

Effectiveness of Educational Intervention on Knowledge and Attitude of Maternity Nurses regarding Emergency Contraception

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Abstract

Background: Use of emergency contraceptive methods reduce risk of unintended pregnancy that contributes in reducing maternal morbidity and mortality. **Aim:** The aim of the study was to evaluate effectiveness of educational intervention on knowledge and attitude of maternity nurses regarding emergency contraception. **Setting:** The study was conducted in Obstetrics and Gynecological (Department, Outpatient Clinic and Emergency) at Benha University Hospital. **Design:** A quasi experimental design was utilized. **Sampling:** A convenient sample included 80 Maternity nurses. **Tools of data collection:** Two tools were used, **Tool I:** A structured self-administered questionnaire which consisted of 2 parts, Part (1): General characteristics of the studied nurses, Part (2): Maternity nurses' knowledge assessment sheet and **Tool II:** Maternity nurses' Attitude assessment sheet. **Result:** There was a highly statistically significant improvement in relation to maternity nurses' knowledge and attitude regarding emergency contraception at post intervention phase compared to pre intervention phase. As well as, There was a highly statistical significant positive correlation between total knowledge and total attitude scores regarding emergency contraception at pre- and post- intervention phase. **Conclusion:** The educational intervention had a positive effect on the improvement of maternity nurses' knowledge and attitude regarding emergency contraception. **Recommendations:** Applying continuous in-service training program for maternity nurses to improve their knowledge and attitude regarding emergency contraception.

Key Words: Educational Intervention, Emergency Contraception, Nurses knowledge and attitude

Introduction

Emergency contraceptives (EC) are an essential element of contraceptive services to reduce risk of unintended pregnancy. Unintended pregnancy is a pregnancy that usually includes either unwanted or mistimed pregnancy which occurs due to failure to choose an effective contraception method or its' incorrect and inconsistent use. Such pregnancies can place an economic burden on the nation as a whole and can put the women at reproductive health risk (Shakya et al, 2020).

Women face many obstacles regarding contraceptive methods, including lack of access to information and health care services, opposition from husbands and communities, misperceptions about side effects, and cost. If these obstacles could be overcome and the demand for family planning met, 54 million unintended pregnancies, more than 79, 000 maternal deaths and more than a million infant deaths could be avoided each year (Singh et al, 2022).

Emergency Contraception is an essential intervention for the prevention of unplanned pregnancy worldwide. The government's

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ambition is to reduce unintended pregnancies among all women of fertile age through increased knowledge and awareness of all methods of contraception and improved access to these methods, including emergency hormonal contraception (**Chalernphon, 2021**).

There are many indications for using EC as unprotected intercourse, contraceptive failure, breakage or slippage of condom, in addition to sexual assault. Moreover, EC are safe with no serious complications or side effects. The most common side effects of EC are nausea and vomiting for oral pills while, heavy menstrual bleeding, pain and cramping or expulsion are associated with intrauterine contraceptive device (IUCD) (**Hashem et al, 2022**).

Emergency Contraceptive Pills must be taken within 72 or 120 hours of unprotected intercourse. A copper IUCD must be inserted within 5 days of unprotected intercourse. The levonorgestrel-only regimen for EC acts by inhibiting ovulation, estimated efficiency of 84% when taken within 3 days of unprotected sex. Systematic literature reviews and reports of controlled trials have shown that adverse events related to Levonorgestrel EC use are rare, reported side effects appear to be mild, and acceptability among women is high (**Endler et al, 2022**).

Although the copper IUCD is not approved by the United States Food and Drug Administration (USFDA) for emergency contraception, substantial observational evidence supports that it is highly effective, failing to prevent pregnancy in less than 0.1% of cases, an order of magnitude lower than the incidence of failure with oral methods. However, persons selecting an IUD for long-term contraception have shown a strong preference for the levonorgestrel IUD over the copper IUD, probably because the

levonorgestrel IUD reduces menstrual bleeding and discomfort (**Turok, 2021**).

Good family planning infrastructure and adherence of providers to standard practices that address the issues and side effects of contraceptive methods, protect client privacy, evaluate reproductive and medical history, and conduct basic tests to ensure safe administration of methods were also linked to increased acceptance of family planning (**Leslie et al., 2017**).

Nursing personnel are an integral part of any health care system. Nurses act as reliable source of information for the general public who are exposed to them. The knowledge and attitude of nursing personnel towards contraception can grossly influence the contraceptive practices of the community as they act as both health educators and service providers. Lack of awareness, misconceptions and negative attitude towards EC in nursing personnel can both act as a barrier for their personal use and also prevent them from promoting EC to the beneficiaries (**Nivedita, 2020**).

Nurses are in the most effective position from point of communication the EC knowledge to people. nurses must have to enough knowledge to educate about EC and can use the emergency contraception method when it is necessary, EC decreases emotional and physical risks to women who have had unprotected intercourse (**Brant et al, 2022**).

Significance of the study

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, each year there are about 250 millions pregnancies globally and one third of these are unintended and 20% of these undergo induced abortion. In low-income countries, more that one third of the 182 million pregnancies is unintended; the fate of

19% will be induced abortion and 11% of this is unsafe. In low-income countries, the women who do not use any contraceptive contribute to two third of unintended pregnancies, where more than 100 million married women have unmet need for contraception (WHO, 2021).

Accordingly, the Strategic National Population Plan 2015-2030 in Egypt has asked for urgent strategies to decrease the total fertility rate to 2.4 births per woman by the year 2030. Total fertility rate can be reached by elevating family planning methods prevalence from 58% in 2014 to 72%, decreasing the rate of discontinuation (in the first year of use) from 30% in 2014 to 18%, and decreasing the percentage of unmet need for contraceptive methods from 13% to 6% (Hassan, 2021).

According to 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 (Nyirenda and Besa, 2019).

In view of that, this study was conducted to evaluate effectiveness of educational intervention on knowledge and attitude of maternity nurses regarding emergency contraception.

Aim of the study

This study was aimed to evaluate effectiveness of educational intervention on knowledge and attitude of maternity nurses regarding emergency contraception.

The aim was achieved through:

- Assessing maternity nurse's knowledge and attitude regarding emergency contraception.
- Designing and implementing educational intervention about emergency contraception.

- Evaluating the effect of educational intervention on maternity nurse's knowledge and attitude toward emergency contraception.

Research Hypotheses:

H1: Maternity nurses would exhibit better knowledge regarding emergency contraception after receiving educational intervention.

H2: Maternity nurses would exhibit positive attitude regarding emergency contraception after receiving educational intervention.

Operational Definition:

Effectiveness: Refers to the desired outcome of the educational intervention on knowledge and attitude of maternity nurses regarding emergency contraception.

Educational intervention: refers to planned verbal and written instruction consisting of objectives strategies to provide maternity nurses with essential knowledge and positive attitude regarding emergency contraception.

Emergency Contraception: Emergency contraception (EC) is a way of preventing unwanted pregnancy that is used within 5 days of coitus to prevent unplanned pregnancy.

Subjects and Method

Study Design:

A quasi-experimental study design (One-Group, Pre-test / Post-test design) was utilized to fulfill the aim of this study. Which specifies that: an observation (called a pre-test) assessed before intervention is introduced to individuals (or other units), the intervention subsequently introduced, and finally a second observation (called a post-test) was applied in different times. The difference between the pre-test and post-test observations is used to estimate the size of the effect of the intervention (Millsap and Olivares, 2019).

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Study setting:

The study was conducted in (Obstetrics and Gynecological department, Outpatient Clinic and Emergency) affiliated to the Benha University Hospital. It is a large hospital in Benha city and attracts clients from Al Qualubia Governorate and other Neighboring Governorates. This setting provides obstetrics and gynecology healthcare services that include antenatal care, counseling, care for high-risk pregnancy, delivery care, family planning and follow up services.

Sampling:

Sample type: A convenient sample.

Sample size: All Maternity nurses (80 nurses) who were working at the time of data collection at (Obstetrics and Gynecological department, Outpatient Clinic and Emergency) affiliated to the Benha University Hospital.

Tools of data collection:

Tools of data collection based on the review of literature, the required data for the present study were collected through development of two tools as the following:

Tool I: A structured self-administered questionnaire:

It was developed by the researchers after reviewing the related literature (**Thongnopakun, et al, 2018**) in the form of close ended questions and was translated by the researchers into Arabic language to suit level of education. It consisted of 2 parts:

Part (1): General characteristics of studied nurses included 8 items (age, marital status, residence, educational level, additional work, years of experience, attend training courses)

Part (2): Maternity nurse's Knowledge assessment sheet:

It was developed by the researchers after reviewing the related literature (**Sirirat et al., 2015; Ekhtiari et al., 2018**) in the form of close ended questions and translated by the researchers into Arabic language to assess

studied nurse's knowledge about emergency contraception. It consisted of 19 items that divided into (3) sections:

Section (1): General knowledge about emergency contraception, it consisted of 8 items (meaning of emergency contraception, types of emergency contraception, indications of emergency contraception, mechanism of action of emergency contraception, the maximum time for use of emergency contraception, methods that can be used immediately after the emergency contraception, emergency contraceptives can be used as the usual method of contraception and disadvantages of contraceptives).

Section (2): Knowledge about emergency intra uterine contraceptive device, it consisted of 5 items (advantages of intra uterine contraceptive device, efficiency of IUD emergency contraceptive, the maximum time to start for using the IUD emergency to prevent pregnancy after sexual intercourse, contraindication for using IUD emergency contraception and side effects of emergency contraception IUD).

Section (3): Knowledge about emergency contraceptive pills, it consisted of 6 items (types of emergency contraception pills, efficiency of emergency contraceptive pills, contraindication of emergency contraception pills., side effects of emergency contraception pills, women shouldn't use emergency contraception and advantages of emergency contraception pills).

Scoring system of knowledge:

Each item was assigned a score (3) given when the answer was completely correct, a score (2) was given when the answer was incompletely correct and a score (1) was given when the answer was don't know. The total score for the knowledge was calculated by the addition of the total score of all sections.

The score of total knowledge was classified as the following:

- Good knowledge: $\geq 75\%$
- Average knowledge: 60-75%
- Poor knowledge: $< 60\%$

Tool II: Modified Likert Scale:

to assess the attitude of maternity nurses regarding emergency contraception. It consisted of 18 items such as (emergency contraception is safe if used correctly, emergency contraception can be obtained without a prescription or medical supervision, emergency contraception does not lead to health and reproductive problems, usual contraceptives can be used immediately after emergency contraception, the emergency contraceptive pill does not cause an abortion, emergency contraception does not lead to infertility, emergency contraception does not reduce the chances of pregnancy, doctors and nurses can provide correct information about emergency contraception, women who use emergency contraception must undergo a medical examination first before using themetc.).

Scoring system of attitude:

The items were judged according to a three points Likert Scale continuum from (1) if response was disagreed, (2) if response was uncertain and (3) if response was agree. The total attitude score was considered as the following:

- Positive attitude: $\geq 60\%$
- Negative attitude: $< 60\%$

Tools Validity and Reliability:

The experts reviewed the tools for clarity of sentences, consistency and appropriateness of contents, accuracy, relevance, comprehensive and applicability of tools. Content validity of the tools was revised by a panel of three experts in Obstetrics and Gynecological Nursing at faculty of Benha University; minor modifications were required in formulating

sentences. The reliability of the tools was performed to confirm its internal consistency. The Cronbach's alpha coefficient for the tool I (Maternity nurses' knowledge assessment sheet) was 0.86 and for the tool II (Maternity nurses' attitude assessment sheet) was 0.81.

Ethical considerations:

Ethical aspects were considered before starting the study as the following:

- The research approval was obtained from scientific research ethical committee, faculty of nursing at Benha University before starting the study.
- An official permission from the selected study settings was obtained for the fulfillment of the study.
- The aim of the study was explained to each nurse before applying the tools to gain their confidence and trust.
- The researchers was taken informed consent from nurses to participate in the study and confidentiality was assured.
- The data was collected and treated confidentially.
- All nurses were given the option to withdrawal from the study at any time.
- The study didn't harm dignity, tradition and religious aspects of nurses.

Pilot study:

The pilot study was carried out on ten percent of the total sample (8 maternity nurses) to test the clarity and applicability of the study tools as well as estimation of the time needed to fill the tools since no modifications were done, nurses in the pilot were included in the main sample.

Field work:

The study was carried out from the beginning of February, 2021 and completed at the end of October, 2021 covering 9 months. The researchers visited the previously mentioned setting two days/week (Saturday, Tuesday) from 9.00 Am to 2.00 Pm. the study was conducted through the following phases;

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preparatory phase, interviewing and assessment, planning, implementation, and evaluation phase.

Preparatory phase:

The preparatory phase was the first phase of the study, the researchers carried out through review of local and international related literature about the various aspects of the study problem. This helped the researchers to be acquainted with magnitude and seriousness of the problem, and guided the researchers to prepare the required data collection tools.

Interviewing and assessment phase:

At the beginning of the interview, the researchers greeted the nurses, introduced herself, explained the purpose of the research and provided the nurses with all information about the study (purpose, duration, and activities) and took consent to participate in the study. Data was collected by the researchers through the distribution of (Tool I) the structured self-administered questionnaire, (part 1, 2, 3) to collect nurses' general characteristics, obstetrics history and family planning history. (Maternity nurse's knowledge assessment sheet (Tool II-pre posttest) to assess nurses' knowledge regarding emergency contraception, Maternity nurse's attitude assessment sheet (Tool III pre-posttest) to assess nurses' attitude regarding emergency contraception. The average time required for completion of the questionnaire was around (20 minutes).

Planning phase:

Based on the results obtained from pretest assessment of nurses' knowledge and attitude regarding emergency contraception and review of relevant literatures, the researchers designed the educational program in an Arabic language supported by pictures. The sessions' number and content were determined. The researchers used different teaching methods such as lectures and group

discussion, with the assistance of the instructional media as video and supported materials.

Implementation phase:

Implementation of the health educational program was carried out at the pre mentioned setting. Nurses were divided into (10) groups according to working circumstances and nurses' physical and mental readiness. Each group included (8 nurses). The overall sessions were 4 sessions for each group and the duration of each session was 25 minutes including periods of discussion according to nurses' achievement, progress and feedback.

Evaluation phase:

The researchers evaluated the effect of the educational intervention with the same format of pretest of a tool as posttest, to evaluate the studied nurse's knowledge and attitude regarding emergency contraception.

Statistical analysis:

Data was verified prior to computerized entry. The Statistical Package for Social Sciences (SPSS version 22.0) was used followed by data analysis and tabulation. Descriptive statistics were applied (e.g., mean, standard deviation, frequency and percentages). Also, test of significance (Chi - square test) was applied to test the study hypothesis. Pearson correlation coefficients were used to investigate the relationship among scores of knowledge and attitude. For all of the statistical tests done, $p\text{-value} > 0.05$ indicated no statistical significant difference, $p\text{-value} \leq 0.05$ indicated a statistical significant difference, and $p\text{-value} \leq 0.001$ indicated a highly statistically significant difference.

Limitation of the study:

Many nurses were busy most of the time with daily work during data collection.

Results

Table (1) clarifies general characteristics of the studied nurses. It reveals that, 42.5% of studied nurses were in age group 25-35 years with a mean age of 37.97 ± 10.46 years. 76.3% of them were married. 71.3% and 70.0% of studied nurses were from rural areas and had technical nursing education respectively. 90.0% of studied nurses had no additional work and 45.0% of them had more than ten years of experiences. Furthermore, 81.3% of the studied nurses did not attend training courses.

Table (2) illustrates that there was a highly statistical significant difference between the results of post-intervention compared to pre-intervention in favor of post-intervention regarding all items of studied nurses' total knowledge (general knowledge about emergency contraception, knowledge about emergency intra uterine contraceptive device and knowledge about emergency contraceptive pills) with $p < 0.001$.

Table (3) clears that, there was a highly statistical significant difference between the results of post-intervention compared to pre-intervention in favor of post-intervention regarding all items of studied nurses' attitude regarding emergency contraception with $p \leq 0.001$ and $p \leq 0.05$. As 85.0%, 92.5%, 86.2%, 87.5% and 90.0% of a studied nurses reported agree answer regarding emergency contraception does not lead to health and reproductive problems , doctors and nurses can provide correct information about emergency contraception, may use emergency contraception in the future, It is easy to use emergency contraception and emergency contraceptives are useful in cases of sexual assault at post intervention respectively compared to 16.3%, 76.3%, 43.7%, 28.7% and 53.8% of them at pre intervention respectively.

Table (4) clarifies that, there was a highly positive statistical correlation between total knowledge and total attitude scores regarding emergency contraception at pre-and post-intervention phase ($p \leq 0.001$).

Figure (1) displays that, 77.5% of studied nurses had good total knowledge score at post-intervention compared to 31.3% of them at pre-intervention phases.

Figure (2) Distribution of studied nurse regarding the total attitude score about emergency contraception at pre- intervention and post- intervention phases (n=80).

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Table (1): Distribution of the studied nurses according to their general characteristics (n=80).

General characteristics	No	%
Age (years)		
< 25	14	17.5
25-35	34	42.5
> 35	32	40
Mean ±SD	37.97±10.46	
Marital Status		
Single	10	12.5
Married	61	76.3
Divorced	6	7.5
Widow	3	3.7
Residence		
Rural	57	71.3
Urban	23	28.7
Educational qualification		
Secondary nursing education	19	23.7
Technical nursing education	56	70.0
Bachelor of nursing	5	6.3
Additional work		
Yes	8	10.0
No	72	90.0
Years of experience		
<5 years	20	25.0
5-10 years	24	30.0
>10 years	36	45.0
Mean ±SD	13.08±9.40	
Attend training courses regarding emergency contraception		
Yes	15	18.7
No	65	81.3

Table (2): Distribution of studied nurses regarding their knowledge about emergency contraception at pre- intervention and post- intervention phases (n=80)

Knowledge items	Pre- intervention		Post-intervention		X²	P value
	No	%	No	%		
General knowledge about emergency contraception						
Good	27	33.8	64	80.0	37.4	0.000**
Average	6	7.5	5	6.2		
Poor	47	58.8	11	13.9		
Knowledge about emergency intra uterine contraceptive device						
Good	27	33.8	61	76.2	30.5	0.000**
Average	7	8.8	5	6.2		
Poor	46	57.5	14	17.5		
Knowledge about emergency contraceptive pills						
Good	25	31.2	62	77.5	44.0	0.000**
Average	3	3.8	7	8.8		
Poor	52	65.0	11	13.8		

**** Highly Significant (P≤0.001)**

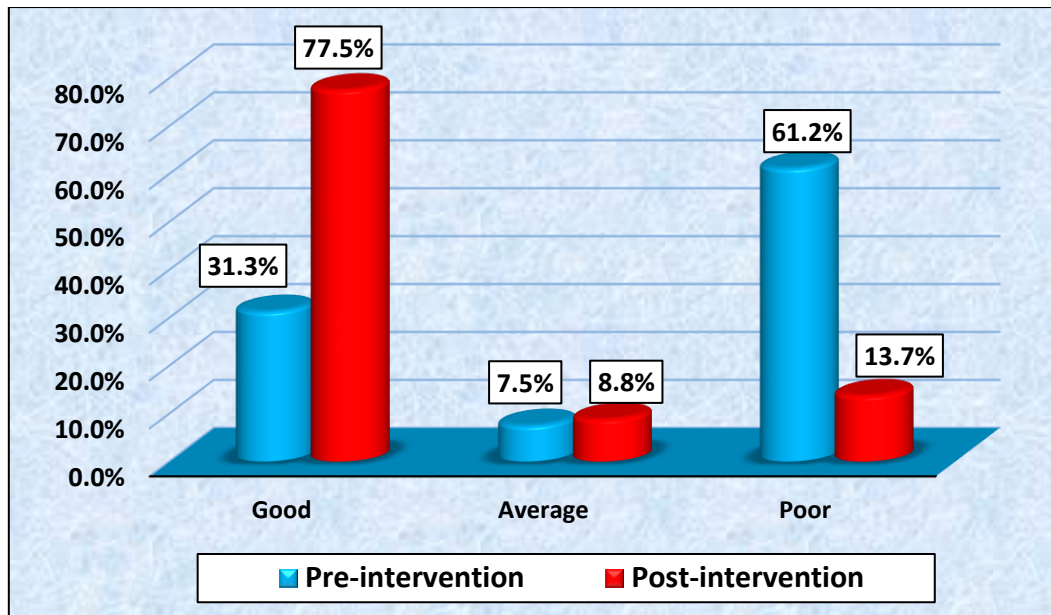


Figure (1): Percentage distribution of studied nurses regarding the total knowledge score about emergency contraception at pre- intervention and post- intervention phases (n=80)

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Table (3): Distribution of studied nurses regarding their attitude about emergency contraception at pre- intervention and post- intervention phases (n=80)

Attitudes items	Pre-intervention						Post-intervention						X ²	P-value
	Agree		Uncertain		Disagree		Agree		Uncertain		Disagree			
	No	%	No	%	No	%	No	%	No	%	No	%		
Emergency contraception is safe if used correctly	24	30.0	23	28.7	33	41.3	61	76.3	8	10.0	11	13.7	34.3	0.000**
Emergency contraception can be obtained without a prescription or medical supervision	22	27.5	26	32.5	32	40.0	65	81.3	8	10.0	7	8.7	46.8	0.000**
Emergency contraception does not lead to health and reproductive problems	13	16.3	19	23.7	48	60.0	68	85.0	4	5.0	8	10.0	75.7	0.000**
Usual contraceptives can be used immediately after emergency contraception	10	12.5	18	22.5	52	65.0	57	71.2	9	11.3	14	17.5	57.8	0.000**
The emergency contraceptive pill does not cause an abortion	11	13.7	20	25	49	61.3	62	77.5	7	8.8	11	13.7	65.9	0.000**
Emergency contraception does not lead to infertility.	17	21.3	23	28.7	40	50.0	59	73.8	11	13.7	10	12.5	45.4	0.000**
Emergency contraception does not reduce the chances of pregnancy	12	15.0	21	26.3	47	58.7	55	68.7	9	11.3	16	20.0	47.6	0.000**
Doctors and nurses can provide correct information about emergency contraception.	61	76.3	11	13.7	8	10.0	74	92.5	2	2.5	4	5.0	8.81	0.012*
Women who use emergency contraception must undergo a medical examination first before using them	20	25.0	11	13.7	49	61.3	56	70.0	9	11.3	15	18.7	35.3	0.000**
Emergency contraceptive approved by the Ministry of Health	11	13.7	49	61.3	20	25	53	66.2	10	12.5	17	21.3	52.0	0.000**

Continue Table (3): Distribution of studied nurses regarding their attitude about emergency contraception at pre- intervention, post-intervention phases (n=80)

Attitudes items	Pre-intervention						Post-intervention						X2	P-value
	Agree		Uncertain		Disagree		Agree		Uncertain		Disagree			
	No	%	No	%	No	%	No	%	No	%	No	%		
May use emergency contraception in the future and advise friends to use it	35	43.7	20	25.0	25	31.3	69	86.2	4	5.0	7	8.8	31.9	0.000**
Emergency contraception does not lead to mistrust between spouses and the occurrence of social problems.	9	11.3	16	20.0	55	68.7	58	72.5	13	16.3	9	11.2	69.2	0.000**
Emergency contraception is becoming more and more widely used.	19	23.7	24	30.0	37	46.3	55	68.8	16	20.0	9	11.2	36.1	0.000**
It is easy to use emergency contraception.	23	28.7	24	30.0	33	41.3	70	87.5	4	5.0	6	7.5	56.7	0.000**
Emergency contraception does not cause birth defects	14	17.5	16	20.0	50	62.5	60	75.0	12	15.0	8	10.0	59.5	0.000**
Not all women can use emergency contraception	36	45.0	11	13.7	33	41.3	57	71.2	9	11.3	14	17.5	12.6	0.002*
Emergency contraceptives are useful in cases of sexual assault	43	53.8	9	11.2	28	35.0	72	90.0	4	5.0	4	5.0	27.2	0.000**
Emergency contraception can be used more than once	31	38.8	17	21.2	32	40.0	59	73.8	9	11.2	12	15.0	20.2	0.000**

*Significant (P<0.05)

** Highly Significant (P<0.001)

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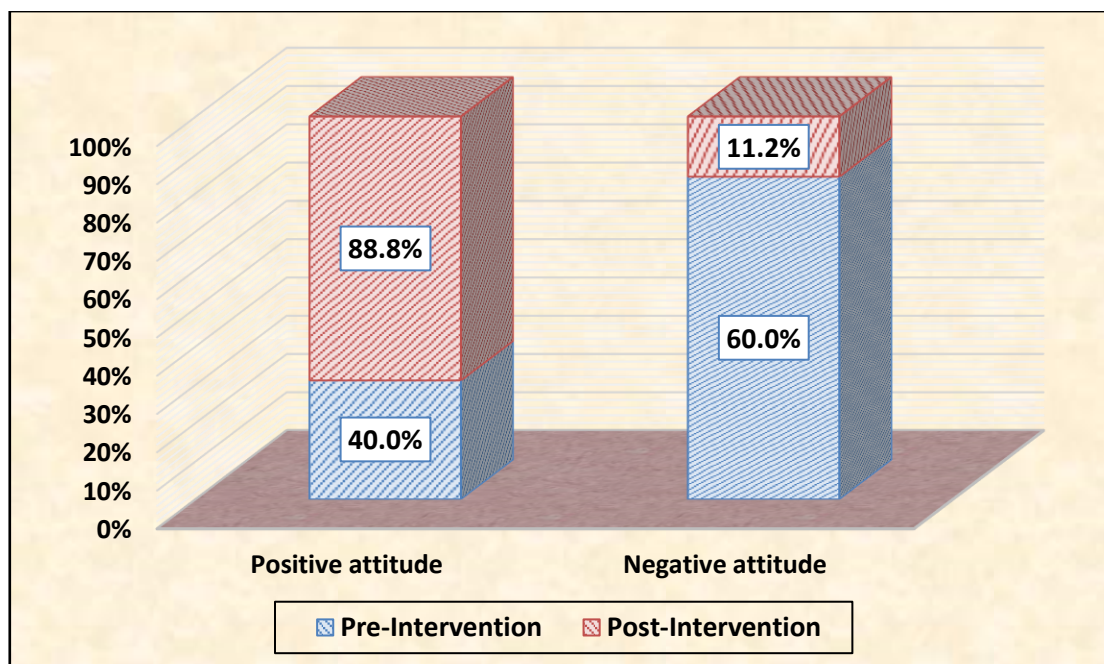


Figure (2): Distribution of studied nurse regarding the total attitude score about emergency contraception at pre- intervention and post- intervention phases (n=80)

Table (4): Correlation between studied nurse's total knowledge and attitude score at pre-intervention, and post- intervention phases (n=80)

Variables	Total knowledge		Post-intervention	
	Pre-intervention			
	r	P-value	R	P-value
Total attitude	0.651	0.000**	0.611	0.000**

****Highly Significant (P≤0.001)**

Discussion

Regarding socio demographic characteristics. The results of the current study revealed that, less than half of studied sample were in age group 25-35 years with a mean age of 37.97±10.46 years. The results were in accordance with the study of **Gupta, et al., (2019)**, who studied " Health care providers' knowledge, attitudes and perceived barriers towards emergency contraception in a sub-Himalayan state", India who reported that 54% of nurses were in age group 24-29 years. Also, **Henry, et al., (2021)** who studied "Dynamics of Emergency Contraceptive Use

in Accra" showed that, nearly half of women were aged between 25 and 34 (46.3 percent).

On contrary to **Bako, et al., (2021)** who studied "Knowledge, attitude and practice of emergency contraception amongst Healthcare Workers in IDP camps, Nigeria" proved the modal age group of the Nurse was 30-39 years. Also, the results of the current study disagreed with **Mostafa, et al., (2020)** who assess "Nurses' Knowledge about Family Planning Methods in Health Centers" in Lattakia and reported the nurses aged older than 45 years constituted 51.72%, and 41.38% aged 31-45 years.

Concerning marital status, the result of the current study clarified that, more than three quarters of the studied nurses were married. The results of the current study relatively similar to the study of **Jindal, et al., (2020)** who studied " Emergency contraception: Knowledge among service providers (nursing staff) in a private medical college" who reported that 9.2% were unmarried. On the other hand, this result disagreed with **Gothwal, et al., (2020)** which studied "knowledge, attitude, and practice of contraception among nursing staff, India" showed that 41% of nurses were married.

Regarding residence the result of the current study illustrated that, less than three quarters of nurses were from rural areas. The results disagreed with **Hassan, et al., (2020)** who study " The effect of an educational guidelines on childbearing women's knowledge, attitude and their intention regarding emergency contraceptive use" and showed that 60.9% of participants were urban residence that in line with **Sharma, (2017)** in study " Understanding of emergency contraception among nursing staff in a tertiary care hospital of Andaman and Nicobar Islands" That proved 83% of nurses were urban residence.

The results of the current study showed that, less than half of studied nurses had more than ten years of experiences that disagreed with study of **Gupta, et al., (2019)** who showed that, more than half of the nurses had working experience of less than ten years. The current results also differed with **Ashimi, et al., (2016)** who studied "Factors associated with nurses' knowledge and prescriptive attitudes toward emergency contraception" and reported that (54%) of nurses were <6 years of experiences.

Concerning educational level the current study showed that less than three quarters of nurses had technical nursing education that

supported by the study of **Parvin, et al., (2021)** in a study of " Nurses' Knowledge Regarding Contraceptive Methods, Dinajpur" that showed 76% of nurses had technical Nursing education. On the other hand, the current result disagreed with **Mostafa, et al., (2020)** who showed that, 72.41% of nurses who studied were had nursing after elementary school.

The current study showed that, overall level of knowledge regarding emergency contraceptive methods was poor among studied nurses at pre intervention phase, where less than two thirds of studied nurses had poor knowledge regarding emergency contraception, less than one third of them had good knowledge about it. This result may be due to the issue of using contraceptive methods after sexual intercourse in our culture is deficient and not completely accepted.

The results of current study were in the same line with **Sanz-Martos, et al., (2021)**, who studied "Educational program on sexuality and contraceptive methods in nursing degree students" and pre-intervention scores showed that 57.8% of the participants scored insufficient or poorly for level of knowledge. However, that percentage decreased significantly after the intervention to 0.9% ($p < 0.001$).

Moreover, the results were matched with **Mohammed et al., (2019)** who studied "Pre-service knowledge, perception, and use of emergency contraception among future healthcare providers" Egypt, mentioned that high percentage of maternity nurses had poor knowledge about emergency contraception.

On the other hand, the current study showed that, overall level of knowledge regarding emergency contraceptive methods was good among studied nurses at post intervention phase, where more than three quarters of studied nurses had good

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knowledge regarding emergency contraception, while few nurses (more than one tenth) had poor knowledge about it. This result may be due to nurses' interest about the training and the positive effect of the educational booklet. Also, nurses were more interested and satisfied during the learning sessions.

This result was in consistent with **Hashem et al., (2022)** who studied " Effect of Educational Instructional Module on Childbearing Women's Awareness Regarding Emergency Contraception. " and the results cleared that, about two third of the studied women had low level of knowledge regarding emergency contraception pre intervention with the main source of knowledge was social media among slightly half of them, while 3 months post intervention the level of knowledge was significantly improved to be high among more than three quarter of them.

Concerning, studied nurses' attitude regarding emergency contraception. The result of current study cleared that, there was a highly statistical significant difference between the results of post-intervention compared to pre-intervention in favor of post-intervention regarding all items of studied nurses' attitude regarding emergency contraception. The improvement in all items of nurses' attitude as recorded can be attributed to women paying more attention to educational program sessions. In addition, improvement of knowledge, motivation, and behavioral skills are necessary to change related behaviors and attain correct attitude and self-care behaviors.

The result of current study supported by **Woldu, et al, (2022)** who conducted a study "Effect of training provided on knowledge and attitude of emergency contraception among adolescent students in Asmara ", Eritrea, and the results showed a significant improvement in attitude of students about

emergency contraception after receiving training than before training.

The current study showed that, overall level of attitude regarding emergency contraceptive methods was negative among studied nurses at pre intervention phase, where three fifth of studied nurses had negative attitude regarding emergency contraception, and less than two fifth of them had positive attitude about it. This result also reflected the importance of the educational program and continuous education for nurses on improving their attitude regarding emergency contraception.

The current results were in congruent with **Prem, et al., (2020)** who studied "Knowledge and attitudes about the use of emergency contraception among college students in Tamil Nadu, India" and the results reported that, 59.0% of students had negative attitude toward emergency contraception.

Also, the results agreed with **Ekhtiari, et al., (2018)** who conducted "Survey of Knowledge and Attitude toward Emergency Contraceptive Method among Married Women in Reproductive Age Group" and the results showed that, about 38.6% of women were aware of the general perception, whereas 61.4% were not aware of it at all. In the target group, 22.6% and 73.3% had positive and negative attitudes toward the use of EC method, respectively, and 4% were neutral on this issue.

Moreover, the results matched with **AbdElmoniem and Abdelhakam (2018)** who studied" Effect of Emergency Contraception Guidelines Intervention on women's knowledge and Attitude ", and the results revealed that the majority had negative attitude at pre intervention about the availability of EC.

On the other hand, the current study showed that, overall level of attitude regarding emergency contraceptive methods

was highly positive among studied nurses at post intervention phase, where more than two thirds of studied nurses had highly positive attitude regarding emergency contraception, and about one tenth of them had negative attitude about it. This result may be attributed to nurses paying more attention to educational program sessions and active participation between researchers and studied nurses. The current results agreed with **Sanz-Martos, et al., (2021)**, who reported that, participants' attitude increased significantly to 76.7% ($p < 0.001$) after the intervention.

Regarding, correlation coefficient between studied nurse's total knowledge and attitude score regarding emergency contraception at pre- intervention and post-intervention phases. The current study clarified that, there was a highly statistical significant positive correlation between total knowledge and total attitude scores regarding emergency contraception at pre-and post-intervention phase. That supported with **Colarossi, et al, (2022)** in study "Emergency contraception education for health and human service professionals: an evaluation of knowledge and attitudes" USA, that revealed increase correlation between total knowledge and total attitude of health provider regarding emergency contraception before and after training.

The current results were also agreed with the study of **Hassan, (2020)** who found a positive association between knowledge and attitude after intervention. Participant with good knowledge had a substantially higher positive attitude than those with poor knowledge.

Conclusion:

The educational intervention was effective on improving the level of knowledge and attitude of maternity nurses regarding emergency contraception. There was a significant improvement in the total score of

maternity nurse's knowledge and attitude regarding emergency contraception at post intervention phase compared to pre intervention phase. Furthermore; there was a highly statistical significant positive correlation between studied nurses' total knowledge and total attitude scores regarding emergency contraception at pre-and post-intervention phase. Therefore the study aim was achieved and the research hypotheses were support.

Recommendations:

- Applying continuous in-service training program for maternity nurses to improve their knowledge and attitude regarding emergency contraception.
- Periodic evaluation of knowledge and attitude for maternity nurses regarding emergency contraception to assess what needs and appraisals regarding emergency contraception.

Regarding further studies:

- Conduct a prolonged study on large sample size and in different settings as: family health centers and other maternity care settings in relation to evaluate knowledge and attitude regarding emergency contraception.
- Further studies are needed to investigate the barrier that prevents obstetric nurses attending training program.
- Developing of a national program regarding emergency contraception in Egypt for maternity nurses.

References:

AbdElmoniem S, Abdelhakam E (2018). Effect of Emergency Contraception Guidelines Intervention on Women's Knowledge and Attitude. https://www.researchgate.net/publication/329999503_Effect_of_Emergency_Con

Effectiveness of Educational Intervention on Knowledge and Attitude of Maternity Nurses regarding Emergency Contraception

trapection_Guidelines_ Intervention_ on_ Women's_Knowledge_and_Attitude.

Alkhazrajy L.A, and Hadi A.H, (2014). Knowledge, attitudes & practice about emergency contraception among sample of women attending primary health care centers in Baghdad, *European Journal of Biology and Medical Science Research*, 2(2), p:2-3 Available at <http://www.eajournals.org/wp-content/uploads/knowledge-Attitudes-Practice-about-Emergency-Contraception-among-Sample-of-women-Attending-primary-Health-Care-Centers-in-Baghdad.pdf>.

Ashimi, A. O., Amole, T. G., Muhammad, S. A., Aliyu, L. D., Garba, N. A., & Iiyasu, Z. (2016). Factors associated with nurses' knowledge and prescriptive attitudes toward emergency contraception in Northern Nigeria. *Annals of African medicine*, 15(2), 91–92.

Bako, B., Audu, B. M., Kawuwa, M. B., Mana, A., & Peter, A. (2021). Knowledge, attitude and practice of emergency contraception amongst Healthcare Workers in IDP camps and Host Community Clinics in Jere and Maiduguri Metropolitan Local Government Areas, Borno State, Nigeria.

Brant, A., Shin, R., & Batur, P. (2022). Contraception: Evidence-Based Practice Guidelines and Recommendations. In *Clinical Reproductive Medicine and Surgery* (pp. 553-571).

Chalernphon, A. (2021). A narrative review of adolescents' knowledge, attitudes and utilisation of contraception in Cambodia, Lao PDR, Myanmar, Thailand and Vietnam.

Colarossi, L., Billowitz, M., & Breitbart, V. (2022). Emergency contraception education for health and human service professionals: an evaluation of knowledge and attitudes. *Health Education Journal*, 69(2), 175-182.

Ekhtiari, A., Amirkhani, Z., Esfahani, A., Bayesh, S., Najibpour, R., & Saghafi, M. (2018). Survey of knowledge and attitude toward emergency contraceptive method among married women in reproductive age group. *Jundishapur Journal of Health Sciences*, 10(1).

Endler, M., Li, R. H. W., & Gemzell-Danielsson, K. (2022). Effect of levonorgestrel emergency contraception on implantation and fertility: a review. *Contraception*.

Gothwal, M., Tak, A., Aggarwal, L., Rathore, A. S., Singh, P., Yadav, G., & Sharma, C. (2020). A study of knowledge, attitude, and practice of contraception among nursing staff in All India Institute of Medical Sciences, Jodhpur, Rajasthan. *Journal of family medicine and primary care*, 9(2), 706.

Gupta, M., Verma, M., Kaur, K., Iyengar, K., Singh, T., & Singh, A. (2019). Competency assessment of the medical interns and nurses and documenting prevailing practices to provide family planning services in teaching hospitals in three states of India. *PloS one*, 14(11), e0211168.

Hashem, S. M., El-Gamal, S. M. A., Elbohoty, S. B., & El-Nagar, A. E. (2022). Effect of Educational Instructional Module on Childbearing Women's Awareness Regarding Emergency Contraception. *Tanta Scientific Nursing Journal*, 26(3), 242-263.

Hassan, H. E. (2020). Call to Improve Women's Awareness Regarding Emergency Contraception in Arab Societies. *Journal of Human Physiology*, 2(2).

Henry, E. G., Agula, C., Agyei-Asabere, C., Asuming, P. O., Bawah, A. A., Canning, D., & Shah, I. (2021). Dynamics of Emergency Contraceptive Use in Accra, Ghana. *Studies in Family Planning*, 52(2), 105-123.

H Ibrahim, W., R Mohamed, R., & M Maklof, E. (2022). Effect of educational

program on knowledge and attitude of childbearing women about intrauterine copper device as emergency contraceptive method. *Egyptian Journal of Health Care*, 13(1), 99-113.

Jindal, M., Sharma, M., Anand, S., & Minhas, S. (2020). Emergency contraception: Knowledge among service providers (nursing staff) in a private medical college. *National Journal of Physiology, Pharmacy and Pharmacology*, 10(09).

Leslie HH, Sun Z, Kruk ME (2017). Association between infrastructure and observed quality of care in 4 healthcare services: a cross-sectional study of 4,300 facilities in 8 countries. *PLoS Med* 14:e1002464.

MH, M., AR, S., OA, S., & AE, G. (2017). Assessment of Nurse's Knowledge, and Perception Regarding Emergency Contraception. *Egyptian Journal of Health Care*, 7(4), 115-130.

Millsap, R. E., & Maydeu-Olivares, A. (2019). *The SAGE handbook of quantitative methods in psychology*. Sage Publications.

Mohammed S, Abdulai AM, Iddrisu OA. (2019). Pre-service knowledge, perception, and use of emergency contraception among future healthcare providers in northern Ghana. *Contracept Reprod Med*. 2019 Jan 24;4:1. doi: 10.1186/s40834-018-0082-9.

Mostafa, N., Saleh, L., & Al-Shawakh, M. (2020). Assessment the Nurses' Knowledge about Family Planning Methods in Health Centers in Lattakia. *Tishreen University Journal-Medical Sciences Series*, 42(1).

Nivedita, K. (2020). Knowledge, attitude and practice of emergency contraception on nursing personnel. *Journal of Clinical and Diagnostic Research: JCDR*, 8(9), OC20.

Nyirenda W.C. and Besa C. (2019). Knowledge, attitude and practices of emergency contraception among Medical/Dental Students at the Copper belt

University School of Medicine. *Medical Journal of Zambia* 46.

Parvin, M. M., Al Mannah, M. F. K., & Sathi, E. J. (2021). Nurses' Knowledge Regarding Contraceptive Methods at Dinajpur Medical College Hospital. *Randwick International of Social Science Journal*, 2(2), 106-112.

Prem Davis, Malaimala Sarasveni, Jayalakshmi Krishnan, Lekha Diwakara Bhat & Naveen Kumar Kodali. (2020). Knowledge and attitudes about the use of emergency contraception among college students in Tamil Nadu, India. *Journal of the Egyptian Public Health Association*. <https://doi.org/10.1186/s42506-019-0030-9>.

Sanz-Martos, S., López-Medina, I. M., Álvarez-García, C., & Álvarez-Nieto, C. (2021). Educational program on sexuality and contraceptive methods in nursing degree students. *Nurse Education Today*, 107, 105114.

Shakya, S., Shrestha, S., Shrestha, R. K., Giri, U., & Shrestha, S. (2020). Knowledge, attitude and practice of emergency contraceptive pills among community pharmacy practitioners working in Kathmandu Valley: a cross-sectional study. *BMC health services research*, 20(1), 1-18.

Sharma, C. (2017). Understanding of emergency contraception among nursing staff in a tertiary care hospital of Andaman and Nicobar Islands, India. *Journal of Basic and Clinical Reproductive Sciences*, 6(1).

Singh, S., Shekhar, C., Bankole, A., Acharya, R., Audam, S., & Akinade, T. (2022). Key drivers of fertility levels and differentials in India, at the national, state and population subgroup levels, 2015–2016: An application of Bongaarts' proximate determinants model. *PloS one*, 17(2), e0263532.

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regarding Emergency Contraception**

Sirirat, C., Pumpaibool, T., & Phupong, V. (2015). Knowledge attitude and intention of preventing unwanted pregnancy among female undergraduate students in Bangkok, Thailand. *Journal of Health*

Turok, D. K., Gero, A., Simmons, R. G., Kaiser, J. E., Stoddard, G. J., Sexsmith, C. D. & Sanders, J. N. (2021). Levonorgestrel vs. copper intrauterine devices for emergency contraception. *New England Journal of Medicine*, 384(4), 335-344.

WHO (2021). Family Planning: A Global Handbook for Providers. 2018 World Health Organization and Johns Hopkins Bloomberg School of Public Health.

Woldu, A., Ghirmai, L., Tesfamariam, E. H., & Gebreyohannes, G. (2022). Effect of training provided on knowledge and attitude of emergency contraception among adolescent students in Asmara, Eritrea, a quasi-experimental study.

تأثير التدخل التعليمي على معلومات وإتجاهات الممرضات بقسم النساء والتوليد تجاه وسائل منع الحمل الطارئة

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استخدام وسائل منع الحمل الطارئة يقلل من مخاطر الحمل الغير مقصود و الذي يساهم في تقليل نسبة الوفيات. لذا هدفت هذه الدراسة إلى تقييم تأثير التدخل التعليمي على معلومات وإتجاهات الممرضات بقسم النساء والتوليد تجاه وسائل منع الحمل الطارئة. وتم استخدام تصميم شبه تجريبي (قبل/بعد الاختبار) لاجراء هذه الدراسة. وقد اجريت هذه الدراسة في كلا من (القسم ، العيادات ، طوارئ) النساء والتوليد بمستشفى بنها الجامعي حيث شملت العينة عدد ٨٠ ممرضة وقد أظهرت هذه النتائج الي انه يوجد فروق عالية ذات دلالة احصائية بين النتيجة الكلية للمعلومات المتعلقة بوسائل منع الحمل الطارئة قبل وبعد التدخل التعليمي. هذه الدراسة افادت بتحسين اتجاهات معظم الممرضات نحو وسائل منع الحمل الطارئة بعد التدخل التعليمي مقارنة بما قبل. كما وجد ان التدخل التعليمي كان فعال للغاية في تحسين معلومات واتجاهات الممرضات بخصوص وسائل منع الحمل الطارئة ويظهر ذلك من خلال فروق النتائج الكلية للممرضات قبل وبعد تقديم التدخل التعليمي. واوصت هذه الدراسة بضرورة عمل البرامج التعليمية لتحسين معلومات واتجاهات الممرضات العاملات بوحدات امراض النساء والتوليد تجاه وسائل منع الحمل الطارئة.