Effect of educational program on knowledge and attitude of childbearing women about intrauterine cupper device as emergency contraceptive method

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Abstract

Background: Use of emergency contraceptive (EC) methods, provides a second chance to prevent unintended pregnancy and reduce maternal morbidity and mortality. Providing women with knowledge about **intrauterine cupper device** as EC will affect their understanding and change their attitude towards EC and hence increase their utilization of this method. **Aim of the study:** to identify effect of educational program on improving childbearing women's knowledge, attitude and their intention to use IUCD as EC method. **Subjects and Method:** A Quazi experimental research design was applied. This study was carried out at family planning clinic in the Women Health Hospital, Assiut governate/Egypt A convenient sample of 300 childbearing women was included according to inclusion criteria. Two tools were used to collect data: Tool (1): structure interview questionnaire that involved (personal, obstetric, contraceptive and knowledge about IUCD as EC and tool (II): An attitude assessment scale. **Results:** There was a highly statistical significant difference between pre and post total knowledge score and total attitude P <0.001. Moreover, about 61.7% of women intended to use IUCD as EC after educational program. **Conclusion:** A significant improvement occurred in the total score of knowledge and attitude post intervention and women's intention to use IUCD as EC increased after educational program. **Recommendations:** implementing a regular education programs to raise women's awareness regarding using IUCD as EC methods.

Keywords: Educational program, knowledge, attitude, childbearing women, cupper IUD, emergency contraceptive

Introduction:

Emergency contraception (EC) is a way of preventing unwanted pregnancy that is used within 5 days of coitus. Unintended pregnancies are still a major public health concern. Unintended pregnancies affect 74 million women in low and middle-income nations each year. Every year, this results in 25 million unsafe abortions and 47,000 maternal deaths **(WHO, 2019).** It is a choice to give a protection from unprotected intercourse, as sexual violation, reproductive compulsion, poor commitment and failure in contraceptive method used **(Verkuyl, D., 2016)**

Many methods of EC have been known but, only six methods have been clinically used. These are the high dose estrogens, combined estrogen–progestogens pills, progestogen only (levonorgestrel) pills, IUCD, danazol and mifepristone **(Ibrahim et al 2021).**

Intrauterine copper device is the only choice that can works after fertilization. In 2002 judicial review in the United Kingdom (UK) ruled that pregnancy starts at the time of implantation, so EC are not abortifacient **(Afsaneh et al, 2018).** IUCD as an EC works by having a toxic effect on the ovum and sperm that develop shortly after it is implanted. When the chance of fertilization has already occurred, however, its effectiveness is dependent on an anti-implantation impact **(Rebecca and Lynne, 2017).**

Copper intrauterine devices (IUDs) are a powerful kind of EC. The failure rate is estimated to be around 0.1 percent **(Norman and Tik, 2019).** It is regarded as the most efficient contraceptive technique currently available. **(David et al, 2018).** In addition, its highly effective rate, it is considering the most suitable method in some cases where emergency contraceptive pills may be less effective, as in obese women, in the fertile women and those with recurrent events of unprotected intercourse **(Finn, et al 2016).**

When used as an EC technique, IUCD is completely safe. It is estimated that there are 2 incidences of pelvic inflammatory illness for every 1000 people who utilize IUCD as an EC technique (pelvic inflammatory diseases).

Expulsion or perforation is also unlikely. **(Johns, 2017).** Behind safety of IUD it carries 2 distinguished advantages as EC when compare to oral EC pills as its highly effective method (pregnancy rates of ≤ 0.2%). It also can continue highly effective contraception for over a decade **(David. et al 2018).**

Women with existing PID, unexplained vaginal bleeding, puerperal sepsis, cervical malignancy, or severe thrombocytopenia are among the situations for which an IUD as an EC cannot be utilized. Also those who risky to sexual assault as they are high risk for sexual transmitted infection as chlamydia and gonorrhea **(WHO, 2019).**

Recent studies stated that lack of awareness about EC has a major implication 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).**

To enhance update of IUD as EC, it is needed to increase women's information about it, improving referral pathways, addressing any misconceptions about it, all of above depend on obstetrics and gynecological team (physician and nurses) to reach information to all women in the community **(Harper et al, 2019).**

Significant of the study:

Although major medical organization recommend counseling about EC to women who are risky to unplanned pregnancy, a 2011 study reported that only 3% of women received such type of counseling in the previous year **(Pelin et al, 2019).** Many studies have been conducted to assess women's acceptance and knowledge of IUDs as a regular contraceptive option. However, few studies assess women's acceptance of IUDs as a type of EC **(Margaret et al, 2017).**

According to the 2015 Egypt demographic and health survey, the majorities of married women are aware of the IUD, pill, injectable, and implant procedures. Only 14.7 percent of women are aware of EC. This indicates that, there is a still lack of knowledge among women regarding this type of contraception **(Ministry of Health and Population 2015; Nyirenda and Besa 2019).** Also previous research found that low rates of IUD using as EC, including lack of women's knowledge about the device, lack of provider knowledge about update in contraceptive methods and insurance coverage **(Finn et al, 2016).** So the researchers interested in identifying effect of educational program on improving women's information regarding IUCD as EC method.

Aim of the study:

- To identify effect of educational program on improving childbearing women's knowledge, attitude and their intention to use IUCD as EC method.

Research hypothesis:

H (1): Women who receive the educational program display a high knowledge score regarding copper IUCD as EC.

H (2): Women who receive the educational program display a positive attitude towards using IUCD as EC.

H (3): Women's intention to use IUCD as EC will be increased after intervention.

Operational definitions:

Emergencey contraception(EC): is birth control that keeps you from getting pregnant after unprotected or inadequately protected sex, It comes in two forms: an **intrauterine device (IUD)** or a **pill** (sometimes known as "The Morning After Pill").

Cooper IUD: the copper IUD (Paragard®), this is the most effective form of EC. They work by keeping sperm from fertilizing the egg.

Subjects & Methods:

Subjects and methods of this study were presented into four designs technical, operational, administrative, and statistical design.

Technical Design:

Which involved research design, setting, study sample, and tools of data collection

Study design:

A Quazi experimental research design was conducted in this study.

Setting: - This study conducted at family planning clinic in the Woman's Health Hospital, Assuit University, Egypt.

Sample size and calculation: - a convenient sample formed of 300 childbearing's women. The sample involved criteria of married women, multigravida, age between 19-45 years, had not any hysterectomy or tubal ligation and free from genital tract infection.

The sample size was calculated using the Epi info program with a 95% confidence coefficient, 10% tolerable error, 50% predicted frequency, and a population size of 1300. The program revealed a sample size of 297 reproductive women, which was later raised to 300.

Tools of Data Collection:

Data was collected using two tools as the following

Tool (1): Structure interview questionnaire was designed by the researchers after reviewing related.**(Black & Hussainy, 2017) and (Al-Hasani, 2018)** It included four parts:

Part 1: included data related to personal characteristics as age, residence certification, employment and duration of marriage.

Part 2: This part included obstetric history as gravidity, parity, pervious abortion, number of living children, mode of last delivery, occurrence of unintended pregnancy and causes of it.

Part 3: This part was involved family planning history as using of any Family planning (FP) method, type of FP method used, complications occurred during used, hearing about using IUCD as EC, source of women's information, and intention to use IUCD as EC after educational intervention.

Part 4: This part designed by the researchers to assess women's knowledge about IUCD as EC (definition of EC, types of EC, advantages, disadvantage, when to use an IUCD as EC, indications, contraindication, time of insertion, effectiveness, mechanism of action, and side effects).

Knowledge scoring system:

Knowledge item were consistent of 11 multiple choice questions. Knowledge score was 24 grades because some of questions had more than one correct response. Total women's knowledge considered poor if score <50% (12 grades), fair if from 50-70% (12-17) grades, and > 70% (17) were described as good level of knowledge **(Hassan et al., 2020).**

Tool (II): Involved attitude assessment scale that contained three point Liker like-scale (agree, slightly agree and disagree) was developed to assess woman's attitude toward IUCD as EC literatures **(Brown, 2010).** It consisted of (8) statements to which women were asked to respond to one of the choices.

Attitude scoring system:

Three grades for agree response, two grades for slightly agree response and one for disagree response. A scoring was given to each statement and the total attitude score was 24 grades. A total score < 75% (17) was considered as negative attitude, and 75% (17) or more was considered as positive attitude towards IUCD as EC **(Hassan et al., 2020)**.

Supportive materials

It was designed by the researcher based on literature review. It prepared in a form of bourchore with using a simple and clear Arabic language supported with photo to support some information to the women.

Tools Validity

A team of five specialists in the fields of maternity and newborn health nursing, as well as obstetrics and gynecological medicine, examined the tools for clarity and comprehensiveness.

Tools Reliability

The internal consistency of the tool scale was calculated by using Cronbach's Alpha; and it was 0.872.

Operational design

It was displayed in two phases, pilot study and field work.

Pilot study:

A pilot study was conducted on 10% of the population, or 30 women, to determine the clarity and comprehensiveness of the tools, as well as the amount of time required to complete the questionnaire. The pilot study's findings indicated that no more improvements or modifications were required; hence the pilot study's women were included in the final sample.

Field work

The data collection period for this research lasted 10 months, commencing in April 2020 and ending in January 2021. This

was carried out in three stages: pre-intervention, intervention, and follow-up:

Pre intervention:

An official letter from Assuit University's Faculty of Nursing was sent to the Women's Health Hospital's relevant authorities, requesting permission to gather data after describing the study's aim. After obtaining women's signatures on a consent form, the researchers introduced themselves and explained the study's goal. The researcher interviewed each participant individually in a separate room to maintain confidentiality and the women's personal characteristics, obstetric and family planning history were obtained.

Intervention phase:

An educational program was given to every small group of women (ranged from 3 to 5) by the researchers through 3 sessions; each session took about 15- 25 minutes. The first session aimed to establish rapport between the researchers and the women to relieve their fear & tension and to gain women's trust. In addition, pretest was done to woman regarding knowledge about IUCD as EC, attitude scale tool also filled from each woman. During the second session the studied women was provided with the required knowledge about IUCD as EC. Also an instructional supportive brochure was distributed among women who participated in the study.

Program given to women took the form of lecture, discussion, and video. The sessions were applied during the waiting time of studied women for clinical examination at the family planning clinic. The educational content was designed based on review of relevant recent literature. The content involved definition of EC, types of EC, advantages, disadvantage, when to use an IUCD as EC, indications, contraindication, time of insertion, effectiveness, mechanism of action, and side effects.

Post intervention:

In the third session the women asked questions to identify their attitudes toward using IUCD as EC and intention to use it. Finally another evaluation of women's knowledge was carried out (posttest) after 4 weeks during the follow up visit or by telephone.

Administrative design:

Each woman who participated in the study gave her informed agreement, and the study was kept completely confidential. The woman had the option to leave the study at any time.

Statistical design:

SPSS for Windows version 20.0 was used for statistical analysis. With continuous data, all variables had a normal distribution and were reported in mean standard deviation (SD). Numbers and percentages were used to present the categorize data. For variables with continuous data, the comparisons were made using the t test. For comparing variables using categorized data, the Chi-square and McNemar tests were used. P-values less than 0.05 were considered statistically significant.

Results:

Table (1) shows personal data of studied women and reports that 62.0% of them have age from 20-30 years with a mean age of 28.19±5.9. About 78.7 and 64.3 have no work and lives in rural areas respectively. Also 29.3% of them have a secondary certificate and 49% of studied women have duration of marriage from 4-10 years.

Table (2) illustrates obstetric history of studied women and clarifies that 48%, 79% and 31.7% of them have a 1-2 gravida, multipara and have previous abortion respectively. About 58.0% and 73.3% of them have mixed living children and delivered their last baby through CS. About 69.3% of studied women have unintended pregnancy, 46.7% of unintended pregnancy occurred due to missed pills.

Table (3) demonstrates family planning history of studied women and shows that 64.7% of them are used family planning methods previously. For used women about 41.8% take pills and 18.3% have a menstrual irregularity as a complication. Only 17% of the women in the study had heard of IUCD as an EC strategy

Figure (1): demonstrates source of information about EC and reported that 8.7% had learned about it via a doctor or nurse.

Table (4) shows knowledge of studied women about IUCD as EC method and reports

that there is highly statistical significant difference between pre and posttest regarding definition of EC, types of EC, advantages, disadvantage, when to use an IUCD as EC, indications, contraindication, time of insertion, effectiveness, mechanism of action, and side effects p-value are <0.001 for all previous variables.

Figure (2) represents total knowledge score of studied women regarding emergency IUCD as EC in pre and posttest and find that there is statistical significant difference between pre and posttest p- value 0.001.

Table (5) clarifies attitude toward using IUCD as EC and demonstrates that there is highly statistical significant difference between pre and posttest regarding all items with a p-value of <0.001 for all.

Figure (3) displays total attitude score of studied women regarding using IUCD as EC in pre and posttest and reveals that there is statistical significant difference between pre and posttest p- value 0.001.

Table (6) shows intention & willingness of studied women to use IUCD as EC after implementation educational intervention, and reports that 61.7% of them intent to use IUCD as EC, about 72.3% and 88.0% ensured from support of their husband if used it and will recommend it to their friends.

As reported in **table (7)** there are relationship between total knowledge of studied women regarding IUCD as EC in pretest and age, residence, certificate obtained, employment, gravidity, parity and mode of previous delivery p-value are 0.001, 0.001, , 0.001, 0.002, 0.001, 0.041 and 0.005 respectively. And there is no relation between total knowledge in pretest and pervious abortion p-value 0.335.

Table (8) demonstrates relation between total attitude of studied women regarding IUCD as EC in pretest and personal data and obstetric characteristics, and finds that there are relations between total knowledge in pretest and age, certificate obtained, employment, gravidity and p-value are 0.002, 0.004, 0.003, and 0.003 respectively. And there is no relation between total knowledge in pretest and residence, parity, pervious abortion and mode of previous delivery p-value 0.303, 0.247, 0.794 and 0.708 respectively.

Table (9) reports relationship between total knowledge of studied women regarding IUCD as EC in pre and posttest and total attitude, and illustrates that there is a positive relation between total knowledge and total attitude in pretest p value 0.001. Also there is a positive relation between total knowledge and total attitude in posttest p value 0.002.

Table (1): Distribution of studied women according to personal data:

Personal data	No (300)	%
Age/years		
● Less than 20 year	15	5.0
● 20-30 year	186	62.0
● more than 30 year	99	33.0
Age mean ±SD	**28.19± 5.9**	
Residence		
● Urban area	107	35.7
● Rural area	193	64.3
Certificate obtained	70	23.3
● No certificate	33	11.0
● Primary & Junior certificate	52	17.3
● Secondary certificate	88	29.3
● University –certificate	57	19.1
Employment		
● No work	236	78.7
● Employed	64	21.3
Duration of marriage		
<4 years	98	32.7
4-10 years	147	49.0
More than 10 years	125	41.7
Duration of marriage mean ±SD	**7.2± 3.1**	

Table (2): Distribution of studied women according to obstetric history:

Obstetric history	No (300)	%
Gravidity		
● 1-2	144	48.0
● 3-5	134	44.7
● More than 5 gravida	22	7.3
Parity		
● Primipara	63	21.0
● Multipara	237	79.0
Pervious abortion.		
● Yes	95	31.7
● No	205	68.3
Number of living children		
● Only Male	70	23.3
● Only female	56	18.7
● Mixed male& female	174	58.0
Mode of delivery of the last baby		
● Normal	80	26.7
● C.S	220	73.3
Occurrence of unintended pregnancy		
● Yes	92	30.7
● No	208	69.3
Total	**300**	**100.0**
If yes, cause of its occurrence		
● Missing pills	43	46.7
● Failure of contraceptive method	23	25.0
● Not using contraceptive method	26	28.3
Total	**92**	**100.0**

Table (3): Distribution of studied women according to family planning history:

Family planning history	No (300)	%
Using of any FP method		
● Yes	194	64.7
● No	106	35.3
Total	**300**	**100.0**
If yes, type of FP method used		
● pills	81	41.8
● Injectable	43	22.2
● Implanon	19	9.8
● IUD	31	16.0
● Mixed method	20	10.3
If yes, Complications occurred during used		
● No complication	82	27.3
● Menstrual irregularity	55	18.3
● Bleeding	32	10.7
● Infection	10	3.3
● Pregnant while use	15	5.0
Total	**194**	**100.0**
Hearing about Using IUCD as EC		
● Yes	51	17.0
● No	249	83.0

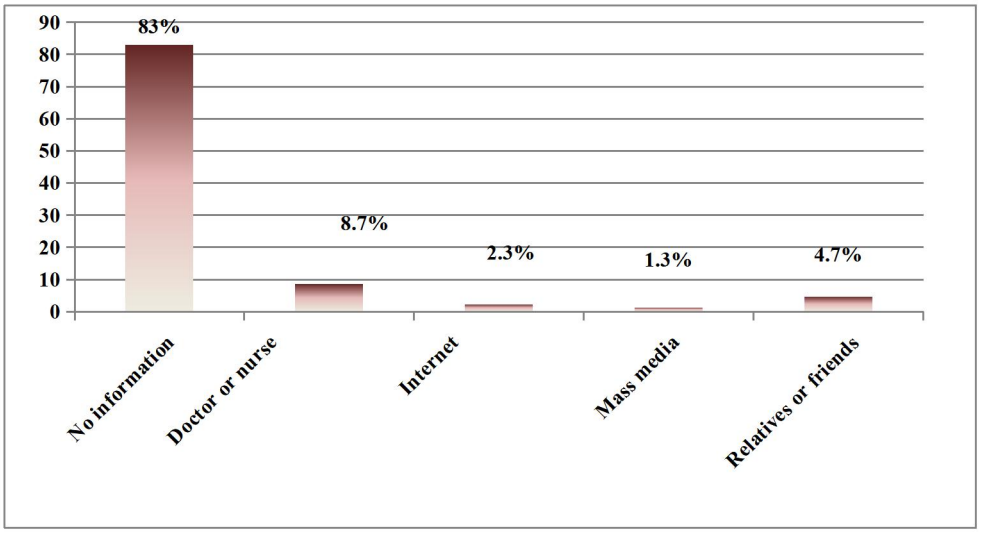


Figure (1): Source of women's information before educational program

Table (4): Distribution of studied women according to their knowledge about copper IUD as EC in pre and posttest N (300):

Knowledge Items	Number and percent of correct answers				Chi-square	
	Pretest		Posttest			
	No	%	No	%	X2	P-value
Definition of EC	21	7.0	281	93.7	78.5	<0.001**
Types of EC methods	7	2.3	294	98.0	89.1	<0.001**
Advantages						
-Can use it after intercourse	9	3.0	272	90.7	81.4	<0.001**
-Very effective	10	3.3	291	97.0	88.8	<0.001**
-Provide an opportunity to start family planning method	11	3.7	260	86.7	79.1	<0.001**
-doesn't affect your ability to have children in the future.	8	2.7	292	97.3	86.8	<0.001**
Disadvantage						
-It does not work if women are already pregnant.	3	1.0	282	94.0	86.3	<0.001**
-Has a limited time of 5 days following unprotected intercourse.	8	2.7	293	97.7	87.4	<0.001**
-IUCD insertion requires a trained professional.	13	4.3	298	99.3	90.6	<0.001**
When to use an IUCD as EC	6	2.0	279	93.0	93.0	<0.001**
Indications						
- cases where the woman has not used contraception	7	2.3	259	86.3	75.2	<0.001**
- cases where sex has been forced or coerced, or raped	5	1.7	281	93.7	86.1	<0.001**
- contraceptive mistake as condom breaking	9	3.0	279	93.0	84.3	<0.001**
Contraindication						
-Pregnant woman	13	4.3	271	90.3	80.2	<0.001**
-Untreated sexually transmitted infection (STI)	1	0.3	263	87.7	76.7	<0.001**
-Problems with womb or cervix	3	1.0	277	92.3	83.9	<0.001**
–Unexplained bleeding between periods or after sex	6	2.0	280	93.3	80.9	<0.001**
Time of insertion of IUCD as EC method	5	1.7	290	96.7	91.2	<0.001**
Effectiveness of IUD as EC method	19	6.3	292	97.3	88.2	<0.001**
Mechanism of action of IUCD						
-Interfering with fertilization, by stopping the sperm from fertilizing the egg.	11	3.7	253	84.3	72.4	<0.001**
-Decreasing the number of sperm reaching the uterine tube and interfering with their motility.	2	0.7	246	82.0	74.1	<0.001**
-Preventing the fertilized egg from implanting in the uterus	3	1.0	262	87.3	80.8	<0.001**
Side effect of IUD as EC						
-Mild to moderate pain when the IUD is put in	22	7.3	294	98.0	87.6	<0.001**
-Cramping or backaches for a few days after the IUD put in	31	10.3	288	96.0	84.1	<0.001**

(**) highly statistical significant difference

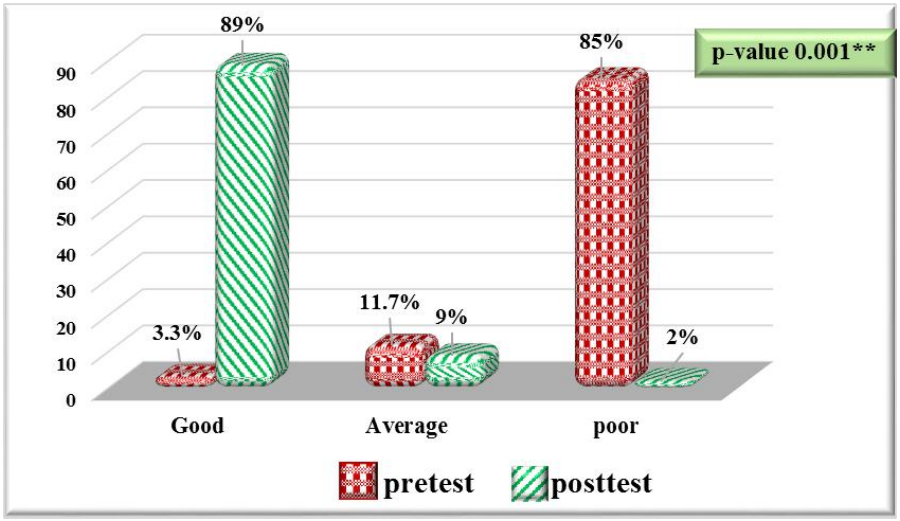
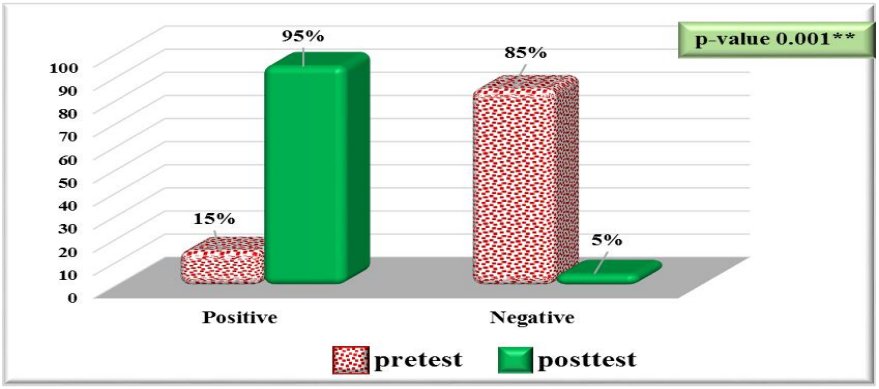


Figure (2): Total knowledge of studied women regarding emergency IUD in pre and post test

Table (5): Distribution of studied women according to their attitude toward using IUCD as EC pre and posttest N (300):

Knowledge Items	Attitude in pretest			Attitude in posttest			Chi-square	
	Agree	Slightly agree	Disagree	Agree	Slightly agree	Disagree		
	No (%)	No (%)	No (%)	No (%)	No (%)	No (%)	X2	P-value
Using IUCD as an EC can prevent unwanted pregnancy	28(9.3)	42(14.0)	230(76.7)	291(97.0)	7(2.3)	2(0.7)	95.4	<0.001**
Having unprotected sexual intercourse, woman can use IUCD as EC.	67(22.3)	45(15.0)	188(62.7)	281 (93.6)	8(2.7)	11(3.7)	64.8	<0.001**
Using IUCD as EC should be publicized more widely	48(16.0)	52(17.3)	200(66.7)	251(83.6)	29(9.7)	20(6.7)	59.1	<0.001**
Using IUCD as EC can cause infertility in a woman	65(21.7)	47(15.7)	188(62.7)	246(82.0)	35(11.7)	19(6.3)	51.6	<0.001**
IUCD as EC can be used as a routine contraceptive method of choice	25(8.3)	98(32.7)	177(59.0)	172(57.3)	111(37.0)	17(5.7)	50.8	<0.001**
IUCD as EC doesn't hurts the ability to become pregnant in the future	35(11.7)	24(8.0)	241(80.3)	233(77.7)	59 (19.6)	8(2.7)	76.2	<0.001**
IUCD as EC is more effective in preventing unwanted pregnancy	30(10.0)	77 (25.7)	193(64.3)	274(91.3)	17(5.7)	9(3.0)	83.8	<0.001**
I intend to use IUCD as EC and not fear of side effects	25(8.3)	70(23.3)	205(68.3)	275(91.7)	20(6.7)	5(1.7)	92.2	<0.001**

(**) highly statistical significant difference



(**) highly statistical significant difference

Figure (3): Total attitude of studied women regarding emergency IUD in pre and posttest

Table (6): Distribution of studied women according to intention & willingness to use IUD as EC after implementation educational intervention:

Variables	No (300)	%
Intention to use IUD as EC after education		
● Yes	185	61.7
● No	48	16.0
● Not now, may be in the future	67	22.3
Husband would support if used		
● Yes	217	72.3
● No	44	14.7
● Don't know	39	13.0
Would you will recommend IUD as EC to your friends		
● Yes	264	88.0
● No	36	12.0
Fears about using the IUD as EC		
● No fear	167	55.7
● No concerns	45	15.0
● Affects health	43	14.3
● Can hurt baby if one becomes pregnant	17	5.7
● Can be abortive	10	3.3
● Can cause complications in future pregnancy	18	6.0

Table (7): Relationship between total knowledge of studied women regarding IUCD as EC in pretest and personal and obstetric characteristics:

Personal and obstetric characteristics	Total knowledge in pretest						Chi- square	
	Good(10)		Average (35)		Poor (255)		X^2	P-value
	No	%	No	%	No	%		
Age/years								
● Less than 20 year	0	0.0	3	8.6	12	4.7		
● 20-30 year	2	20.0	8	22.8	176	69.0	76.46	0.001**
● more than 30 year	8	80.0	24	68.6	67	26.3		
Residence								
● Urban area	8	80.0	10	28.6	89	34.9	62.9	0.001**
● Rural area	2	20.0	25	71.4	166	65.1		
Certificate obtained								
● No certificate	1	10.0	1	2.9	68	26.7		
● Primary & Junior	1	10.0	4	11.4	80	31.4	73.5	0.001**
● Secondary	2	20.0	11	31.4	75	29.4		
● University	6	60.0	19	54.3	32	12.5		
Employment								
● No work	3	30.0	8	22.8	225	88.2	41.67	0.002**
● Employed	7	70.0	27	77.2	30	11.8		
Gravidity								
● 1-2	1	10.0	4	11.4	139	54.5		
● 3-5	3	30.0	21	60.0	110	43.1	95.5	0.001**
● > 5 gravida	6	60.0	10	28.6	6	2.4		
Parity								
● Primipara	3	30.0	12	34.3	48	18.8	6.394	0.041*
● Multipara	7	70.0	23	65.7	207	81.2		
Pervious abortion.								
● Yes	4	40.0	11	31.4	80	31.4	2.189	0.335
● No	6	60.0	24	68.6	175	68.6		
Mode of delivery of the last baby								
● Normal	5	50.0	12	34.3	63	26.4	12.4	0.005**
● C.S	5	50.0	23	65.7	192	73.6		

(**) highly statistical significant difference (*)Statistical significant difference

Table (8): Relationship between total attitude of studied women regarding IUCD as EC in pretest and personal data and obstetric characteristics:

Personal and obstetric characteristics	Total attitude in pretest				Chi- square	
	Positive (45)		Negative(255)		X^2	P-value
	No	%	No	%		
Age/years						
● Less than 20 year	2	4.4	13	5.1		
● 20-30 year	13	28.9	173	67.8	32.42	0.002**
● More than 30 year	30	66.7	69	27.1		
Residence						
● Urban area	13	28.9	94	36.9	1.06	0.303
● Rural area	32	71.1	161	63.1		
Employment						
● No work	24	53.3	212	83.1	20.47	0.003**
● Employed	21	46.7	43	16.9		
Certificate obtained						
● No certificate	4	8.9	66	25.9		
● Primary & Junior	13	28.9	72	28.2	18.06	0.004**
● Secondary	11	24.4	77	30.2		
● University	17	37.8	40	15.7		
Gravidity						
● 1-2	11	24.4	133	52.2		
● 3-5	22	48.9	112	43.9	27.35	0.003**
● > 5 gravida	12	26.7	10	3.9		
Parity						
● Primipara	7	15.6	56	22.0	1.342	0.247
● Multipara	38	84.4	203	78.0		
Pervious abortion.						
● Yes	15	33.3	80	31.4	0.068	0.794
● No	30	66.7	175	68.6		
Mode of delivery of the last baby						
● Normal						
● C.S	14	31.1	66	25.9	0.69	0.708
	31	68.9	189	74.1		

(**) highly statistical significant difference

Table (9): Relationship between total knowledge of studied women regarding IUCD as EC in posttest and total attitude:

Total knowledge	Total attitude in posttest				Chi- square	
	Positive (285)		Negative(15)		X^2	P-value
	No	%	No	%		
• Good	2	4.4	13	5.1	**30.6**	**0.002****
• Average	13	28.9	173	67.8		
• Poor	30	66.7	69	27.1		

(**) highly statistical significant difference

Discussion:

Concerning knowledge about copper IUD as EC, the present study finding demonstrates that there are highly statistical significant difference between pre and post intervention regarding definition, types, advantages, disadvantages, time to use IUD as EC, indication, contraindication, time of insertion, effectiveness and mechanism of action. This illustrates the importance of educational program on improving studied women's information. And supports providing a continuous health education to childbearing women.

On the same line, **(Hassan et al., 2020),** who carried out their study in Egypt to assess the effect of an educational guidelines on childbearing women's knowledge, attitude and their intention regarding EC use, and reported that there were highly statistical significant difference between pre and post intervention regarding definition, advantages, types, time of IUD insertion, side effect and mode of action.

Also **(AbdElmoniem & Abdelhakam, 2018),** who applied their study in Egypt to evaluate the effect of EC guidelines on women's knowledge and attitude, and reported that there were highly statistical significant difference between pre and post intervention regarding meaning, indication, types, timing start after sex and contraindication to use ECIUD.

Regarding total knowledge score about using IUD as EC method, current findings report that the majority of studied women have a poor knowledge before implementing educational program, while after intervention there are highly significant improvement in the total knowledge score as the majority of them have a good knowledge. This clarifies the vital role to educational program given to women on improving their information on ECIUD.

This was agreed with **(Thongnopakun et al., 2018),** who conducted a study in Thailand to investigate the impact of an educational program on condom and EC knowledge, attitudes, and intentions, and showed that there was highly statistical significant difference between pre and post intervention regarding total knowledge score about EC. In addition to **(Abdulmalek & Ibrahim, 2016),** who used their research on Duhok school teachers to measure women's EC knowledge, compare school teachers' knowledge to that of other women in the community, and assess pre-posttest knowledge, and revealed that there was highly statistical significant difference between pre and posttest. Also **(AbdElmoniem & Abdelhakam, 2018),** illustrated that there was a highly significant improvement in the total knowledge score between before and after intervention.

On the other side **{Formatting Citation},** who carried out their study on nurses to identify their knowledge about EC in Egypt, and reported that around ne half of studied nurses had a good and average knowledge about EC. This difference back to dissimilarity in the study's sample as nurses had a better information than women.

As regard studied women attitude toward using ECIUD, actual study's findings demonstrate that there was a highly statistical significant difference between pre and posttest. It is also found that the majority of studied women had a negative attitude toward using ECIUD before intervention that was highly improved and changed to positive attitude after intervention. This demonstrates the effect of educational program on changing the women's attitude toward better attitude.

The same opinion was reported by **(Thongnopakun et al., 2018),** who shown that after implementing an educational program,

women's knowledge of EC improved significantly. Also **(Hassan et al., 2020)** and **(AbdElmoniem & Abdelhakam, 2018)** agreed with previous findings and showed also a significant improvement in the level of knowledge after receiving educational program about EC.

As regard intention to use ECIUD after educational the present study's findings illustrates that more than three fifth of studied women have the intention to use IUD as EC method in the future. On the same line **(Hassan et al., 2020)** revealed that more than three fifth of studied women would be intended to use EC method in the future.

Concerning intention of studied women to recommend using IUD as EC method to other women, actual studies finding clarify that the great majority of studied women will recommend EC IUD to other women. This explores the active role to educational program on identifying them by EC IUD that encourages studied women to use and recommend it to others.

On the other side, **(El-Sabaa et al., 2013),** who implemented their study in Egypt to identify awareness and use of EC method among childbearing women, and showed that around one third of studied women intended to advise another woman to use EC method. This difference back to lack of awareness of childbearing women by EC methods.

Findings of the present study indicate that there was a positive relation between total knowledge score regarding using IUD as EC and attitude score of studied women toward EC IUD after intervention educational program. This was inconsistent with **(AbdElmoniem & Abdelhakam, 2018),** who reported that there was a positive relation between total knowledge score and total attitude of studied women after implementing educational intervention. This supports the effect of women knowledge toward their attitude.

This is similar with **(Langille et al., 2012),** who achieved their study to determine their knowledge and attitudes toward ECPs, and demonstrated that the group of good knowledge has a significantly higher positive attitude than those with poor knowledge but disagree with **(Golezar et al., 2014),** who conducted a study to assess freshman female students' knowledge and attitudes toward emergency contraception, and found there is no significant correlation among level of knowledge and attitude.

Regarding relation between total knowledge in pretest of studied women about EC IUD and personal data, actual study findings report that there is relation between total knowledge and age, residence and educational level. This explains the effect of these variables on level of women's knowledge.

These findings follow the same line with **(Asut et al., 2018)**, who stated that their study in Nicosia evaluated the knowledge and perceptions of first-year students of an international medical school on family planning and EC, and that there was a relationship between women's total knowledge and age, residence, and level of education.

Also agreed with **(Hassan et al., 2020)** and **(AbdElmoniem & Abdelhakam, 2018),** who found a highly significant relation between total knowledge of studied women and occupation and educational level. This result might be attributed to the fact that educated women open their mind to new ideas and education enable women to gain access to knowledge.

In congruent with previous findings **(Mohamed et al., 2016),** who showed that there was no relation between total knowledge of studied women and age and educational qualification. This difference may be back to changing in the sample as Mohamed et al work on nurses that similar in education and near their age from each other.

As regard total attitude score of studied women and its relation to total knowledge regarding IUD as EC in pre and posttest, present study clarify that there is a positive relation between total attitude and knowledge. This was in accordance with **(Gajera et al., 2017),** who achieved their study in India to examine undergraduate medical students' knowledge and attitudes on emergency contraception and found a similar favorable relationship between total attitude and knowledge.

As clarified in the current study, less than one fifths of studied women before intervention heard about EC IUD. This explains the lack of awareness of majority of women by using IUD as EC method. This finding agreed with **(El-Sabaa et al., 2013),** who demonstrated that less than one quarter of studied women heard about EC IUD. Also the finding near to **(Abdulmalek & Ibrahim, 2016),** who revealed that only less than one tenth of studied women heard about EC IUD.

Regarding source of woman information about EC IUD before intervention, actual study's finding illustrated that around one half of studied women obtained their information from doctors and nurse. Previous findings inconsistent with **(Abraha et al., 2019)**, who carried out their study in Ethiopia to assess the knowledge of and utilization of CE and its associated factors among women seeking induced abortion, and found that more than half of studied women obtained their knowledge about EC from health team workers. Also near to previous results **(AbdElmoniem & Abdelhakam, 2018),** reported that more than two fifth of studied women obtained their knowledge from health clinics. This supports the importance of the health team role in supporting women with health education.

On the other side, **(Raikar et al., 2015)**, who applied their study in India to assess the knowledge, attitude & practice regarding EC among married women of reproductive age and to study the influence of educational status on the awareness & willingness to use EC methods, and revealed that less than one half of studied women obtained their information regarding EC from doctors. This may be back to dissimilarity in setting and tradition. Also **(Abdulmalek & Ibrahim, 2016),** showed that less than one fifths of studied women had their knowledge about EC from doctors.

Conclusion:

From the finding of the present study, it can be concluded that:

A significant improvement occurred in the total score of knowledge and attitude post intervention and women's intention to use IUCD as EC increased after educational program.

Recommendations:

- Implementing a regular education programs to raise women's awareness regarding using IUCD as EC methods.
- Providing a continuous conferences and workshops to maternity health care providers about IUCD as EC methods.
- To provide women with their entire range of contraceptive options, a coordinated effort to increase counseling, provider training, and access to IUCD as EC will be crucial.
- Further studies are needed to investigate factors affect utilization of childbearing women to use IUCD as EC methods.

Abbreviations:

EC: Emergency contraception; IUCD: Intrauterine copper device

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