergency contraceptive methods cause weight gain	36	19.4	150	80.6	140	75.3	46	24.7	116.638	<0.001**
Emergency contraceptive methods cause abortion	47	25.3	139	74.7	140	75.3	46	24.7	93.003	<0.001**
Emergency contraceptive methods reduce the risk of contracting sexually transmitted diseases	55	29.6	131	70.4	139	74.7	47	25.3	76.012	<0.001**
Types of emergency contraceptive methods are currently available in Egypt	40	21.5	146	78.5	140	75.3	46	24.7	107.639	<0.001**
Drug containing used in emergency contraceptive pills	28	15.1	158	85.9	135	72.6	51	27.4	125.019	<0.001**
Time of taking emergency contraceptive pills, after unprotected sex	48	25.8	138	74.2	139	74.7	47	25.3	89.046	<0.001**
The time lag between the first and the second dose of emergency contraceptive pills	53	28.5	133	71.5	147	79.0	39	21.0	95.552	<0.001**
Side effects of taking emergency contraceptive pills	36	19.4	150	80.6	137	73.7	49	26.3	110.227	<0.001**
Contraindications of taking emergency contraceptive pills	47	25.3	139	74.7	139	74.7	47	25.3	91.011	<0.001**
Time of insertion of emergency contraceptive IUCD	51	27.4	135	72.6	143	76.9	43	23.1	91.179	<0.001**
Side effects of insertion of emergency IUCD	12	6.5	174	93.5	135	72.6	51	27.4	170.158	<0.001**
Contraindications of insertion of emergency IUCD	52	28	134	72.0	145	78	41	22.0	93.326	<0.001**

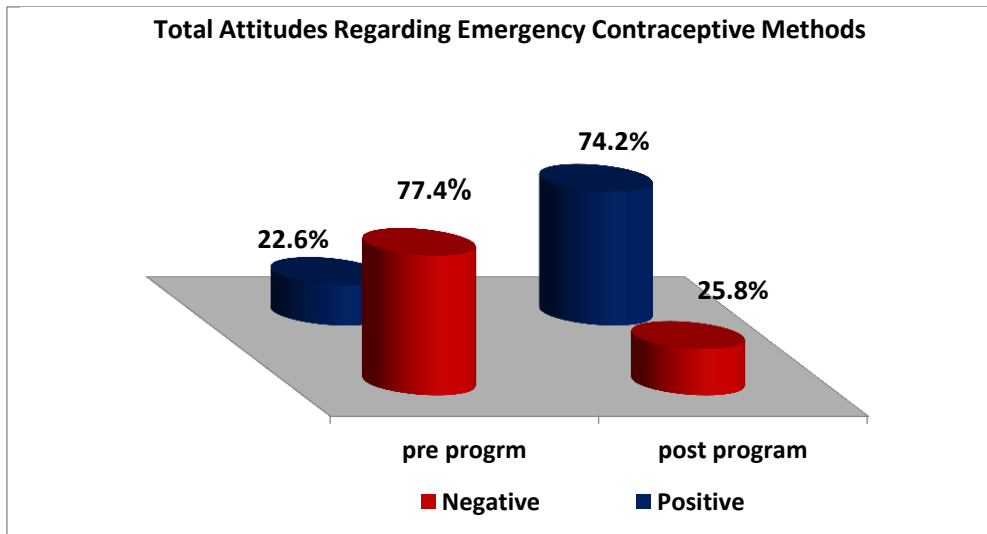
**Figure (4):** Distribution of Women According to Their Satisfactory Score Level of Total Knowledge Regarding Emergency Contraceptive Methods Pre & Post Counseling Program (n= 186).

$\chi^2 = 91.871$  p- value < 0.001 (HS)

**Table (5):** Distribution of Women According to Their Positive Attitudes Regarding Emergency Contraceptive Methods Pre & Post Counseling Program (n= 186).

Items	Pre – Intervention						Post – Intervention						Chi-Square	
	Agree		Neutral		Dis agree		Agree		Neutral		Dis agree		$\chi^2$	P
	No	%	No	%	No	%	No	%	No	%	No	%		
Its use of emergency contraceptive methods is legal	43	23.1	27	14.5	116	62.4	142	76.3	7	3.8	37	19.9	105.390	<0.001**
I do not have religious objections to emergency contraceptives	49	26.3	19	10.2	118	63.5	140	75.3	5	2.7	41	22	89.066	<0.001**
I would not feel embarrassed obtaining emergency contraceptive methods	45	24.2	25	13.4	116	62.4	142	76.4	12	6.4	32	17.2	101.175	<0.001**
It will not result in more women suffering from STDs and even AIDS	32	17.2	27	14.5	127	68.3	138	74.2	11	5.9	37	19.9	121.718	<0.001**
It is impossible to use the emergency contraceptive pills as routine contraceptive methods	34	18.3	12	6.4	140	75.3	140	75.3	10	5.4	36	19.3	121.322	<0.001**
If a condom breaks during sex, emergency contraception can be used to prevent pregnancy.	43	23.1	18	9.7	125	67.2	138	74.2	9	4.9	37	19.9	97.113	<0.001**
If a couple has sex without using protection, emergency contraception can help prevent pregnancy.	38	20.4	23	12.4	125	67.2	140	75.3	13	7	33	17.7	112.078	<0.001**
Couples know they can use emergency contraception to prevent pregnancy after unprotected sex or if their contraceptive method fails.	45	24.2	13	7	128	68.8	134	72.0	18	9.7	34	18.3	85.293	<0.001**
Affordability is a major barrier to using emergency contraception.	42	22.6	26	14	118	63.4	142	76.3	10	5.4	34	18.3	107.539	<0.001**
People can take greater risks when emergency contraception is easily accessible without a prescription because there always remains a backup plan in place.	43	23.1	30	16.1	113	60.8	137	73.7	14	7.5	35	18.8	95.110	<0.001**

**Figure (5):** Distribution of Women According to Their Total Attitude Level Regarding Emergency Contraceptive Methods Pre & Post Counseling Program (n= 186).



$X^2 = 99.200$  p- value < 0.001 (HS)

**Table (6):** Distribution of Women According to Their Intention & Willingness to Use Emergency Contraceptive Methods after Implementation of the Counseling Program: (n= 186)

Item	No	%
<b>Willingness to use emergency contraceptive methods after program</b>		
Yes	97	52.2
No	52	27.9
Not now, but maybe in the future	37	19.9
<b>Husband would be behind you if necessary to use</b>		
Yes	113	60.8
No	48	25.8
Don't know	25	13.4
<b>Will you recommend emergency contraceptive methods to your friends?</b>		
Yes	157	84.4
No	29	15.6
<b>Fears about using emergency contraceptive methods</b>		
Not afraid	99	53.2
No concerns	21	11.2
Impacts on one's health	20	10.8
Can harm the baby if one gets pregnant	16	8.6
Can cause abortion	18	9.7
This can lead to complications in the next pregnancy	12	6.5

Table (7): Association between Socio-demographic Characteristics of Women &amp; Their Total Knowledge Level Pre &amp; Post Counseling Program (n= 186).

Socio-demographic Characteristics	Total Knowledge Level							
	Pre – Intervention				Post – Intervention			
	Unsatisfactory knowledge (n=148)		Satisfactory knowledge (n=38)		Unsatisfactory knowledge (n=56)		Satisfactory knowledge (n=130)	
	No	%	No	%	No	%	No	%
<b>Age (Years)</b>								
16 < 26	54	36.5	14	36.8	17	30.4	51	39.2
26 < 36	86	58.1	20	52.6	34	60.7	72	55.4
36 - ≥ 45	8	5.4	4	10.5	5	8.9	7	5.4
<b>Fisher's value (P – value)</b>	1.389 (0.499)				1.800 (0.407)			
<b>Number of children</b>								
1 – 2	83	56.1	25	65.8	31	55.4	77	59.2
3 – 4	51	34.5	13	34.2	24	42.9	40	30.8
5 or More	14	9.5	0	0.0	1	1.8	13	10.0
<b>Fisher's value (P – value)</b>	4.086 (0.130)				5.272 (0.072)			
<b>Educational level</b>								
Illiterate	8	5.4	0	0.0	8	14.3	0	0.0
Primary school	14	9.5	6	15.8	19	33.9	1	0.8
Preparatory	18	12.2	4	10.5	18	32.1	4	3.1
Secondary	54	36.5	16	42.1	5	8.9	65	50.0
University	54	36.5	12	31.6	6	10.7	60	46.2
<b>Fisher's value (P – value)</b>	3.708 (0.447)				117.948 (<0.001**)			
<b>Number of family members</b>								
Four	56	37.8	10	26.3	19	33.9	47	36.2
Five	57	38.5	17	44.7	23	41.1	51	39.2
Six	35	23.6	11	28.9	14	25.0	32	24.6
<b>The chi-square value (P – value)</b>	1.769 (0.413)				0.090 (0.956)			
<b>Occupation</b>								
Working	39	26.4	11	28.9	5	8.9	45	34.6
Housewife	109	73.6	27	71.1	51	91.1	85	65.4
<b>The chi-square value (P – value)</b>	0.104 (0.747)				13.139 (<0.001**)			
<b>Monthly income</b>								
Sufficient	60	40.5	14	36.8	23	41.1	51	39.2
Insufficient	88	59.5	24	63.2	33	58.9	79	60.8
<b>The chi-square value (P – value)</b>	0.173 (0.678)				0.055 (0.814)			

Table (8): Association Between Women's Total Knowledge &amp; Their Total Attitudes Pre &amp; Post Counseling Program (n= 186).

Items	Total Knowledge Level							
	Pre – Intervention				Post – Intervention			
	Unsatisfactory Knowledge (n=148)		Satisfactory Knowledge (n=38)		Unsatisfactory Knowledge (n=56)		Satisfactory Knowledge (n=130)	
	No	%	No	%	No	%	No	%
<b>Attitude Level</b>								
Negative Attitude	118	79.7	26	68.4	35	62.5	13	10.0
Positive Attitude	30	20.3	12	31.6	21	37.5	117	90.0
	$X^2=2.212, P=0.136$				$X^2=56.343, P<0.001**$			

## Discussion

Utilization of emergency contraceptive methods is very useful to decrease unintended pregnancy and unsafe abortion which in turn reduces maternal mortality (**Chaudhary, 2022**). It is an extremely beneficial method for minimizing the risk of unwanted pregnancies following unprotected sexual activity. (**Thongnopakun et al., 2018**)

The findings of this study reported that the mean age of women was  $33.15 \pm 5.60$  years; more than fifty percent of them were aged  $26 \leq 36$  years and had 1-2 children. Approximately one-third was secondary education, about two-fifths were five family members; slightly more than one-quarter of them were working, and approximately two-fifths had sufficient monthly income.

These findings are incongruent with those of the study carried out by **Abraha (2019)**, about "Knowledge of and utilization of emergency contraceptive and its associated factors among women seeking induced abortion in public hospitals", Eastern Tigray, Ethiopia, which revealed that 23.8% of studied sample were 15-19 years old and 62% were working. The present study is also in disagreement with those of the study carried out by **Yeboah et al. (2022)**, about "Factors influencing the use of emergency contraceptives among reproductive age women in the Kwadaso Municipality in Ghana" which reported that the mean age of women was  $24.15 \pm 3.5$  years, 45.83% were 20 to 24 years, 57.06% had enough family income, and 87.6% had three family members.

As regards reproductive history, the present study finding shows that about one-fifth of participants had abortions, and less than one-third had unintended pregnancies. Regarding family planning history, most women use contraceptive methods, about half of the studied sample use contraceptive pills as a family planning method, more than three-fifths did not hear about emergency contraception, and about two-thirds heard for the first time, about emergency contraception, since fewer than 6 months ago.

These findings disagreed with the results of the study carried out by **Hazel, (2020)**, entitled " Knowledge and attitudes about the use of emergency contraception among married women in Tamil Nadu, India", which reflected that 24.3% had an abortion, 26.7% had unintended pregnancy, 67.7% used contraceptive methods, 76.8% of them used contraceptive pills and 65% heard about it from one year.

The current study result reflects that less than one-third of women under study heard about emergency contraception through social media. This result is in disagreement with those of the study carried out by **Chaudhary, (2022)**, who conducted a study on "Knowledge, attitude, and practice towards emergency contraceptive pills and factors hindering its use among females of reproductive age group visiting urban health center at Rajbiraj in Nepal", which reflected that 56.9% heard about emergency contraception through the internet.

This previous finding relatively agreed with that of the survey conducted by **Ekhtiari et al. (2018)**, about "knowledge and attitude toward emergency contraceptive methods among married women in reproductive age group in Jundishapur, India", which revealed that 61.4% of respondents were unaware about emergency contraceptive methods. On the other hand, the present study findings contradicted the study carried out by **Fikadu, (2018)**, about "knowledge and attitude and utilization of emergency contraception among health science and medical students Arab Minch University in Ethiopia", which showed that less than half (45%) of the women had heard about emergency of contraceptive methods.

However, the findings of the present study agreed with that of the study conducted by **Garrett et al. (2018)**, about "Intentions to use emergency contraception: the role of accurate knowledge and information source credibility in America", which reflected that 97% of participants had heard of emergency of contraceptive methods. In this study subjects, nearly half of the married women said that social media was the most popular source of information to learn about emergency contraceptive methods. This could be because

the internet makes it easy to connect and communicate with others. This finding contradicted that of the study conducted by **Lakkawar et al. (2020)**, entitled "Assessment of attitude towards use of emergency contraceptives among antenatal women in America", which showed that, clinicians and electronic media were the most important sources of information about emergency contraceptive methods. However, unverified sources of information can sometimes lead to inaccurate information.

About the causes of not using emergency contraceptive methods, the results of this study clarified that less than one-tenth of the studied sample reported that it was due to fear of side effects. This finding contradicted that of the study conducted by **Thapa et al. (2018)**, entitled "Knowledge, attitude, and Practices of Contraception among the married women of Reproductive Age Group in selected wards at Dhahran Sub-Metropolitan City", who stated that the cause for not using EC as reported by 31.8% of their studied sample was their side effects. Hence, efforts should be made to educate the public about the safety of emergency contraceptive methods.

Women's knowledge regarding emergency contraceptive methods in this study indicated that less than one-tenth of women had satisfactory knowledge about the concept of emergency contraceptive methods and almost one-fifth about indications of it in preprogram implementation. These minorities increased to be more and less than three quarters respectively, post-program implementation, with highly statistically significant differences (P- value <0.001).

In the current study, about women's knowledge regarding to efficacy of emergency contraceptive methods in preventing pregnancy, the number of taking emergency contraceptive methods improved from minority and tenth respectively in preprogram to less than three quarters and more than three quarters with highly statistically significant differences (P-value <0.001). Regarding to time of taking contraceptive pills, time lag between the first and the second dose of emergency contraceptive pills, time of insertion of emergency

contraceptive IUCD, side effects of insertion emergency IUCD, and contraindications of insertion of emergency IUCD, there were highly statistical significant differences (P- value <0.001).

These current study findings are in congruence with those of a very recent study conducted by **Ibrahim et al. (2022)**, about the "Effect of educational program on knowledge and attitude of childbearing women about intrauterine copper device as an emergency contraceptive method in Egypt", who indicated that, 7% of the studied sample in preprogram reached 93.7% in post-program with a highly statistically significant difference. This may be due to a lack of health education programs provided to women regarding emergency contraceptive methods at family planning clinics.

Inconsistent with these study findings are those of a study conducted by **Hassan et al. (2020)**, about the " Effect of an educational guideline on childbearing women's knowledge, attitude and their intention regarding emergency contraceptive use", who reported that 23% 14.9% of the studied sample in preprogram and 67.8% and 60.9% of them in post-program had correct knowledge about the efficacy and indications of emergency contraceptive methods with highly statistically significant differences.

Also, these previous findings disagreed with those of the previous study conducted by **Hassan et al. (2020)**, who reported that there were statistically significant differences between pre and post-program related to several emergency contraceptive methods (24.1% & 42.5%), time of taking emergency contraceptive pills (12.6% & 32.2%) and time lag between the first and the second dose of emergency contraceptive pills (18.4% & 41.4%). In a similar, recent study carried out by **Ibrahim et al. (2022)**, they concluded that there are highly statistically significant differences (P-value < 0.001), between pre and post-program related to the time of insertion of emergency contraceptive IUCD, contraindications of insertion emergency IUCD and side effects of insertion emergency IUCD.



Concerning the total level of married women's knowledge regarding emergency contraceptive methods, about one-fifth of women under study had satisfactory knowledge of preprogram implementation. Meanwhile, in the post-program, it raised to more than two-thirds with a highly statistically significant difference (P-value < 0.001). Similarly, **Hassan et al. (2020)**, concluded that there was a highly statistically significant difference (P-value < 0.001), related to total knowledge about emergency contraceptive methods between pre and post-program. Nonetheless, it's necessary to raise awareness of emergency contraceptive methods by establishing various classes, counseling sessions, and ongoing home visits with women.

About married women's attitude toward emergency contraceptive methods, the present study result revealed that there are highly statistically significant improvements after the counseling program as attitude statements such as; using emergency contraception is an option for preventing a pregnancy after unprotected sexual intercourse or contraceptive failure from almost one quarter to less than three quarters, using emergency contraception in case of a couple did not use any protection during sex from approximately one fifth to slightly more than three quarter and emergency contraception allows people to have riskier risk because there is a backup method easily available from less than one quarter to less than three quarters (P-value < 0.001).

These findings are relatively similar to those of the study conducted by **Tajure. (2020)**, about "Knowledge, attitude and practice of emergency contraception among graduating female students of Jimma University in Southwest Ethiopia", mentioned that almost two-thirds (66%) of respondents who knew about emergency contraceptive methods agreed that they would use emergency contraception after unprotected sexual intercourse and 63% of them agreed to advise friends or relatives to take emergency contraceptives after unprotected sexual intercourse. These results were in agreement with those of the study conducted by **Abd Elmoniem and Abdelhakam, (2018)**, about the "Effect of emergency contraception guidelines intervention on women's knowledge

and attitude in Egypt", who highlighted that more than two-thirds of the study subjects exhibited positive attitude toward using emergency contraception depending on the availability of certain medications at pharmacies and whether having unprotected intercourse.

Regarding the total attitude score of married women related to emergency contraceptive methods, this study results clarified that more than one-fifth of women had a positive attitude in preprogram, while improved to about three quarters in post-program with a highly statistically significant difference (P-value < 0.001). In this respect, **Hassan et al. (2020)**, supported this study's finding and reported that less than one-fifth had a positive attitude in preprogram while raised to more than three quarters in post-program with a highly statistically significant difference (P-value < 0.001). As well, the result of the present study agreed with those of a similar study on "Knowledge and attitudes about the use of emergency contraception among college students in Tamil Nadu, India", by **Davis et al. (2020)**, which revealed that 59% had a negative attitude towards the use of emergency contraceptive methods. Several reasons might explain why participants in this study showed a negative attitude toward emergency contraception. Family planning clinics may not be adequately counseling women on these methods. This lack of counseling could stem from various factors the participants mentioned, including limited clinic knowledge, fear of side effects, and concerns about effectiveness, cost, and accessibility.

As shown from the current study results, the use of emergency contraceptive methods was by more than one-third of the participants while less than two-thirds of the married women didn't use emergency contraceptive methods, before the counseling program. However, more than half of the participants intended to use emergency contraceptive methods after the counseling program. The most common reason women don't use emergency contraception is simply not knowing it exists.

This finding is that of an earlier study carried out by **Fikadu, (2018)**, who found that knowledgeable participants are two times more

likely to use emergency contraceptives than those who are not. This result is in agreement with that of the study conducted by **Osei et al. (2018)**, about "Awareness and usage of emergency contraceptives among university students in Ghana", which revealed that the majority (87%) of the participants indicated that they had heard or had knowledge of some forms of emergency contraceptive methods, but 70% indicated that they had never used any. As well, in a similar study done by **Davis et al. (2020)**, they found that 65% of participants intended to use emergency contraceptive methods post-intervention. The researchers believed that, through counseling, married women gained the knowledge they needed to confidently choose whether or not to use emergency contraception.

As detected in the current study result, there were highly statistically significant relations between post-program total score of married women's knowledge and their demographic characteristics, where highly statistically significant differences were found between women's knowledge and their occupation and educational level. These results are in the same line with those of **Abd Elmoniem and Abdelhakam, (2018)**, who found the same significant relation post counseling program. The study showed that employed women with higher education levels tended to have broader knowledge than housewives. This could be because education encourages openness to new ideas and provides tools for acquiring knowledge. As well, the workplace can provide a space for women to connect with others who share similar experiences and perspectives.

Regarding the relationship between married women's knowledge and attitudes toward emergency contraception, the current study found a positive association between knowledge and attitude after a counseling program. Satisfactory knowledge about emergency contraception was linked to a significantly more positive attitude among women. This result is similar to those of several studies as that of **Abd Elmoniem and Abdelhakam (2018)** and **Davis et al. (2020)**, which showed significant associations between the knowledge and attitude level of the participants. The researchers believed that improvement in women's knowledge and

attitudes after the implementation of counseling programs is the primary drive for practice.

## Conclusion

The findings of this study concluded that there was poor knowledge about the emergency contraceptive methods among married women, at reproductive age, which in turn affected their attitudes towards using them. Highly statistically significant improvements occurred in the total score of knowledge and attitudes post-counseling program. As well, following the implementation of the counseling program, women's intention to use emergency contraceptive methods increased.

## Recommendations

This research led to the following recommendations:

- Improving family planning program information about emergency contraceptive methods, education, and communication activities for husbands and wives through mass media a clear language booklet, and simplified brochures and increasing awareness among the general public and health care providers.
- Regular in-service training on emergency contraceptive issues for health care providers during family planning counseling in postpartum care of the maternal and child health centers.
- Dissemination of reproductive health programs by providing financial and political support to meet the needs of the Egyptian Community.
- Further research investigating the factors that influence women's use of emergency contraception.
- Further studies including a greater number of family medicine centers from different regions in Egypt to generalize the results.

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