The Effect of an Educational Guidelines on Childbearing Women's Knowledge, Attitude and their Intention regarding Emergency Contraceptive Use

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Abstract

Background: Emergency contraceptive methods offer women safe means of preventing unwanted pregnancies. Providing women with knowledge about EC will improve their understanding and cooperation which in turn can affect their attitude towards EC and hence increase their utilization of these methods. **Aim of the study:** to assess the effect of an educational guidelines on childbearing women's knowledge, attitude and their intention regarding emergency contraceptive use. **Subjects and Method:** A Quazi experimental research design was used in this study. This study was implemented at the family planning clinic in the New General Mansoura hospital. A convenient sample of 87 women at the childbearing age were recruited according to inclusion criteria**.** Two tools of data collection were used: Tool (1): Sociodemographic and reproductive history interview schedule and tool (II): An attitudinal assessment scale. **Results:** There was a highly statistical significant increase in the total knowledge score immediately after intervention and during the follow up, where P <0.001. Positive total attitude increased from 10 % to 82.8% after the intervention, while negative total attitude decreased from 90 % to 17.2% respectively and the difference was highly statistically significant where p<0.001. Moreover, about two third of women (63.2 %) intended to use EC after the intervention. **Conclusion:** There was a lack of knowledge about the emergency contraceptive methods among the participants which in turn affected their attitude toward using it. A significant improvement occurred in the total score of knowledge and attitude post intervention and women's intention to use emergency contraceptive methods increased after implementing the educational guidelines. **Recommendations:** Undertaking information /education and communication programs to raise women's awareness regarding different emergency contraceptive methods.

Keywords: Educational guidelines, knowledge, attitude, intention, emergency contraceptive.

Introduction

The term "emergency contraception" applies to a variety of contraceptive methods that can be used to prevent pregnancy following unprotected intercourse. Several types of emergency contraceptive pills (ECPs) as well as the insertion of an intrauterine IUD are among these options. They give women a valuable second chance to prevent pregnancy when a regular method fails, no method was used, and in case of forced sex. It can also be used in cases when contraceptives were used inappropriately. Many women are unaware of their EC options or the differences in effectiveness **(Goodman et al., 2018; Kgosiemang and Blitz 2018; Murray et al., 2019).**

EC may be provided using oral regimens or the copper IUD**.** It has been shown that taking large doses of sex steroids within 120 hours of unprotected intercourse prevents pregnancy. When ECPs are taken within 24 hours of unprotected sexual contact, their efficacy is at its peak **(Langille D et al 2012; WHO, 2015)**. World Health Organization (WHO) recommended Ulipristal Acetate (UPA), Levonorgestrel (LNG), Or Combined Oral Contraceptives (COCs) consisting of Ethinyl Estradiol plus LNG **(WHO, 2018; Chao and Frey, 2018).** ECPs with LNG or UPA are preferable than combined oral contraceptive pills (COCs)

because they induce less nausea and vomiting. Most popular EC methods are highly safe and have few side effects **(WHO, 2018).**

EC is a critical tool for preventing unwanted pregnancy. Unintended pregnancy rates have decreased globally since 1990, but they remain a public health issue, according to a 2018 study of global trends. **(Bearak et al., 2018).** As a result, even in low fertility countries, the proportion of unintended pregnancies remains high, so there is a constant interest in promoting strategies to decrease unintended pregnancy rates **(Eshre Capri Workshop Group, 2018).** EC should be used sufficiently enough to decrease unintended pregnancy risk which in turn helps in reducing the maternal mortality and morbidity due to unsafe abortions. **(Nappi et al., 2014; Palermo et al., 2014; Trussell et al., 2014; Thapa P et al., 2018).**

Recent studies stated that lack of awareness about EC has a major implications on women **(El-Mowafi and Foster, 2020).** Another study suggested that high-quality patient-centered EC care should involve more women's outreach and education, especially on the most successful EC methods. **(Castleberry et al., 2020).**

Women's wellbeing may be jeopardized by a lack of education and resources, which can lead to unwanted pregnancy or unsafe abortions. There is a need for more effective strategies. Health care providers must offer information and consultation to all women of childbearing age in order to reduce the long-term health risks (**Munakampe et al., 2019; Chofakian et al., 2019; Al-Hasani, 2018).**

Egyptian studies had reported that there is generally lack of knowledge and poor attitude towards EC among women. The need for increasing women awareness of the legality and religious acceptance of EC should be emphasized **(Ibrahim et al., 2013).** Overall, the 2015 EDHS findings showed that 59 % of married women in Egypt are using a contraceptive method while 41% do not use any contraception, EC can be used by those women who are non-use of contraception **(Ministry of Health and Population, 2015)**

Significance of the study:

In low and middle income countries (LMICs), there are approximately 218 million women of reproductive age who do not have access to modern contraceptives. In LMICs, almost half (49%) of pregnancies - 111 million per year are unintentional **(Trussell et al., 2014; Mittal, 2014; Sully EA et al., 2019).**

Although the fact that EC has been available and registered for a long time in Egypt and some other Middle Eastern countries, it is still relatively unknown and is discussed controversially in such countries, and the problem of unintended pregnancy still exists **(El-Sabaa and Ibrahim, 2013)**.

Emergency contraceptive methods provide women with a safe ways to avoid unintended pregnancies. Women must have a basic understanding of emergency contraceptive procedures in order to make informed decisions about whether or not to use it. According to the Egypt demographic and health survey 2015, most of the married women know about the IUD, pill, injectable and the implant. Emergency contraception is recognized by only 14.7 % of women. This indicates that, there is a still lack of knowledge among women regarding this type of contraception. Providing women with knowledge about EC will improve their understanding and cooperation which in turn can affect their attitude towards EC and hence increasing their utilization of these methods. To ensure healthy motherhood, it is critical to evaluate and strengthen women's awareness and attitudes. It is critical to promote and protect their health, especially against reproductive health risks. **(Ministry of Health and Population 2015; Nyirenda and Besa 2019).**

Aim of the study:

This study aimed to assess the effect of an educational guidelines on childbearing women's knowledge, attitude and their intention regarding emergency contraceptive use.

Research hypothesis:

- **H (1):** Women who receive the educational guidelines exhibit high

knowledge score regarding emergency contraception.

- **H (2):** Women who receive the educational guidelines exhibit positive attitude towards emergency contraception.
- **H (3):** Women's intention to use emergency contraception will be increased after intervention.

Subjects and Method:

Study design:

A Quazi experimental research design was used in this study.

Study setting:

This study was implemented at the family planning clinic in the New General Mansoura hospital which affiliated to Ministry of health, Mansoura, Egypt. There is an enough turnover of women in the family planning clinic.

Study subjects:

A convenient sample of 87 women at the childbearing age were recruited according to the following inclusion criteria: married women at (18– 45 years old), multi para, had not tubal ligation or hysterectomy, read and write, free from genital tract infection and willing to participate in the study.

Epi info 7 statistical program was used to estimate the sample size using the following parameters:

Total population = 103

Expected frequency = 50%

Confidence level= 95%

Error level = 5%

Minimum sample size = 81 cases

The final sample size will be 87 for possible normal response

Tools of Data Collection:

Data were collected through

Tool (1): ***Sociodemographic and reproductive history interview schedule*****:** It was designed by the researchers after reviewing related literatures. It was filled from each woman admitted to the previously mentioned setting. It consisted of four parts:

Part 1: This part covered the data related to socio-demographic characteristics (age, education, occupation, residence and marriage duration).

Part 2: This part included obstetric history as (Gravida, parity, abortion, occurrence of unintended pregnancy and causes of it)

Part 3: This part designed by the researchers to assess women's knowledge regarding EC (definition, advantages, indications, types of EC and types of ECPs, time of its use and time between repeated doses, dose, contraindications, side effects, effectiveness, and mode of action)

The knowledge questions were multiple choice. The total items of knowledge were 14 items. Each correct answer had one score. The total knowledge score was 20 grades because some of questions had more than one correct response. Total women's knowledge score less than 6 was considered poor knowledge (< 30%), from 7-14 grades (35% ≤ 70%) were described as an average level of knowledge while score 15 and more grades were described as high level of knowledge.

Part 4: This part was concerned by the contraception history as current method of contraceptive used, previous use of EC, reasons for not using EC, their intention to use after intervention and source of knowledge about EC.

Tool (II): An attitudinal assessment scale: A three point Likert like- scale (agree, neutral, disagree) was developed to assess woman's attitude regarding EC. It consisted of (8) statements to which women were asked to respond to one of the choices. Three grades for favorable response, two grades for neutral response and one for unfavorable response. A scoring was given to each statement and the total attitude score was 24 grades. A total score < 15 was considered as negative attitude, and from 15-24 score was considered as positive attitude towards the EC

Methods:

1. Tool (I &II) were developed by the researcher and tested for content validity by a jury of 5 experts in obstetric and gynecological nursing field and recommended modifications were done.
2. Tools reliability was tested by Cronbach's -Alpha test and the result was reliable (r = 0.82) which is statistically accepted
3. Official letter from the Faculty of Nursing, University of Mansoura was directed to the responsible authorities of the study setting to take their permission to collect data after explaining the purpose of the study.
4. A pilot study was conducted on 9 (10%) women who were excluded from the total study sample to assess the tools for its clarity, applicability, and the time needed to complete the tools. After pilot study, the needed modification was done.
5. The study subjects who fulfilled the inclusion criteria were recruited. Then, the researchers introduced themselves and explained the purpose of the study and women who agreed to participate had been asked to sign a consent form. Each participant in the study was interviewed individually in a separate room to maintain confidentiality and the participants' general characteristics and reproductive history were obtained.
6. An educational guidelines were provided to every small group of women by the researchers through four sessions, each session took about 10- 15 minutes. Methods of implementing these guidelines included (lecture, active discussion, ppt presentation and video). The sessions were implemented during the waiting time of the study participants for clinical examination in the hospital. At each session, 5 minutes was devoted for each study participant to express their feeling toward the session and for any questions.
7. The educational guidelines were designed based on review of relevant recent literature and women's needs identified from the pilot study in order to provide competent care. The guidelines emphasized on improving women's knowledge regarding EC. It includes the following items as explained in the women's handout: identifying meaning, advantages, indications and types of EC. Also, it included time limit for its use, mode of action, dose, contraindications, effectiveness and side effect.
8. Objective of the first session is to establish rapport between the researchers and the women to relieve participant's fear & tension and to gain her trust. In addition, basic data, women's knowledge and attitude regarding EC was assessed during this session (pre-evaluation). The second session is to provide the participants with the required knowledge about EC. During the third session, enforcement of women's knowledge through group discussion and answering their questions was done. By the end of the 3rd session, an instructional supportive guideline was distributed among women who participated in the study.
9. Post evaluation of women's knowledge, attitude and barriers of using EC was collected during the fourth session. Another evaluation of women's knowledge was carried out after one month during the follow up visit or by telephone.
10. The data was collected from September 2019 to February 2020.

Ethical Consideration:

Researchers ensured that the participation in the present study was voluntary. Confidentiality was emphasized. Also, the women were informed that they can withdraw from the study at any time.

Statistical analysis:

All statistical analyses were performed using SPSS for windows version 20.0 (SPSS, Chicago, IL). All variables with continuous data showed normal distribution and were expressed in mean ±standard deviation (SD). Categorical data were expressed in number and percentage. The comparisons were

determined using t test for variables with continuous data. Chi-square test was used for comparison of variables with categorical data. Statistical significance was set at $p<0.05$.

Results:

Table (1) shows the sociodemographic characteristics of the study participants, it can be observed that their mean age was (32.7 ± 9.6). In addition, 60.9% of participants were urban residence, about two thirds of the women, 64.4% were housewives. Moreover, 26.4% had university education. The mean marriage duration was (6 ± 2.3),

As shown in table (2), the mean number of gravida was 2.91 ± 1.4 and more than one half of the participants (59.0%) had cesarean section during their last delivery. About one third of women (33.3%) had unintended pregnancy, the main cause of unintended pregnancy was that the women forget to take the pills (55.2%). More than one half of participants (57.5%) heard about emergency contraception. Social media was the main source of information among 46% of women.

As illustrated in table (3), there was a highly statistical significant differences in knowledge scores pre and post educational guidelines regarding most of emergency contraception information such as (definition, advantages , types of EC methods and types of EC pills, dose of ECP, time of IUD insertion, side effect of EC and effectiveness) ($P<0.001$). Moreover, there was a highly statistical significant increase in the total knowledge score immediately after intervention and during the follow up, where $P <0.001$

Figure (1) reveals the total mean knowledge score among the participants, it can be observed that, there was a highly statistical significant increase in the total mean score from 3.3 ± 1.6 pre intervention to 7.8 ±2.6 immediately after where $P <0.001$,while the mean score was 7.0± 2.3 during the follow up.

Table (4) illustrated participants' attitude towards emergency contraceptives, it can be observed that, there was a highly statistically significant positive change of participants' attitude after implementing the educational guidelines. This improvement were in attitude statements such as using an emergency contraception can prevent unwanted pregnancy (from 17.2% to 39.1%) respectively, using an emergency contraception in case of unprotected sexual intercourse (from 17.2% to 51.7%) respectively and emergency contraception should be publicized more widely (from 2.3% to 87.4%) respectively, $p<0.001$.

As shown in figure (2), positive attitude increased from 10 % to 82.8% after the intervention, while negative attitude decreased from 90 % to 17.2% respectively and the difference was highly statistically significant where $p<0.001$

Figure (3) shows the contraceptive methods used by the participants, it can be observed that the most common used one is the IUD (40.2 %) followed by oral contraceptive pills (27.6%).The least method used was the subdermal hormonal contraceptive (2.3%)

Table (5) shows participants' use of emergency contraception, it can be noticed that 88.5 % of participants didn't use emergency contraception. On the other hand, about two third of them (63.2 %) intend to use it.

As presented in figure (4), the most common reason for not using the emergency contraception was lack of knowledge about it 40% followed by fear from side effects (33.3%)

As illustrated in table (6), there was a highly statistically significant relation between post intervention total score of knowledge and both occupation and educational level, where the employed women had good knowledge than the housewives, $p <0.001$. Moreover, women with secondary and university education had good knowledge than those with primary education, $p <0.001$.

As presented in table (7), there was a statistically significant relation between post intervention total score of attitude and both occupation and educational level, where the housewives had positive attitude than the employed women, $p =0.006$. In addition, women with secondary and university education had positive attitude than those with primary education, $p <0.001$.

Table (8) reveals a highly statistically significant difference between total knowledge and total attitude scores as participants with good knowledge having a positive attitude, $p<0.001$

Table 1. Distribution of the participants according to their sociodemographic characteristics

	n	%
Age (years)		
18 – 25	21	24.1
26 – 35	35	40.2
36 – 45	31	35.6
Mean ± SD	32.7 ± 9.6	
Residence		
Urban	53	60.9
Rural	34	39.1
Occupational status		
Housewife	56	64.4
Employed	31	35.6
Educational level		
Primary Education	10	11.5
Secondary Education	54	62.1
University Education	23	26.4
Marriage Duration (years)		
<5	26	30.0
5 – 10	37	42.5
>10	24	27.6
Mean ± SD	6.0 ± 2.3	

Table 2. Distribution of the participants according to their reproductive history

	N=87	%
Gravida		
1 – 2	38	43.7
3 or more	49	56.3
Mean ± SD	2.9 ± 1.4	
Parity		
1 – 2	36	41.4
3 or more	51	58.6
Abortions		
No	69	79.3
Yes	18	20.7
Mean ± SD	0.7 ±0.3	
Mode of last delivery (n=78)		
Normal vaginal	32	41.0
Cesarean section	46	59.0
Occurrence of pregnancy		
Unintended	29	33.3
Intended	58	66.7
Causes of unintended Pregnancy	**(n=29)**	
Failure of contraception	5	17.2
Forget to take contraceptive pills	16	55.2
Do not use contraceptive method	8	27.6
Do you hear about emergency contraception?		
Yes	50	57.5
No	37	42.5
Sources of your information *	**(n=50)**	
Social media	23	46.0
Relatives and friends	5	10.0
Doctors and nurses	18	36.0
Pharmacy	19	38.0

***(Multiple response question)**

Table 3. Distribution of the participants according to their knowledge regarding EC

	Number and distribution of correct answers						Chi square test	
	Pre-intervention (n=87)		**Post-intervention (n=87)**		**At follow up (n=85)**			
Knowledge Items	n	%	n	%	n	%	X^2	p
Definition of EC	26	29.9	61	70.1	54	63.5	32.599	<0.001
Advantages	20	23.0	59	67.8	54	63.5	42.502	<0.001
Indications	32	36.8	53	60.9	45	52.9	10.520	0.005
Types of EC methods	13	14.9	50	57.5	44	51.8	38.152	<0.001
Types of emergency contraceptive pills	16	18.4	58	66.7	49	57.6	45.888	<0.001
Number of repeated doses	11	12.6	28	32.2	21	24.7	9.500	0.009
Time limit for using ECP	21	24.1	37	42.5	31	36.5	6.772	0.039
Time between repeated doses of pills	16	18.4	36	41.4	31	36.5	11.694	0.003
Dose of ECP	21	24.1	54	62.1	46	54.1	27.926	<0.001
Contraindications of ECP	26	29.9	36	41.4	33	38.8	2.725	0.256
Time of IUD insertion	19	21.8	52	59.8	46	54.1	29.356	<0.001
Side effect of EC	27	31.0	62	71.3	58	68.2	35.477	<0.001
Effectiveness	16	18.4	64	73.6	56	65.9	62.173	<0.001
Mode of action	25	28.7	30	34.5	27	31.8	0.665	0.717
Total knowledge								
Poor	44	50.6	13	14.9	14	16.5		
Fair	23	26.4	25	28.7	29	34.1		
Good	20	23.0	49	56.3	42	49.4	39.117	<0.001

P < 0.05 is considered significant

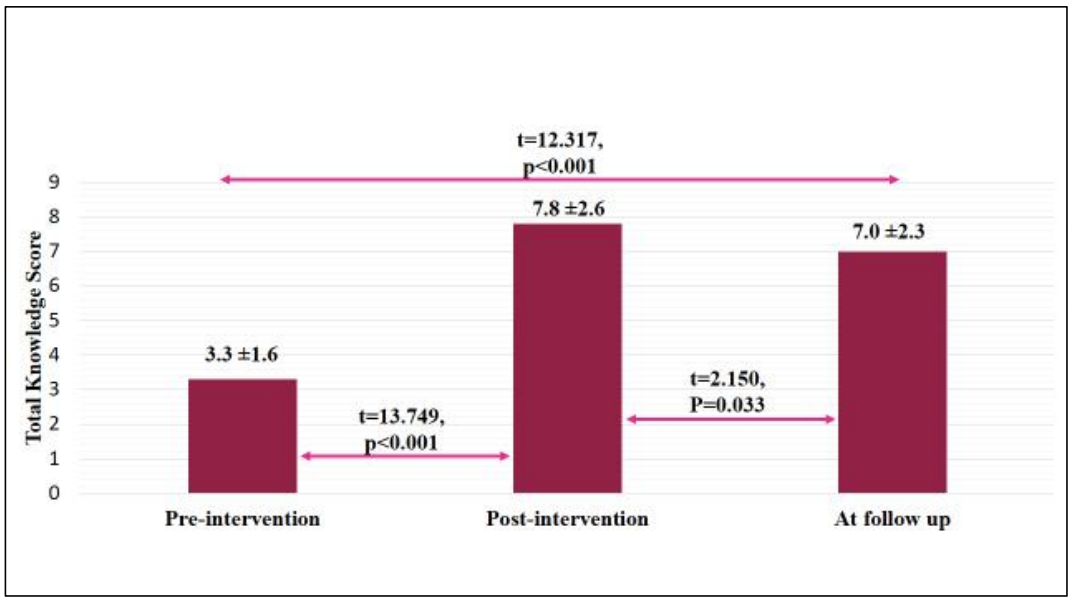

Figure 1. Comparison of the total knowledge score of the participants regarding EC before and after the educational guidelines

Table 4. Distribution of the participants according to their attitude toward emergency contraception before and after the educational guidelines (n-87)

	Pre-intervention						Post-intervention						Chi square test	
	Agree		Uncertain		Disagree		Agree		Uncertain		Disagree			
	n	%	n	%	n	%	n	%	n	%	n	%	X2	p
• Using an emergency contraception can prevent unwanted pregnancy	15	17.2	27	31.0	45	51.7	34	39.1	30	34.5	23	26.4	14.643	<0.001**
• If I have unprotected sexual intercourse, I will use emergency contraception.	15	17.2	25	28.7	47	54.0	45	51.7	23	26.4	19	21.8	26.962	<0.001**
• Emergency contraception should be publicized more widely	2	2.3	3	3.4	82	94.3	76	87.4	6	6.9	5	5.7	139.355	<0.001**
• Emergency contraception can cause infertility in a woman	61	70.1	16	18.4	10	11.5	45	51.7	24	27.6	18	20.7	6.301	0.043
• EC can be used as a routine contraceptive method of choice	60	69	15	17.2	12	13.8	53	60.9	20	23.0	14	16.1	7.045	0.030
• EC is a method for inducing abortion	74	85.1	8	9.2	5	5.7	58	66.7	18	20.7	11	12.6	8.036	0.018
• I do not want to use emergency contraception for fear of side effects	64	73.6	13	14.9	10	11.5	47	54.0	22	25.3	18	20.7	7.204	0.027
• Emergency contraception will adversely affect ongoing methods of contraception	57	65.5	18	20.7	12	13.8	44	50.6	22	25.3	21	24.1	4.528	0.104

P < 0.05 is considered significant

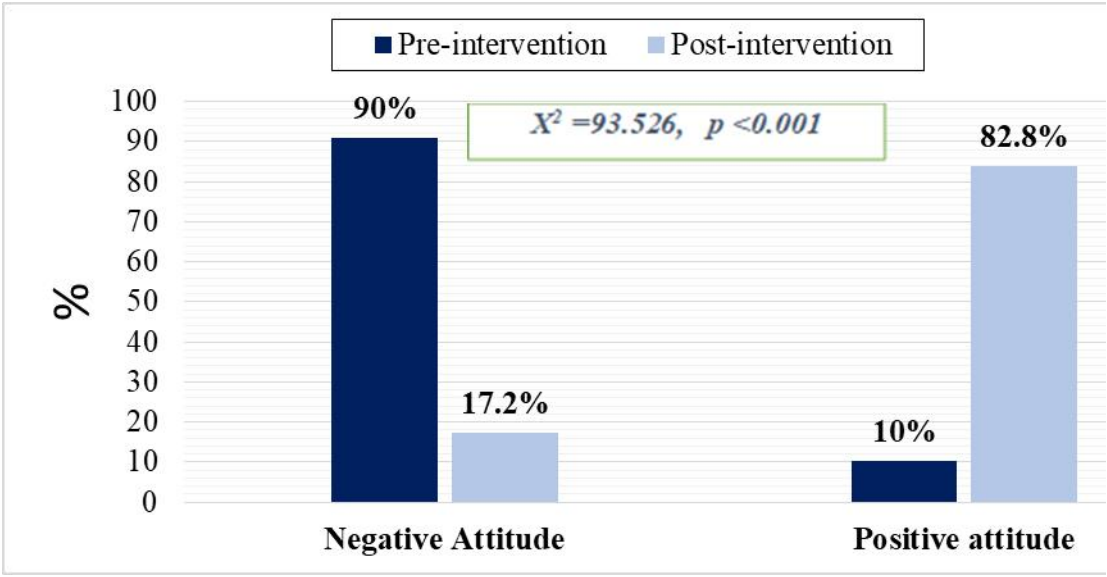

Figure 2. Total attitude score of the participants toward emergency contraception before and after the educational guidelines

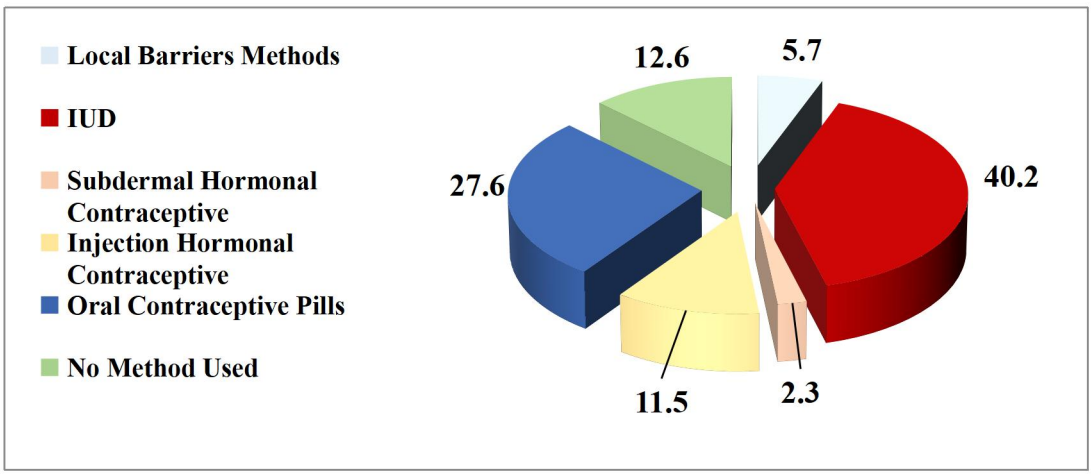

Figure 3. Contraceptive methods used by the participants

Table 5. Distribution of the participants according to use of emergency contraception (EC)

Variable	n=87	%
Previous use of emergency contraception		
Yes	10	11.5
No	77	88.5
Intention to use EC after the educational guideline		
Yes	55	63.2
Unsure	6	6.9
No	26	29.9

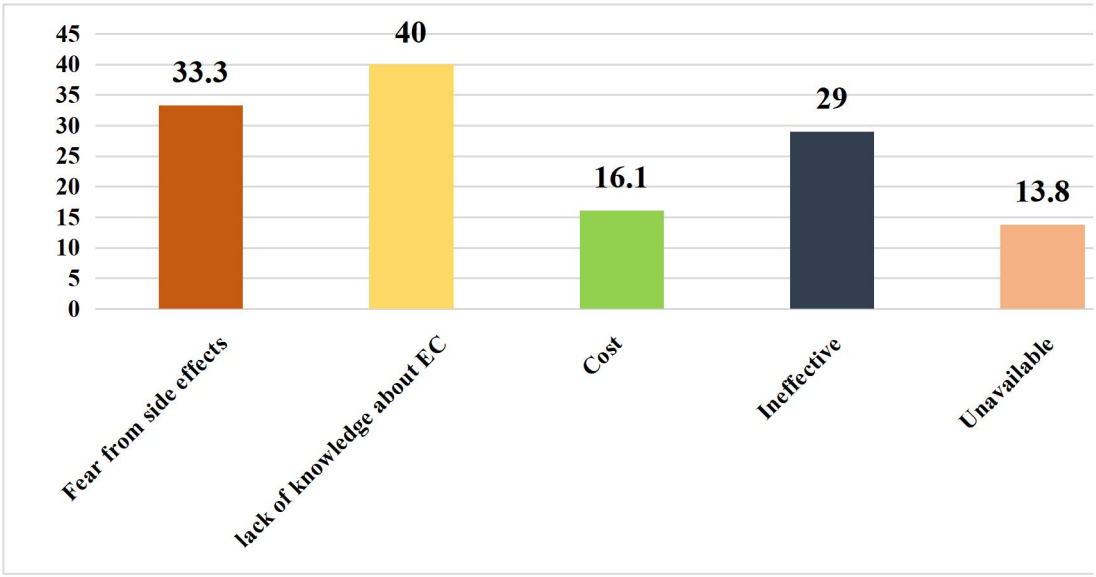

Figure 4. Reasons of women for not using emergency contraception methods

Table 6. Relationship between the socio-demographic characteristics and women's post-intervention total knowledge score regarding the emergency contraception (n = 87)

	Knowledge level post-intervention							
	Poor (n=13)		Fair (n=25)		Good (n=49)		Chi square test	
	n	%	n	%	n	%	X^2	p
Age (years)								
18 – 25	2	15.4	8	32.0	11	22.4		
26 – 35	4	30.8	12	48.0	19	38.8		
36 – 45	7	53.8	5	20.0	19	38.8	4.862	0.302
Residence								
Urban	8	61.5	15	60.0	30	61.2		
Rural	5	38.5	10	40.0	19	38.8	0.013	0.994
Occupational status								
Housewife	13	100.0	20	80.0	23	46.9		
Employed	0	0.0	5	20.0	26	53.1	16.350	<0.001**
Educational level								
Primary Education	6	46.2	4	16.0	0	.0		
Secondary Education	7	53.8	21	84.0	26	53.1		
University Education	0	0.0	0	0.0	23	46.9	40.216	<0.001**
Marriage Duration (years)								
<5	7	53.8	9	36.0	10	20.4		
5 – 10	3	23.1	10	40.0	24	49.0		
>10	3	23.1	6	24.0	15	30.6	6.332	0.177

P < 0.05 is considered significant

Table 7. Relationship between the socio-demographic characteristics and women's post-intervention total attitude score regarding the emergency contraception (n = 87)

	Attitude level post-intervention					
	Negative (n=15)		Positive (n=72)		Chi square test	
	n	%	n	%	X^2	p
Age (years)						
18 – 25	4	26.7	17	23.6		
26 – 35	9	60.0	26	36.1		
36 – 45	2	13.3	29	40.3	4.338	0.114
Residence						
Urban	6	40.0	47	65.3		
Rural	9	60.0	25	34.7	3.332	0.068
Occupational status						
Housewife	5	33.3	51	70.8		
Employed	10	66.7	21	29.2	7.611	0.006*
Educational level						
Primary Education	10	66.7	0	.0		
Secondary Education	2	13.3	52	72.2		
University Education	3	20.0	20	27.8	55.220	<0.001**
Marriage Duration (years)						
<5	6	40.0	20	27.8		
5 – 10	4	26.7	33	45.8		
>10	5	33.3	19	26.4	1.910	0.385

P < 0.05 is considered significant

Table 8. Relationship between the post-intervention total knowledge and total attitude scores (n = 87)

	Knowledge level post-intervention							
	Poor (n=13)		Fair (n=25)		Good (n=49)		Chi square test	
	n	%	n	%	n	%	X^2	p
Total attitude level post-intervention								
Negative	7	53.8	4	16.0	4	8.2		
Positive	6	46.2	21	84.0	45	91.8	15.065	<0.001**

P < 0.05 is considered significant

Discussion:

Although EC is not recommended as a routine family planning method, it is a very useful method for reducing the risk of unintended or unwanted pregnancies after unprotected sexual intercourse. **(El-Sabaa and Ibrahim, 2013)**. Information about women's knowledge, attitude and uses of emergency contraceptives plays a critical role in the decreasing of unintended pregnancy. Many women are unaware of emergency contraception's existence, misinterpret its usage and protection and may fail to use it when it is needed **(Thongnopakun et al., 2018)**. The aim of the current study was to assess the effect of an educational guidelines on childbearing women's knowledge, attitude and their intention regarding emergency contraceptive use. However, the results of the present study achieved its hypotheses in proving that women who received the educational guidelines acquired high knowledge score and positive attitude regarding emergency contraception and participants' intention to use it increased after intervention. These educational guidelines showed significant effects on knowledge, attitude and intention among the participants.

As shown in the current study, more than two fifths of participants did not hear about the emergency contraceptive before. This findings relatively agree with the study of **Ekhtiari et al., 2018** who performed survey of knowledge and attitude toward emergency contraceptive method among married women in reproductive age group. They revealed that 61.4% of respondents were unaware about EC. On the other hand, this result does not match with the study of **Abate et al., 2014** who mentioned that less than half of the women had heard about EC and a study of **Garrett Wagner et al 2018** who reported that 97% of participants had heard of EC. In this study, nearly half of the study participants mentioned that social media was the common source of information about EC. This might be due to easy communication and connection with other people through the use of internet in the recent times. A similar study at Mangalore, India, showed that television was the most common source of information **(Joseph et al., 2016).** This disagrees with **Lakkawar et al., 2014** who reported that clinician and electronic media were the most important source of information about EC. However, informal sources of information can sometimes lead to misinformation.

As illustrated in the present study, half of the participants had poor total knowledge score about EC before the intervention of guidelines. This poor knowledge level among women in this study might be attributed to a lack of emergency contraceptive educational programs and service promotion. However, there was a highly statistical significant differences post educational guidelines regarding most of emergency contraception information such as (definition, advantages, types of EC methods and types of EC pills, dose of ECP, time of IUD insertion, side effect of EC and effectiveness). This result is relatively consistent with the study of **Abd Elmoniem and Abdelhakam, 2018,** who found that 80% of women had poor knowledge about emergency contraception before the emergency contraception guidelines with a significant improvement after intervention. Women will not take protective measures after having unprotected intercourse if they do not have enough information.

Moreover, participants' attitude towards emergency contraceptives highly improved statistically after the educational guidelines as in attitude statements such as using an emergency contraception can prevent unwanted pregnancy (from 17.2% to 39.1%) respectively, using an emergency contraception in case of unprotected sexual intercourse (from 17.2% to 51.7%) respectively and emergency contraception should be publicized more widely (from 2.3% to 87.4%) respectively, $p<0.001$. These findings are relatively similar to three researches, the first one by **Sychareun et al 2013** who mentioned that most of the study participants in Laos believed that having ECPs available would help many women by protecting their sexual health and decreasing unintended or unwanted pregnancies as well as the need for abortion. The second study by **Tajure, 2010** showed that more than two thirds of respondents who knew about EC agreed that they would use EC after unprotected sexual intercourse and 63% of them agreed to advice friends or relatives to take emergency contraceptives after unprotected sexual intercourse. The third research by **Abd**

Elmoniem and Abdelhakam, 2018 who illustrated that more than two thirds of the study subjects exhibited positive attitude toward using EC in case of the availability at the pharmacies and used in case of unprotected intercourse. They also mentioned that EC is a good idea for all women.

In the present study the total attitude score was negative among majority of the participants before intervention. This finding is relatively in accordance with **Davis et al., 2020** who reported that 59% had negative attitude towards the use of EC. This finding may be due to lack of counseling about EC in the family planning clinics. This attitude may be related to many factors as mentioned by the participants such as lack of their knowledge about EC, fear from side effects, ineffectiveness, cost and unavailability of it.

In this study, the most commonly used contraceptive method among participants was the IUD, followed by oral contraceptive pills. This may be due to the fact that IUDs have excellent benefits (high efficacy and safety), making them simple to use for the majority of women. This result is contradicted with the study of **Jima et al., 2016** who reported that oral contraceptive pills was the most widely utilized by 59.9% of the study subjects followed by injection 18.7 %.

The use of emergency contraception in this study was very low among the respondents as more than three quarters of the women didn't use emergency contraceptive methods. The highly mentioned reason for not using them is lack of knowledge about EC. This finding is in the same line with the study of **Golezar et al., 2014** who found that the percentage of participants who had ever used EC was small which could be due to the low level of awareness. According to a study done by **Fikadu, 2017** mentioned that knowledgeable participants are two times more likely to use emergency contraceptive than those who are not. A study of **OseiTutu et al., 2018** reported that majority (87.9%) of the respondents indicated that they had heard or had knowledge of some form of ECs, but 70.4% indicated that they had never used any. It has been observed that although women claim to know about EC, their knowledge is limited, which could be due to their backgrounds. The results conform to the findings from **Kolawole et al., 2015**. Moreover, the importance of educational guidelines and the benefits of health information conducted by the researchers are demonstrated in our result as about two thirds of participants intended to use EC post intervention. It seems that the educational guidelines provided women with the necessary information which empowered them to take decision regarding the intention to use EC.

As illustrated in the current study, there was a highly statistically significant relation between post intervention total score of knowledge and both occupation and educational level where the employed and better educated women had good knowledge than housewives and those with primary education. This result might be attributed to the fact that educated women open their mind to new ideas and education enables women to gain access to knowledge. Educated women are able to control many events in their life. In addition, working women have better chances of contact with a more experienced persons and to acquire valuable health and social information and to share common female experiences. However, these results are in the same line of **Abd Elmoniem and Abdelhakam, 2018** who found the same significant relation post intervention.

On the other hand, there is an inverse relationship between the working condition and the total attitude score toward EC as housewives had positive attitude than the employed women post intervention. This finding may be related to that it is easy to convince housewives women with the new ideas and become satisfied with least amount of information than working mothers who take information from different sources.

Regarding the relationship between women's knowledge and attitude toward emergency contraception, the current research found a positive association between knowledge and attitude after intervention. Women with good knowledge had a substantially higher positive attitude than those with poor knowledge. This result is similar with different studies by **Bugssa et al., 2014**; **Gajera et al 2017, Abd Elmoniem and Abdelhakam, 2018** and **Davis et al., 2020**,

they showed significant association between the knowledge and attitude level of the participants. Knowledge and attitude are the primary drive for practice

Conclusion:

It can be concluded from the finding of the present study that:

There was lack of knowledge about the emergency contraceptive methods among the participants which in turn affected their attitude toward using it. A significant improvement occurred in the total score of knowledge and attitude post intervention and women's intention to use emergency contraceptive methods increased after implementing the educational guidelines.

Recommendations:

1. Undertaking information /education and communication programs to raise women's awareness about different emergency contraceptive methods.
2. Train the health care providers to offer an educational sessions about EC to the women.
3. Further studies are needed to assess factors associated with the utilization of emergency contraception among women.

Limitation of the study:

During the study period, two women dropped out during the follow up stage, the researchers were unable to reach these women

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